HEWLETT-PACKARD

# HP-67/HP-97

### Users' Library Solutions

Games



#### INTRODUCTION

In an effort to provide continued value to it's customers, Hewlett-Packard is introducing a unique service for the HP fully programmable calculator user. This service is designed to save you time and programming effort. As users are aware, Programmable Calculators are capable of delivering tremendous problem solving potential in terms of power and flexibility, but the real genie in the bottle is program solutions. HP's introduction of the first handheld programmable calculator in 1974 immediately led to a request for program solutions — hence the beginning of the HP-65 Users' Library. In order to save HP calculator customers time, users wrote their own programs and sent them to the Library for the benefit of other program users. In a short period of time over 5,000 programs were accepted and made available. This overwhelming response indicated the value of the program library and a Users' Library was then established for the HP-67/97 users.

To extend the value of the Users' Library, Hewlett-Packard is introducing a unique service—a service designed to save you time and money. The Users' Library has collected the best programs in the most popular categories from the HP-67/97 and HP-65 Libraries. These programs have been packaged into a series of low-cost books, resulting in substantial savings for our valued HP-67/97 users.

We feel this new software service will extend the capabilities of our programmable calculators and provide a great benefit to our HP-67/97 users.

#### A WORD ABOUT PROGRAM USAGE

Each program contained herein is reproduced on the standard forms used by the Users' Library. Magnetic cards are not included. The Program Description I page gives a basic description of the program. The Program Description II page provides a sample problem and the keystrokes used to solve it. The User Instructions page contains a description of the keystrokes used to solve problems in general and the options which are available to the user. The Program Listing I and Program Listing II pages list the program steps necessary to operate the calculator. The comments, listed next to the steps, describe the reason for a step or group of steps. Other pertinent information about data register contents, uses of labels and flags and the initial calculator status mode is also found on these pages. Following the directions in your HP-67 or HP-97 **Owners' Handbook and Program Listing I** and Program Listing I and Program Listing indicates on which calculator the program was written (HP-67 or HP-97). If the calculator indicated differs from the calculator you will be using, consult Appendix E of your **Owner's Handbook** for the corresponding keycodes and keystrokes converting HP-67 to HP-97 keycodes and vice versa. No program conversion is necessary. The HP-67 and HP-97 are totally compatible, but some differences do occur in the keycodes used to represent some of the functions.

A program loaded into the HP-67 or HP-97 is not permanent—once the calculator is turned off, the program will not be retained. You can, however, permanently save any program by recording it on a blank magnetic card, several of which were provided in the Standard Pac that was shipped with your calculator. Consult your **Owner's Handbook** for full instructions. A few points to remember:

The Set Status section indicates the status of flags, angular mode, and display setting. After keying in your program, review the status section and set the conditions as indicated before using or permanently recording the program.

REMEMBER! To save the program permanently, **clip** the corners of the magnetic card once you have recorded the program. This simple step will protect the magnetic card and keep the program from being inadvertently erased.

As a part of HP's continuing effort to provide value to our customers, we hope you will enjoy our newest concept.

### TABLE OF CONTENTS

RISK See who has the larger total after playing a few rounds of this gambling game against the machine. You can select the personality of the machine.	•	1
BLACKJACK WITH A PERMANENT BANK See if you can beat the dealer in this familiar game also known as the Game of 21.		6
BELL-FRUIT (MILLS STANDARD). Try to hit the jackpot against this electronic one armed bandit.	•	13
TURN THE DIE Try this variation of NIM using a die to determine the four moves.	•	19
WORD ENCODER Create your own words for storing on data cards for various word games.	•	24
WORD GAME SUBROUTINE	•	30
HANGMAN WORD GAME Try to guess the word by guessing letters. This program uses both the WORD ENCODER and WORD GAME SUBROUTINE.	1	35
PRO FOOTBALL SIMULATION	•	40
ELECTRONIC CONTRACT BRIDGE SCORE PAD Keep contract bridge scores for up to 20 individual players, using this scorekeeping program.	•	45
DUPLICATE BRIDGE SCORE WITH RUNNING TOTALS	3	55
BATTLESHIP	•	60

Program Title Risk

Contributor's NameDick JenssenAddressMeteorology Department/Melbourne UniversityCityParkvilleState VictoriaZip Code 3052AUSTRALIA

**Program Description, Equations, Variables** A gambling game. Current player is given a digit (2 through 5: probability of N is N/15). He may accept this as his score for current round or add to it by requesting more digits. If digit selected is same as first digit, score goes to zero and move ends. Winner is player with highest sum of scores after R rounds. Personality of machine and number of rounds may be selected by player. The personality (P) varies between 0 and 5. When P = 0, the machine is rash, optimistic and impulsive; when P = 5, the machine is cautious, negative and dull. If P and R are not set by human, default values are P = 2.5, R = 5.

**Operating Limits and Warnings** 

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 Sketch(es)

Sample Pro	blem(s) WIN A STANDARD GAME	P = 2.5,	R = 5)			
PRESS	COMMENT	OUTPUT	COMMENT			
(A)	Begin	4.	Base number is 4.			
(R/S)	I want another number.	5.4 E09	New # is 5; total score is 9			
(R/S)	Get another number.	2.4 E11	New # is 2; total score is 11.			
(CHS)	Stop.	11.11	Score is 11; last player got 11.			
			Since score > 0 human is winning.			
		4.	This display is automatic			
			Machine's base number is 4. Then			
		3.4 E07	This display is also			
automatic. New # is 3, total score is 7						
		4.4 EOO New # is 4. This is same as the				
		initial #,	so machine bombs out. Then:			
		11.00	Score is 11, last player score			
		is zero.	Human still winning. Then:			
		5.	Base # for human is 5.			
(R/S)	Another	2.5 E07				
(R/S)	Another	3.5 E10				
(CHS)	Stop	21.10	Score is 21, last player 10.			
		5.	Machine's number.			
		5.5 E00	Machine bombs again.			
		21.00	Score is 21, last player 0			
		3.	Human base number.			

AND SO ON: BUT THE NEXT GAME...!

REFERENCES: This is a version of the HP-65 program "Game of Not-one", #03452A.

### **User Instructions**

	RISK		5
(P,R): Go			

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
1	LOAD SIDES 1 AND 2 OR PROGRAM			
2	BEGIN		Α	В
	B is human's base number			
3	CONTINUE/END . Go to 3a or 3b			
3a	CONTINUE		R/S	N.B SS
	N is new # B is original #, SS is score.			
	If $N = B$ , then $SS = 0$ and after a 1 second			
	pause control goes automatically to step 4.			
	If N ≠ B, go to 3a or 3b			
ЗЪ	END CURRENT PLAY		CHS R/S	GG.SS
	GG is current game score (difference between			
	human and machine sums). If GG $< 0$ , machine			
	is winning. Display is for 5 seconds, then			
	step 4 automatically taken.			
4	MACHINE MOVES			В
	Display is for 5 seconds,			N.B SS
	then display is for 1 second. If $N = B$ , then			
	SS = 0 and control goes to 5. If $N \neq B$ , then			
	machine decides whether to select another			
	number (back to 4) or end (goes to 5).			
5	New game score. Then, automatically, control			GG.SS
	passes to 6.			
6	CONTINUE/END			
	If number of rounds < R, machine selects a			
	base # for human and goes to step 3. If			В
	number of rounds = R, invert display and read			Message
	Win/Loss message			
	TO MANUALLY SET P,R.			
	Replace step 2 by			
2	Set P $0 < P < 5$	P		
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	R		В
	"Error" appears. Press "CLX" and set valid			
	P.R. then press A.			

4				<b>Q7</b>	Program	Lis	tir	ng I				
STEP	KE	Y ENTRY	KEY CODE		COMMENTS	STEP	KEY	ENTRY	KEY CODE		СОМ	MENTS
	001	*LBLA	21 11			e	957	GT01	22 01			
	002	F3?	16 23 03			Ē	958	<b>∗</b> LBL3	21 03			
	<b>0</b> 03	GT09	22 69			e	959	GSBD	23 14			
	004	2	62			e	960	GSBC	23 13			
	005		-62			e	961	PSE	16 51			
	006	5	05			e	962	SF1	16 21 01			
	007	ENT↑	-21			e	963	1	01			
	008	5	05			e	364	RCLA	36-11			
	009	<b>∗</b> LBL9	21 Ø9			e	965	X≠Y?	16-32			
	010	INT	16 34			e	966	GT09	22 09			
	011	LN	32			e	967	CF1	16 22 01			
	012	R∔	-31			e	968	RCL8	36 08			
	013	LSTX	16-63			e	969	X>0?	16-44			
	014	STOA	35 11			e	970	GT08	22 <b>0</b> 8			
	015	9	09			e	971	0	0E			
	016	÷	-24			e	972	GT07	22 07			
	017	SIN-	16 41			Ē	973	*LBL8	21 08			
	018	R∔	-31			e	974	EEX	-23			
	019	18	54			Ē	775	2	82			
	020	LSTX	16-63			Ē	176	6707	22 07			
	021	2	02			Ē	777	*/ RI 9	21 09			
	<b>0</b> 22	+	-55			Ū.	78	RCI 9	36 09			
	<b>R</b> 23	1	Ri			F	779	RCLE	36 06			
	A24	Â	0E			F	180	1	00 00 A1			
	025	÷	-24			P	181	4	01 04			
	026	LN	32			e e	182	÷	-24			
	027	ST09	35 09			e e	197	- 1	2 T Ø 1			
	<b>Ø</b> 28	I STX	16-63			e e	103 194		-45			
	A29	20111	-62			e G	10 <del>7</del> 185	CHS	-95			
	020 030	3	87 87			E E	186	1 N	72			
	031	+	-55			e G	100 197	±	-24			
	Ø32	SIN-	16 41			ū	200	+1 PI 7	21 87	1		
	033	й Й	10 11 AR			0 G	200	#LDLI TNT	16 74			
	674	STOR	75 <i>8</i> 8			e 0	102	etot	10 34 75 40			
	034 075	7	00 00 07				170	5101 CE0	33 40 16 21 80	1		
	035	ENTT	-21			0 0	200	570 V-00	16 21 66	1		
	037	5	65 65			6	122 207	CTOA	22 BA	1		
	038	γx	71			0 6	123 201	41 DI 0	22 04	ł		
	A79	ston	35 14			0	1 <b>24</b> 105	FLDL2	10 27 81	1		
	040 040	2	00 I T 02			0 6	13J 202	- F I ? - CT D Q	10 23 01	1		
	040 041	7	02 07			0 0	170 107	6103 Drio	22 03 75 80	1		
	041 042	a a	80 80			0 2	121	RCLO PCL7	30 00 76 07	1		
	042	STOR	75 12				200	VIVO	15-74	1		
	040 Й44	1	00 IZ R (			0 1	133	071: СТОА	10-34 23 <i>04</i>	1		
	044 045	7	01 07			1	00	6104 al Di G	22 04	1		
	045 046	STOC	75 17			1	01	FLDL7	21 03	1		
	040 047	*I RI Ø	21 00			1	02	630D 590	23 12 12 27 82			
	040	ALDEO CEG	12 99 BG			1	03	Г <i>2:</i> СТО4	10 23 02 22 64	1		
	040 049	CSRC	27 17			1	04 05	6104 DCE	16 51	1		
	04J 050	*i Ri 1	20 10 21 Ai			1	05	r JE De 71	10 JI 16 35 AC	1		
	A51	FLDLI D/G	51			1	00	0521	10 23 40	1		
	051 052	X709	16-45			1	01 00	610Z	22 02			
	052	CT07	20 40			1	00	#LDL4	21 04			
	0JJ 054	6103	22 03			1	107	BOLA	23 14	1		
	0J4 055	6300	16 97 89		1	1	10	KULH	30 11	1		
	0JJ 052	FZ? CTO7	10 23 02 22 87		F	- 1	11	1	81 17	1		
	010	6103	22 03		REGIS	TERS <sup>1</sup>	12	-	-45	<b>.</b>		
0		1	2	3	4 5	5	6		7	8		9
		0.1						<u>.</u>	07			80
S0		S1	S2	S3	S4 S	55	s	N	S	58 (	GG	گn(P)
^			B			<u></u>			F		T	
~	R		239		Ŭ 17	1680	07		Random #		ן - U	sed

### Program Listing II

STEP	KEY	ENTRY	KEY	CODE		COMMENTS	STE	РК	EY ENTRY	KEY CODE	COMM	IENTS
i	13	STOA	35	11 <b>T</b>				169	F0?	16 23 00		
1	14	X≠0?	16-	42 1				170	CHS	-22	1	
1	15	GTOØ	22 -	00 T				171	ST+8	35-55 <b>0</b> 8	1	
1	16	CF3	16 22 (	03 T				172	<b>AB</b> S	16 31	1	
1	17	DSPØ	-63	00 T				173	EEX	-23	1	
1	18	R∔	-	31 <b>1</b>				174	2	02	1	
i	19	X>0?	16-	44 1				175	÷	-24	1	
i	20	GT09	22	09 T				176	RCL8	36 08	1	
j	21	5		05 1				177	X>0?	16-44		
1	22	5		05 1				178	GT09	22 09		
1	23	1		01 <b>1</b>				179	CHS	-22		
j	24	7		07 <b>1</b>				180	+	-55		
-	25	8		<b>8</b> 8 1				181	CHS	-22		
1	126	<b>R</b> TN		24				182	GT08	22 <b>0</b> 8		
1	127 1	el Ri 9	21	<b>A</b> 5 1				183	*LBL9	21 09		
1	128	7		a7				184	+	-55	1	
1	120	, 7		a7 1				185	#I BI S	21 08		
ر ا	122	7		67 67				186		-63 62	1	
1	130	ن د		60 6.4				187	FIX	-11		
	(31	4 074		04 07				188	PPTX	-14		
1	132		<b>3</b> 4	10				189	PTN	24		
i.	133	KLBLD	17 22	12 00				100	*! DI E	27		
L	134	UF2	16 22	15				101	#LDLE	21 13		
1	135	65BE	23	10				191	U5F1 FTV	-63 01		
]	136	SUI		12				192		-11		
1	137	ST+7	35-55	07				193	KULE	36 13	1	
1	138	RCL6	36	06				194	X=07	16-43		
1	139	X≠Y?	16-	32				195	KULU	36 13		
1	140	GT08	22	08				196	RCLU	36 14	]	
1	141	1		01				197	X	-35		
i	142		-	62				198	RCLE	36 12		
i	143	ĺ		01 ]				199	÷	-24	]	
j	144	x	-	35 ]				200	FRC	16 44		
1	145	Ū		00 ]				201	RCLB	36 12	1	
1	146	ST07	35	07 ]				202	×	-35	1	
	147	R↓	-	31				203	RND	16-24	1	
	148	PSE	16	51				204	STOE	35-15	1	
	149	SF2	16 21	02				205	RCLC	36-13	1	
	150	RTN		24				206	÷	-24	1	
	151	*LBL8	21	88				207	INT	16-34	1	
	152		-	62				208	2	<b>0</b> 2	1	
	153	1		Ø1				209	-	-45	1	
	154	x	-	35				210	X<0?	16-45	1	
	155	+	-	55				211	GT09	22 09	1	
	156	RCL 7	36	07				212	3	03		
	157	10×	16	33				213	-	-45		
	158	x		35				214	X<0?	16-45		
	159	RTN		24				215	GT09	22 09		
	160	∗I RI C	21	13				216	4	Ū4		
	160	CSRF	27	15				217	-	-45		
	122	eTO7	75	R7				218	X<0?	16-45		
	162 167	STOR	75	RE				219	GT09	22 05		
	163	DSPA	-63	AA				220	5	85		
	125	EIV		.11				221	-	-45		
	103 122	PIN		24				222	#1 BL 9	21 85		
	100		54	14				223	LSTX	16-63		
	167	REBLU DCL 7	21	14				224	RTN	74		
	168	RULT	36	01 -	LAB	ELS		Ĩ	FLAGS	T	SET STATUS	
<u>\</u>	-	B D1 ave		Cont	р	D Dian 1 and	E Random	r# 0 <sup>M</sup>	achine	FLACE	TRIC	
G	0	r raye	r sum	Get	В	Display		- 1 F	inite	ON OFF		DISP
		5		0		4	6	M	ach.Mov		DEG XXX	FIX 🖾
) LOOP		1 LOC	)P	<sup>2</sup> LOOP		<sup>3</sup> JUMP	<sup>4</sup> JUMP	2	N = B	1 🖄 🗆	GRAD 🗆	SCI 🗆
5		6		7 1100		8 11000	9 TIMOC	3	Manual	2 🗌 💋	RAD 🗆	ENG 🗆
		1		JUMP		JULES	0000000	1	ЧŔ	13    131	4 I	···

Program Title	BLACKJACK W	JITH A PERMA	ANENT BANY	<
Contributor's Name	MOSHE M	BREINER	UNIVERSITY	
City CAMBRIN	DGE	State	MASS	Zip Code O2138

Program Description, Equations, Variables BLACK JACK IS A GAME OF CARDS, BEFORE THE
DEAL BEGINS THE PLAYER BUYS SOME CHIPS (C) AND PACES A BET (B),
THEN THE DEALER GIVES HIM A CARD FACE DOWN TAKES ONE CARD FACE UP FOR HIMSELF
GIVES ANOTHER CARD FACE DOWN TO THE PLAYER AND TAKES A SECOND CARD FACE DOWN FOR HIMSELE
COUNTING ANY ACE 1 OR 11, AS HE WEHES, ANY FACE CARD AS ID AND THE OTHER CARDS AT THEIR
FIP VALUES, THE PLAYER AND THE BANK TRY TO GET A COUNT AS NEARLY AS POSSIBLE TO
21, WITHOUT GOING OVER 21 (BUST). A BLACK JACK IS A COUNT OF 21 WITH THE FIRST
TWO CARDS (A+10 or A+ FACE CARD). IF THE PLAYER OR THE DEALER HAVE A BLACK [ACK (B.J.)
THE DEALER DISPAYS HIS SECOND CARD AND PROCEEDES TO THE LIQUIDATION : IF DEALER HAS B.J.
AND YOU DON'T, YOU LOOSE THE BET, IF BOTH HAVE B.J. IT'S A PUSH, IF ONLY THE PLAYER
HAS A B.J., HE WINS 12 TIMES THE BET. IF NOBODY HAS B.J. THE HP6T DISPAYS
0.0 AND IT IS YOUR TUNTO PLAY YOU CAN (1) SPLIT YOUR PAIR (2) HIT (3) STAND
(1) IF YOUR FIRST TWO CARDS ARE OF THE SAME DENOMIN'ATICN (TWO 5'S, TWO ACES ASO) YOU CAN CHOOSE
NOW AND ONLY NOW TO TREAT THEM AS TWO SEPARATE HANDS (SEE NOTE BELOW).
(2) YOU CAN ASK FOR ANOTHER CARD ASHANY TIMES AS YOU WISH . IN THE CASE OF THE SPLITTING PAIRS
YOU CAN ASK CARDS FOR THE FIRST OR THE SECOND HAND IN ANY ORDER, UNTIL YOU DECIDE TO
(3) STAND, NOW THE DEALER SHOWS HIS FIRST CARD AGAM (PAUSE) AND PRINT ITS SECOND
CORD (THE ONE LEFT FACE DOWN). THE STRATEGY OF THE DEALER IS NOT FREE .:
IF HIS TOTAL IS IT OR MORE IT MUST STAND, IF IT IS IG OR LESS IT MUST TAKE ANOTHER CARD
Operating Limits and Warnings THE COMPUTED DISPLAYS ERROR IF
$) C \leq O$ 2) $B > C$ 3) $B \leq O$
4) YOU PUSH IBI, THE SPLITTIN PAIR KEY, WHEN YOU DON'T HAVE A PAIR
TO SPLIT, OR YOU HAVE ASKED ALREADY FOR A CARD PRESSING IC, OR IF
2B>2 (YOU CANNOT AFFORD A DOUBLE LOSS)
5) YOU PUSH []], ASKING FOR A CARD IN THE SECOND HAND, WHILE YOU HAVE NOT
SPLIT THE PAIR

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Program Title		
		•
Contributor's Name		
Address		
City	State	Zip Code

Program Description, Equations, Variables IF HE HAS, FOR INSTANCE, A 34, HE ISNOT ALLOWED TO COUNT
THE ACE AS 1, AND MUST STAY. WHEN THE DEALER STAYS, IT COMPUTES YOUR NEW SUM
IN CHIPS, ACCORDING TO THE FOLLOWING RULE
i) THE CASE OF B.J. HAS BEEN ALREADY DISCUSSED
2) YOU WIN THE BET IF YOUR TOTAL IS \$21 AND 3) HIGHER OF THE TOTAL OF THE DEALER
3) YOU ARE A STAND OFF IF YOUR TOTAL IS \$21 AND EQUAL TO THE TOTAL OF THE DEALER
4) YOU LOOSE THE BET IF YOU BUST OR IF YOUR TOTAL IS \$21 BUT THE DEALER HAS
AHIGYER TOTAL 521
5) IN THE CASE OF SPLITTING PAIR THE TWO HANDS ARE COMPARED SEPARATELY.
THE PROGRAM AUTOMATICALLY GIVES TO THE MANDS THE MOST
CONVENIENT TOTAL COUNTING ACES 1 OR 14.
ALL CARDS ARE DISPLAYED IN THE MODE FIX 1. THE INTEGER PART IS THE CARD (A=1, K=13, Q=12, J=11, OTHER CARDS ARE PIP VALUES) THE FRACTIONAL PART IS .O IF THE CARD BELONGS TO THE DEALER .I IF THE CARD BELONGS TO THE FIRST HAND .2 IF THE CARD BELONGS TO THE SECOND HAND (SPLITTING PAIR ONLY) WHEN THE TOTAL C APPEARS, THE MANTISSA IS .I FOR THE FIRST PLAYER AND .2 FOR THE SECOND PLAYER Operating Limits and Warnings BET WHOLE EVEN DOLLARS ONLY (SYOU PLAY AN ODD DOLLARYOU LOSE 500, IN THE CASE YOU GET A BLACKJACK)

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К 8	FIRST HAND	SECOND HAND				
8	9	an and a state of the second secon	DEVER > HAND			
		9	2			
A	5	8	Ĵ.			
Q			7			
			5			
			J			
Let a sume inserve en en observe representation en antiparticipa tecnologicarticipa						
Sample Problem(s) EXAMP	LE OF A GAME HUSBAND AL	DWIFE STRART V	NITH \$ 1000 LOAD PRO			
1000 IFAT WAIT	SOME 30 SECONDS R/SI 16	NORE OUTPUT	,			
TO REPRODUCE EXAMPL	E BELOW STORE .14538	26 IN REGISTE	r C			
HUSBAND PLAYS FIRST	T AND BETS \$ 100					
100 IAT>	13.1 HUSBAN	) GETS A K				
3.0 DEALER GETS AN 8						
	1.1 HUSBAND	GETS AN A T	BLAK JACK! DEALERSHOWS			
	12,0 ,A QUE	EN ANDPAYS 13	TIMES THE BET:			
	1150.1 HUSBAN	D HAS NOW \$	เเรีย			
NOW WIFE PLAYS						
FC	1000.2 SHE ST.	ARTS WITH \$ 100	O, AND BETS 100			
100 A	> 9.1 WIFE'S	FIRST CARD IS A 9				
	2.0 DEALER	S FIRST CARD IS A 2				
	4.1 WIFE': S	ECOND CARD BA 4				
Solution(s)	00 NO BLAC	R JACK DEALER'S SE	COND CARD IS FACE DOWN			
WIFE DECIDEST	O SPLIT HER PAIRS.	,				
<u> B </u>	> 0.0 IGNERE	THIS OUTPUT (F	ISALWAIS () U)			
	> 5.1 FIRST	HAND GETS A 5				
	> 8.2 SECON	D HAND GETS AN &	3, WIFE STANDS			
	> 2.0 SECOND	CARD DEALER W	AS A 2			
	7.0 <u>T</u> CA	RD DEALER				
	5.0 IV CAN	RD DEALER	ALER BUSTS AND PANK			
	12:00,2 WIFE	HAS NOW \$ 120	20			

Reference (S) OFFICIAL RULES OF CARD GAMES 56 EDITION PAGES 228-230 HP 67-97 PROCRAM & A404A

### **User Instructions**

CHIPS BET

BLACK JACK NEW PLAYER

SPLIT PAIR HIT (1) HIT (2) STAND

7 SHUFFLE

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS	
١	LOAD PRGM (PART 1 AND 2)				
z	ENTER YOUR INITIAL CAPITAL IN CHIPS	С	FA		
	THE COMPUTER NOW SHUFFLES, WAIT APPROX.				
	30 SECOND THEN		R/5	IGNORE OUTPUT	
3	ENTER YOUR BET (INTEGER EVEN #)	Ē	A	1st card player	
	,			2" card dealer	
				2nd Card player	
				. 1	
	IF NEITHER DEALER NOR PLAYER HAVE B.T.			0.0	
	IF ANY OF THEM HAVE B.T			2nd card dealer	
				YOUR NEW C	
ч	IF YOU CAN AND WANT TO SPLIT YOUR PAIR		B	0.0	
5	HIT FOR FIRST HAND		С	CARD .1	
	OR HIT FOR SECOND HAND (IN THE CASE OF SPLITTING				
	PAIRS ONLY)			CARD 2	
6	REPEAT STEPS 4 85 AS HANY TIMES AS				
	YOU PLEASE IN ANY ORDER THEN				
Ĩ7	STAND		E	1st GARD DEALER	
				2 CARD DEALER	
				SULCESSIVE CARD	
				DEALER	
				YOUR NEW C	
8	FOR A NEW GAME OF THE SAME PLAYER			•	
	GO TO STEP 3				
	YOU MAY SHUFFLE THE DECK ATANY NOMENT				
	By PRESSING		E E		
	NAIT SOME TIME		R/S	IGNORE OUTPUT	
	OR YOU CAN FUT YOUR PET-SEED IN REG. O				
	PLEASE O < SEED < 1				
З	IF TWO PEOPLE ARE PLAYING PUSH		FC	CHIPS I the player	
	TO LET THE SECOND PLAYER PLAY HIS GAME.				
	NOW CO TO STEP 3				

### Program Listing I

10			í			<b>S</b> I a			116 1					
STEP		r I	KEY CODE		сомм	ENTS	STEF	, кі	EY ENTRY	κ	EY CODE		COMM	IENTS
Ø61	*LELa	21	15 11					a57	X>02		16-44			
802	ST09		35 09					051 058	5		N5			
<b>8</b> 83	ST07		Z5 07					000 050	a a		00 00			
AA4	LH		32					035 020	· · ·		55			
005			-52					000 021	TNT		16 34			
886	•		ĒĪ					001	CT+0	75-	55 89			
000	ST+7	35-	55 07					002	DCLO	00	75 89			
00, 008	ST+7	75-	-55 07					003	RUL3		30 03 94			
660	6749	75-	-55 89	ý-	27755	InTile	7	004 075			24	(	SPLIT	PAIRS
00J 010	2112	55	B2	-	MONN	TOF		860	ALDLD Eto	10	21 12	15 5	PUTTIN	ENRS I ECAIZ
010 011	<b>د</b> ۱۸		72		HIPS	1 01		966	F17 0707	10	23 81	., 5		THING LEGHLY
011	етал		75 00					067	6107		22 0: 72 17			
012	at Dia	21	12 15		·	-		068	KULU		36 13			
013	ALDLE CCDG	21	27 82		540665	E		069	RCLU		36 14			
014	6300		12 15					676	X≠Y?		16-32			
015	6!UE	22	16 13	Ô	ANT 0			071	GT07		22 07			
016	#LBLH		2. 11	9	TANE	SEC INNO		072	RCL9		36 09			A. COTO
017	SFO	10	21 80					073	RCL8		36 08	١S	PLAYER	COVER ED
018	RCL9		36 03					074	2		02	AG	AINST	A DOUBLE
019	XZY		-41					075	Х		-35	LOS	55 -	
020	XXX??		16-34					076	$X^{1}$ ??		16-34			
021	GT07		22 07					077	GT07		22 07			
622	ST08		35 08					078	RCL6		36 86			
623	LN		32					079	ST04		35 04			
024	CLX		-51					080	RCL5		36 05			
025	ST01		35 01					<b>6</b> 81	ST03		35 03			
026	ST02		35 02					082	CLX		-51			
027	ST03		35 03					083	CFØ	16	22 00			
028	ST04		35 04					<b>R</b> 84	RTN		24			
029	<b>GSB</b> J		23 13	CA	RD FUR	R PLAYER		A85	<b>≭</b> i BLC		21 13	CAR	D FOR	FIRST
030	STOC		35 13					086 086	SE1	16	21 01	HAI	JD .	
031	R↓		-31					087	PCI 3		36 83			
032	ST05		35 05					868 -	PCI 4		36 04			
033	<b>R</b> ↓		-31					0000 000	CSRA	27	16 14			
034	ST06		35 ØE					000	CT±d	75-	55 84			
035	GSB4		23 04	CAS	D FOR	DEALER		000 001	V+V	00	-41			
836	STOR		35 11		-			021	CT+7	75-	55 07			
037	PRTX		-14					022	PCLE	55	76 15			
038	6SBC		23 13	CAJ	RD FOR	R FLAYER		073	RULE		-67			
A24	CE1	16	22 01	•	-	1		074 005	•		-62			
000 040	STAD	• •	35 14					090	1		61 FF			
040 041	CSR4		27 04	CA	ED FOR	DEALER		096 007	t DDTV		-33			
942	CTAR		75 12		2			097	PRIA		-14			
042 047	DCL A		36 AL 36 A4					098	KIN		24	CAR	N FOR	SEWND
04J 04A	DCI 2		76 B2					099	*LBLU		21 14		J. C. C.	
044	V/VO		16-75					166	F07	16	23 06	-	· 9	
045	∧±1: v+v		-41					101	6107		22 87			
040	0+1 G		<b>⊤</b> ∡ 82					102	RUL5		36 83 76 85			
047 AAO	4		02 B1					103	KUL6	<u>-</u> -	35 85			
048	1		-45					104	65Ba	23	16 14			
045	-		40 00					105	ST+6	35-	55 06			
858	0		100	•	NU BT	Serviced		106	X <b>≠</b> Y		-41			
651	XFYY		10-32			10		107	ST+5	35-	55 05			
052	KIN		24 72 40	N	v: 510	1T AF 16		108	RCLE		36 15			
053	RULB		30 12	,ľ	UED O	ACH NO DA		109			-62			
054	PRTX		-14	0	VER	STI UNTHY		110	2		62			
Ø55	RCL4		36 84					111	+		-55			
056	GSB3		23 03 -			PECIE		112	PRTX		-14			
0	1	-	2 3.4 7.1 74	3	TE TOTAL	4 NUE TOTAL	5LITT. 1	TOTAL	6816 TOTA		7 1 1 2 5	8		9.
SEAD	TOTALD	EALEC	DEALER	FIRS	THANK	FIRSTHAND	SECOND	HAND	SECUIDHA	1.23	# PLAYER	BE	Т	SPLAYER
S0	S1		S2	S3		S4	S5		S6		S7	S8		S9
A		В		•	С		D		-	E			I	
FIRST CA	AD DEALLE	SEC	ONDCARD DEAL	ER	FIRST CAR	D PLAYER	SECON	JAR C	PANYEK	LAS	TCARD DEP	ILED		

### 97 Program Listing II

STE	р к	EY ENTRY	KEY	CODE	COMMENTS		STEP			COM	II
	117	PTN		24			169	#LBL4	21 04	C ARD -	
	113	*1 DI E	21	15			170	RCL1	36 01		OR DEALER
*	114	RCIA	76	11	PLANS DEALER		171	RCL2	36 02	1	
54	115	DOC	16	51			172	6SBd	23 16 14	1	
イ	110	PCLD	76	12			173	ST+2	35-55 02	1	
	111	RULD	- 30	14 .1 A			174	XZY	-41	1	
	110	TRIA JIDIA	21	14 G1			175	ST+1	35-55 81	1	
	117	ALDL1		01 87			176	RCLE	36 15	1	
	120	RULZ	30 75	02			177	PTN	24		
	121	RULI CE7	10 30	01 87			179	*1 BL 5	21 85		
	122	oono	10 21	60 60 \S	TOTAL DENIER	2	179	PCI 2	36 82		
	123	6362	20	02 · · · ·	CER TUAN 17?		190	Pri 1	36 01		
	124	1		101 DW 07	SGER THAN 11 :		191	CE7	16 22 03		
	120	1		07 75 NO	(, 1573) F		101	CSB2	27 82		
	126	λ±Υ? αποσ	16-	35 <b>",</b> ™	S. SETTLE		102	0002 V-00	16-47	FAR DE	ALER
	127	6100	22	100 NO	HIT A CARD		103	1-0:	10 40 R1	FUX	A LATCT
	128	6564	23	84			104	етл <u>э</u>	75 82	16051 =	
	129	PRIX	-	14			105	DCLA	33 02 76 04		
	130	GT01	22	01			100	BCI7	76 87		
	131	<b>≭LBL</b> Ø	21	<i>66</i> C	ARD GENERATOR	کر	10/	ALDIC	21 86		
	132	9		99 C	SCRKOUTINE OF		100	#LDLD CCDO	27 80		
	133	9		69			185	6302	23 82		
	134	7		U7			190	6303 DCL0	23 63 72 83		
	135	RCLØ	36	80			191	KULS EGO	30 03 15 37 88		
	136	X	-	-35			192 × 107	Г <i>0:</i> • рти	16 23 66		
	137	FRC	16	44			T 173	CEQ.	15 91 <b>A</b> A		
	138	STOG	35	00			1 74	DCLZ	10 21 00 72 82		
	139	1		81 			193	DOLE	30 00 72 05		
	140	3		63			190	CTOS	30 0J 32 BE		
	141	~	-	-35 			177	6100 	22 00	( NOD C	ENERATOR
	142	INT	16	34			190	ALDLO V2VO	12-72	CRRY G	ENC
	143	RTN		24			175	A#1/	15 21 82		
	144	*LBL2	21	RS RE	STIOTAL		200	OCDA CCDA	16 21 02 97 60		
	145	1		01 A=	:   OR A=		201	6300	15-49		
	146	2		62			202	AF0:	10-42		
	147	X> Y?	16-	-34			203	572	10 21 02 A1		
	148	K∳	-	-31			201	· ·	-55		
	149		4 6 07	.ji 			200	י פדחד	35 15		
	150	+37	16 23	03 01			200	' 510L	00 IC A1		
	151	KIN		24 60 12	WET COUNTS		201	Â	80		
	152	ć					200	¥>Y2	16-34		
	153	1		0. <sup>r</sup>			010	- αΖΤΟ Υ <del>Υ</del> Υ	-41		
	154	X7)	-	-41			211	ENT*	-21		
	155	X2 Y ?	¥07	-34 Et			213	En1.	16 23 <b>B</b> 2		
	136	UL A	-	-U1 - 54			217	ETN	24		
	157	KIN U DU Z	<b></b>	24	C		214		<u>.</u>		
	158	¥LBL3	21	00 80	SETTLEMENI		219	Я	88		
	109	KUL2	30	02 15			216	. +	-55		
	160	-	-	-42 			217	RTN	24		
	161	ENIT	15	71 71			218	ALBLC	21 16 13	OTHER	PLAYER
	162	HDJ V400	10	31			219	RCL7	36 07	COMES	IN
	103	∧+0: ÷	10	-24			221	RCL9	36 09		
	104	- 0 170	72	27 90			. 22	ST07	35 07		
	165	KULO	- 30	.75			* 222	XZY	-41		
	100	ст <u>т</u> о	75-55	89 89			223	S ST09	35 09		
	167	DTN DTN	00 00	24			* 224	RTN	24		
A	100				ABELS	Ic				SET STATUS	
<sup>А</sup> Ва	τ	SPLIT R	PAIRS	CARD (1)	CARD (2)	5т	AND	PAIRS SPI	T FLAGS	TRIG	DISP
a INI T	1AL171	b		COTHER	d CARD GENERAIOR	e SHU	FFLÉ	1 ON: SILIT PARI			
0,,,		1		2	3	4	÷ N	2			sci 🗖
5		6		7	8	9	с <i>У</i>	3- NU	2 🛛 🛛	RAD	ENG 🗆
USC C	D	00001	D	EKKOK	1	1		BLACK TA	rk  3  ∃ DAL	INESEN VAL	I ''

Sketch(es)
Sample Problem(s) POSSIBLE MODIFICATIONS
IF YOU HAPPEN TO BE BLESSED WITH AN HP YT, YOU DON'T NEED
TO REVIEW THE FIRST CARD OF THE DEALER BUT YOU HAY PREFER HAVING
YOUR FINAL IN THIS CASE THE FOLLOWING CHANGE
TELAN STERS 115 RCLA AND 116 PSE
SUBSTITUTE STEPS OG RTN AND 193 RTN WITH OG GTOFC AND 193 GTOFC
INSERT THE ORDER PRTX BETWEEN STEPS 221 STOF AND 222 224
INSERT THE ORDER SPACE BETWEEN STEPS 223 STOB AND 224 RTN
(THE PLACES ABOVE MENTIONED ARE MARKED WITH A * IN THE LISTING)
IF YOU MAKE THIS MODIFICATION, AFTER EACH GAME THE HP 37 IS GOING TO LEAVE
A BLANK SPACE AND WILL BE READY FOR THE SECOND PLAYER. IT WILL PRINT
\$ OF THE PLAYER THAT JUST FINISHED HIS GAME AND DISPLAY \$ OF THE ONE WHO IS GOING TO THAY NEX'T GAME, THE LAST WILL START IMMEDIATELY WITHOUT
Solution(s) PUSHING THE KEY FC, AS DESCRIBED AT STEP 9 OF USER'S
ON THE CONVERSE IF THE SAME PLAYER WANTS TO PLAY TWO
CONSECUTIVE GAMES, YOU HAVE TO PRESS FC.
, <i>,</i> ,
Reference (s)

Program Title	*** BELL-FRUIT	(MILLS	STANDARD) **	*		
Contributor's Name	Mr. Craig A. Pearce		(Member	# 311 of	the	
Address	2529 S. Home Avenue		HP-65 Users Club)			
City	Berwyn,	State	Illinois	Zip Code	60402	

Program Description, Equations, Variables This program will simulate a Mills brand, 10¢ slotmachine, not only in the standard payoffs, but by also duplicating, precisely, the same odds that any particular combination of symbols will occure. Most slot machines contain 3 wheels on which about seven different symbols are distributed, making up 20 positions on each wheel. The wheels stop randomly (they are not rigged), but the selection of symbol combinations on each wheel places the odds with the house. For example, wheel two contains no lemon symbols, making 3-of-a-kind, or two-of-a-kind-and-a-bar (each \$1 payoffs) impossible to get with lemons (hense the origin of the saying, "getting a lemon"). Also, the mechanical payoff system disregards some apparent winning combinations. Thus, two cherries and a bar is treated like only two cherries (50¢ payoff) then the normal 2-of-a-kind-and-a-bar, \$1.00 payoff. Two watermelons and a bar is considered just a losing combination with no payoff. To creat the same affects on the HP-67, each of the seven symbols has been assigned a number (see next page) and their frequency has been recorded in registers 4 through 9. Each pair of registers (4 & 5, 6 & 7, and 8 & 9) contains the actual, encoded symbols for each wheel of a slot machine. When run, a digit is selected from each pair of registers and stored in registers 3, 2, and 1. Then, the digits are compared to see if any winning combinations have occured. If so, the correct amount is paid into the "pot" (register 0), and then a dime is deducted for the play. The winning combination (or losing, as the case may be) is displayed, one digit at a time, to the right of the decimal point. (Ignore the "0" to the left of the point). After the last digit is displayed, the display will flicker once more before coming out of program. Wait until the program is completely stopped before pressing any keys. Winning combinations and their estimated frequency are listed on the next pages. As a whole, however, Bell-Fruit will pay back \$525.00 for each \$800.00 fed in (it keeps about 34.88%). This means you lose 3.44 cents on each play! Operating Limits and Warnings At no time clear the primary registers. Should this happen, refeed in side two of the program card. You can reinitialize with a new seed if desired, at this point. Remember, all previous winnings or debts will be cleared by this process. **IMPORTANT:** When inputting data, be sure and fill the primary registers as indicated on the bottom of page 6.

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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DISPLAY:	SYMBOLS:	NAMES:	ODDS:*	PAYOFFS:
0.1xx 👌		(cherry-anything-anything)	780 out of 8000	20¢
0.11X 🏈		(cherry-cherry-anything)	420 out of 8000	50¢
0.333 🥃	> 🕑 🤇	(plum-plum-plum)	42 out of 8000	\$1.00
0.330 🚭	• 😁 🖻	(plum-plum-bar)	21 out of 8000	\$1.00
0.444 🕲	٢ (٢	(orange-orange-orange)	20 out of 8000	\$1.00
0.440 Ĉ		(orange-orange-bar)	20 out of 8000	\$1.00
0.555 🖨		(bell-bell-bell)	32 out of 8000	\$1.00
0.550		R (bell-bell-bar)	4 out of 8000	\$1.00
		*** JACKPOTS ***		
0.000 BAR	BAR DI	(bar-bar-bar)	l out of 8000	\$10.00
0.666 🤤		(three watermelons)	l out of 8000	\$10.00

\*--NOTES ON ODDS: Because each wheel can stop in any one of 20 positions, there are some 8000 different ways all three wheels could stop (20x20x20). Of those 8000 positions, 1341 of them produce winners. The break downs are given above. Thus, assuming that each possible combination comes up, randomly in those 8000 tries, the above results are possible.

Sketch(es)		
		5
		<ul> <li>Provide the second secon</li></ul>
		<u>.</u>
		* ··· ·*· **
Sample Problem(s) Lets have a sample game:		
Load in program and data (sides one and two)		
We can input new seed, or use the one already stored. To key in a		
new seed proceed as follows: .8573608925*	E	▶ 0.00
Play the first round:	A	▶ 0.3
		▶ 0.31
		▶ 0 315
Check the pot.		> 0.515
check the pot:	В	▶-0.10
(Down by ten cents. Try again)		
Play next round:	A	▶ 0.1
		▶ 0.16
		▶ 0.165
One cherrya winner. Review pot:	B	• 0.00
(Pot is zero because you've played twice (down by 20¢), but		
you've just won 20¢ by getting a cherry. So, you've broken	even)	
	-	
Solution(s)		
Solution(s) *NOTE: Seed may be any number between 0 and one, not	includin	ng those
Solution(s) *NOTE: Seed may be any number between 0 and one, not two numbers. When input, it is best to use a	includin many dic	ng those
Solution(s) *NOTE: Seed may be any number between 0 and one, not two numbers. When input, it is best to use a as opposed to one with only a few digits.	includin many dig	ng those git seed
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#### SPECIAL INSTRUCTIONS IN RECORDING THE CARD!:

When recorded correctly, this card will have the program recorded on side two, and the data recorded on side one. It should be recorded in such a way that feeding in side one first will cause a "Crd" prompting display to let the user know that side two must also be fed in.

To accomplish this, an item will be stored in one of the secondary registers and then the data recorded on side one. This will place a "Crd" prompt command on the card and cause the display to show the same. However, following directions below, do not record the remaining data registers on side two. Just clear the display, having already recorded the program on the second side.

When loaded from a card, the display will show "Crd" when side one is read, and clear when side two (the program side) is read.

#### INSTRUCTIONS:

- I. Load program into HP-67 in usual manner.
- II. Load in data and set flags and display mode.
- III. Switch to write program (W/PRGM) mode and feed in SIDE 2 of the card.
- IV. Switch back to run (RUN) mode and clear the stack: CLX, ENTER†, ENTER†, ENTER†
- V. Press  $\Sigma$  + key. (Causes a "1" to be stored in R<sub>S9</sub>).
- VI. Press the following keys: CLX, f, W/DATA.
- VII. Feed in SIDE 1 of the card.
- VIII. Ignore the "Crd" display, which should be cleared by pressing CLX.

The card is now recorded correctly, and can be used in the standard manner, as described on the next page.

### **User Instructions**

					<b></b>
	BELL-FRUIT	67			•
[ <b>◀</b> 1					5
	10¢	RCL POT		(SEED)	

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS		TPUT /UNITS
1	Enter program (sides one and two)				
2	If no new seed is desired, skip down to step				
	4, below.				
3	To input a new seed (where 0 <s<1):< td=""><td>seed</td><td>E</td><td>0</td><td>.00</td></s<1):<>	seed	E	0	.00
				]	
4	To play a round on the one arm bandit:		A	0	.x
				0	.XY
				0	.XYZ
	(Display pauses as each "tumbler" quits "spin-	·			
	ning".)				
_5	Repeat step 4 as often as desired.	·			
6	(Optional)-To review pot at any time:				ot
				-]	
7	For a new game, go to step 3 above.			1	
				1	
	DAVOFES-OUTOK DEFEDENCE.				
	0.1XX (1 cherry) 20¢				
	0.11X (2 cherries) 50¢				
	0.333 (3 plums) \$1.00				
	0.330 (2 plums, one bar) \$1.00			]	
	0.444 (3 oranges) \$1.00				
	0.440 (2 oranges, 1 bar) \$1.00				
	0.555 (3 bells) \$1.00				
	0.550 (2 bells, one bar) \$1.00				
	0.666 (3 watermelons) JACKPOT \$10.00	<b> </b>			
	0.000 (3 bars) JACKPOT \$10.00				
		<u> </u>		]	
	LABELS	FLAGS	SE	T STATUS	
A PI	LAY $\stackrel{B}{\operatorname{rcl}}\operatorname{pct} \stackrel{C}{\operatorname{c}} \stackrel{D}{\operatorname{c}} \stackrel{E}{\operatorname{(seed)}}$	3 way mate	h FLAGS	TRIG	DISP
а	b c d e RND # s	ub		DEG 🗷	FIX 8
<sup>0</sup> paye	off sub cherries 2 used dsp loop 4 used	2		GRAD	SCI □ ENG_□
5 use	ed $\begin{bmatrix} 6 \\ 7 \end{bmatrix}$ $\begin{bmatrix} 8 \\ 1 \end{bmatrix}$ $\begin{bmatrix} 9 \\ 9 \end{bmatrix}$ used	3	3 🗆 🖬		n <b>2</b>

### 18

# 67 Program Listing I

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001 ★	f LBL A	31 25 11		*	f LBL 4	31 25 04	Test FLG 0. If on,
	3	03	Initialize loop		h F? O	35 71 00	jackpot, Input 9.
	h ST I	35 33			9	09	Pay dsp into pot
*	f LBL 9	31 25 09		060	f GSB 0	31 22 00	
	g GSBf e	32 22 15	Obtain register sel·	*	f LBL 3	31 25 03	Clr flg 0 and init.
	2	02	ect number.		h CF 0	35 61 00	dsp loop.
	x	71			3	03	asp resp.
	h RC I	35 34			h ST Т	35 33	
	2	02			0	00	
010	x	71		*	f LBL 5	31 25 05	
	2	02			RCL (i)	34 24	Display digits one
	+	61			4	04	at a time
	+	61			h RC I	35 34	at a time.
	h X <b></b> ₹I	35 24	Exchange X & I and	070	_	51	
	RCL (i)	34 24	recall indirectly.		h X <b>≓I</b>	35 24	
	h X <b></b> ₹Y	35 52	the correct reg.		DSP (i)	23 24	
	h ST I	35 33	Restore original I.		h X <b></b> ₹I	35 24	
	h R↓	35 53			g 10 <sup>x</sup>	32 53	
	g GSBf e	32 22 15	Obtain digit select		÷	81	1
020	RCL A	34 11	number		+	61	
	x	71	number.		h PAUSE	35 72	
	f INT	31 83			f DSZ	31 33	
	g 10 <sup>x</sup>	32 53			GTO 5	22 05	
	x	71	Obtain correct dig-	080	RCL B	34 12	Input -10¢
	g FRAC	32 83	i+	*	f LBL 0	31 25 00	
	RCL A	34 11	10.		STO + 0	33 61 00	Pay subroutine
	x	71			h R↓	35 53	Adds display to
	f INT	31 83			h RTN	35 22	naus aispiny to
	STO (i)	33 24	Store indirectly.	*	f LBL 1	31 25 01	
030	fDSZ	31 33	Is loop done?		•	83	Pouting used to test
	GTO 9	22 09	No-go to LBL 9		2	02	for charries
	1	01			f GSB 0	31 22 00	for cherries.
	RCL 3	34 03	Is first digit "1"		RCL 2	34 02	
	g X=Y	32 51	3	090	a X≠Y	35 61	
	GTO 1	22 01	Yes-go to LBL l		GTO 3	22 03	
	RCL 2	34 02			RCL C	34 13	
	q X≠Y	32 61	Else test. Are lst		f GSB 0	31 22 00	
	GTO 3	22 03	2 digits different?		GTO 3	22 03	
	RCL 1	34 01	Yes-go to LBL 3	*	f LBL B	31 25 12	LBL B-used to re-
040	q X≠Y	32 61	Else test if 2nd &		DSP 2	23 02	call pot
	GTO 2	22 02	3rd digits differ		RCL 0	34 00	cuii poc.
	1	01	Ves-go to LBL 2		h RTN	35 22	
	f GSB 0	31 22 00	Else input 1 and	*	q LBLf e	32 25 15	Subrouting "a"-
	h SF 0	35 51 00	pay into pot	100	RCL E	34 15	used to concrete
	6	06	Set FLG 0 for 3 way		RCL D	34 14	random number
	h X <b></b> ₹Y	35 52	match.		x	71	random number.
	q X=Y	32 51	Is match on 6's?		g FRAC	32 83	
	GTO 4	22 04	If so, jackpot Go		STO E	33 15	
*	f LBL 2	31 25 02	to 4.		h RTN	35 22	
050	f X≠0	31 61		*	f LBL E	31 25 15	LBL E-used to store
	GTO 3	22 03	last digit=0? No-go		STO 0	33 00	seed and clear pot
	6	06	to 3. Else test if		STO - 0	33 51 00	register.
	RCL 3	34 03	lst digit=6.	110	g FRAC	32 83	
	g X=Y	32 51	If so, go to $3$	110		32 54	
	GTO 3	22 03	$\frac{11}{100}, \frac{30}{90}, \frac{10}{10}, \frac{30}{10}$		STO E	33 15	(LBL E halts with
	1	01	Lise, input a 1.	TEDO		44	K/S in step 113)
0	I	2		5 252	50 6 1214	7,16351	8 26313 9 03454
РОТ	DIGTT	3 DIGTT	2 DIGIT 1 25652	252: ⊃⊑⊃⊑	$50   5 \cdot 1314.$	04154	42341 31343
S0	S1	S2	S3 S4	252 S5	S6	S7	S8 S91 (see
		-					page 4)
Α .		3 1	C 2	D		E .5284163	I
		1	.3		וצב	SEED	USED

Program Title TUrn the Die Game Contributor's Name Howard B. KUTNER, CPA Address 370 Lexing ton Avanue - Rm 909 City New York State N.Y. Zip Code NY 10017

Program Description, Equations, Variables In this game the user chooses a point total between 10 and 99 and determines whether he or the computer shall move first. User and Computer then alternate in turning a single die 1/4 Turn and the new top face number is added to an accumulating total. The player who makes the total equal the point, (or who forces his opponent to exceed it) Wins.

Since the user controls the choice of the point and the choice of first or second move he can obviously beat the computer. However, the computer plays flawlessly and does not Tolerate cheating.

STRATEGY

Try To make the digital root of the accumulating Total equal To the digital root of the point — or prevent the computer from doing so if you are unable To.

"Digital root" of a number is the sum of the digits in the number and if that sum has more than one digit it is the sum of those digits. It may be determined for any number by pressing Key "D" Operating Limits and Warnings Valid entries are integers between I and 6 but both previous Top face and previous bottom face are invalid. ie: Die must be given only 1/4 Turn Flashing Display (computer win indication) may be Terminated by depressing R/s Key (or any Key during cycling)

Error display may be cleared by depressing any Key without disturbing progress of the game

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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Note:	when	Using Ki	ey B To	allow Co	mputer To
make	first m	nore it	must ,	not be pi	receded by
ane	ntry from	n the A	Ceyboard	. If an	entry 15
made	Simply	press	Key B	Twice	•
•	17	1	(		
				the second s	the second s

Sample Problem(s)		(a)		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	(6)		
Doint		18		Dev	+	w	TOTAL
HP97 (First) (K	(*) =	,	TOTAL	user (F	inst Ke	15	5
USCH (Key)		4	5	нр97		4	9
HP 97		l	6	USEr	(Key)	۲	( )
USEN (Key)		3	9	HP 97	,	1	12
HP97		1	10	user	(Key)	r	14
USER (Key)		#	14	HP97		ન	18
HP97		1	15	User	(Key)	Z	20
USER (Key)		Э	18	HP97	~~/	1	21
USer	WIN	23		user		must	exceed point
				22,	***	НРС	17 WINS
	18.	***					
				5.	***		
Solution(s)	-	1. ú. u.		J. 4.	***		
contion(s)	1.	*** ***		9.	***		
				2.	***		
	. 4. 5.	***		11.	***		
	1.	***		i.	苯苯苯		
	6.	***		12.	***		
	3.	<b>洋</b> 杀济		2.	***	1.0.00000000000000000000000000000000000	
	9.	***		14.	***		
	1.	***		4.	***		
	10.	***		18.	***		
	4.	***		<u> </u>	***		
	14.	***		20.	***		
Reference (s)	1.	***		1.	***		
	15.	***		21.	***		
	3.	***		23.	***		-
	18.	***		22.	***		
9,99999999	99+99	***		22,2222222	***		

### **User Instructions**

	TURN THE DIE GAME 1 USER'S HP-97 Dig CHOICE MOVE FIRST R	ital ooT	RESET PoiNT	2	
STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS		OUTPUT DATA/UNITS
1	ENTER PROGRAM				·
と	ENTER POINT				
	(ANY INTEGER FROM 10TO 99)	Point	E		Point
3	ENTER FACE DISPLAYED BY USER				
	(ANY INTEGER FROM 1 TO 6				alor cator
	EXCEPT FACE USED BY COMPUTER				Nor carry
	ON PREVIOUS MOVE AND				Total Computer
	CORRESPONDING OPPOSITE FACE)	Face		7	Entry
	OR			<b>``</b>	(918)
3	ON FIRST MOVE ONLY - Let computer			<b>/</b>	Computer
	have first more- make no entry			<b>\</b>	Total
1	Part & Star 2 111			· · · · · · · · · · · · · · · · · · ·	
7	KEPERF STEP 3 UNTIL:				
-	USAN WIND WIDHATED AV DICKOU OF	01 0'2			0 99900909
3	DSER WIN INDICATED BY DISPLAY OF	ALL 73			1.1711111
5	CANANTER WINN WARATER BY FLACHIN	E DISOLAV			
	OF Point (PT) in from t PT. 1	TPT PT			T. PTPTPT
	OF TOINI (FI) (A) Formar TIT				
	NATE				
	a) ERPAR DISPLAY MAY BE CLEARED B	PRESSIN	ANY	(EY	
	b) Digital Root of any number may be				
	determined without interrupting pr	De/CSS			
	of the same by entering number	#			digital 100T
	· · · · · · · · · · · · · · · · · · ·				
6	For new case press To dear win dis	play	P/S		
	and Go to Step 2				
	OR				
6	For new case before end of game				
	do not press any key before Going	To Stepy			
			┨└──┤└		
			┨┟──┤┝		
			┨┟──┤┝		
				]	
				]	
	1	1			

22			07	Pro	gram	Listi	ng I					
STEP KE	EY ENTRY	KEY CODE		СОММЕ	INTS	STEP KE	EY ENTRY	KEY C	ODE		соммі	ENTS
001	¥LBLÉ.	21 15				057	SPC	.16-1	11			
002	DSPO	-63 00				<b>0</b> 58	SPC	16	11			
003 004	LF 3	16 22 83		-		059	RTN		24			
004	STUH	30 11	INI	TIATE	•	060	*LBLA	21	11	User	man	1e
00J 005	•	-62				061	UF 3	16 22 0	93 15	••••	•	
000 007	2	01 02	c			062	SIDE	30.	10	h		
888	รтกต	35 00	3	T		003 054	v/v0	16-1 16-1	97 75			
889	ST09	35 83		0		865	CTN-	16	11	Tas	- Val	idity
010		-62		ĸ	F	865	DIN PI	10	71 71	10		
011	4	84			6	967	X (82	16-	15			
012	1	61				067 068	JX		54	)		
013	ST08	<b>35 0</b> 8	C			069	X=0?	16-	43	o entr	y fors	eits user
014	ST04	35 04	(	٥.,		070	GTOB	22	12	-	•	1400 -
015		-62		N		071	RCLC	36	13			for
016	4	04		ۍ <sub>ک</sub>	-	<b>8</b> 72	X=Y?	16-3	33	Test	r enti	y 101
017	2	82			•	073	GTO2	22 (	ð2	("hid	den	faces
018	ST07	35 07			7	074	CLX	-;	51	7		
019	•	-62			∾ <sub>∓</sub>	075	RCLD	36 .	14			
020	6	06			(	076	X=Y?	16-3	33			
021	<u>б</u>	03 75 86			5	077	GT02	22 (	32			
022	5106	30 86 70				078	X≠Y		41			
023	•	-82 BE				079	RCLB	36 .	12			
024	J 1	80 81				080	+	-(	55			
02J 02C	1 6705	01 75 85				681	RCLA	36				
020 027	3103	-62				082	X=1?	16-	33 27		(1) N	
<b>A</b> 28	. 6	05 06				083	6103	12-1	03 75	030		
<b>R</b> 29	3	03				004 005	Λ≞Ι: CTO4	20 1	50 74	40-9	, wi	1
030	1	<i>E</i> 1				00J 002	6104 CCP9	22 0	30	Runt	Routi	ne
031	ST03	35 03				<b>9</b> 87	#1 RI R	21	12	Print		
032		-62				<b>0</b> 88	F3?	16 23 1	13	HP9	t wo	ve
033	2	02				089	RTN		24			
034	1	81				090	RCLA	36	11			
035	ST02	35 02				091	RCLB	<b>3</b> 6 (	12			
036		-62				<b>0</b> 92	-	- 4	45			
037	5	65				093	GSBD	23 1	[4	obtain	digite	l root
038	1	01				094	STOI	35 4	46		•	
039	2	82				<b>0</b> 95	RCLB	36 J	(2			
040	5101	30 61 17.51				096	+	-5	55			
041	P+3 DCLA	16-31 72 11				097	RCLA	36 1	lí –			
042	CLPC	36 II 12-57	Ŧ			<i>098</i>	PZS	16-5		0 1		ante antest
043 044	ULKO 1	10 JJ R(	1681	t Pou	nt for	099	KUL I	36 4	+0 = 1	RECHI	a <b>r<i>7</i>~7</b>	
945	ด้	80	1/21	dity		100	r+3 €70:	10-3	/1 15	<b>Sta.</b>		N reacter
046	X>Y?	16-34	Veri i			101 100	3101 11 RI 2	30 4 21 4	70 36	urore in	Prime	7.20.0
847	SIN-	16 41	<+		. d	102 107	RCL	36 4	15			
048	CLX	-51	510	re ai		104	1		31			
049	EEX	-23	P	runt i	T	105	ė	ĺ	10 10			
050	2	02				106	х	-3	35			
051	X≟Y?	16-35				107	FRC	16 4	14			
052	SIN-	16 41				108	STO:	35 4	15	store n	emaind	er
053	XZY	-41				109	LSTX	16-6	53	_		
054		16 34 75 11				110	INT	16 3	54	Try		
000	SIUA	30 11 _1 4				]11	X=0?	16-4	13	No useo	م حاط	instant
036	5K17	-14			BEGIS	112 STERS	GTOO	<b>A</b> Z 16 1	<b>B</b>	<u>cua</u>		
0	1	2	3		4	5	6	7		8	9	)
	L											
<sup>S0</sup> .12	S1 (D-	S2	S3	31	<sup>54</sup> .41	<sup>S5</sup> .51	56	<sup>57</sup> 47		5841		". <i>I</i> ~
A		BAccumula	tine			D		E.			di Ffer	Ence in
Point		Total		LasT	Face	Last Bo	Tom	Last	Try	d	gital	roots

### Program Listing II

STEP	KEY	ENTRY	KEY	CODE	COMMENTS		STEP	KE	EYENTRY	KEY ÇODE	СОММ	ENTS	20
1	13	RCLC	36	13 N			1	69 70	PRTX	-14			
1	14	X=Y?	16-	35			1	70	7	07	generate	رعور	win
1	15	GT06	22	96 / JE	Try is not use	able	I	<u>/1</u>	5	85 7 5 5 5 5	DISPLA	7	
- 1	16	CLX		51	Line Fire anothe	Tou	1	72	N:	16 52			
1	17	RCLD	36	14 <b>/</b>	FURN THE QUINTING	• • • 7	1	73	PRIX	-14		1	
1	18	X=Y?	16-	33			1	74	<b>#LBLD</b>	21 14	Digital R	+00	
1	19	ST06	22	86			1	75	9	05	Gener	sto/	
1	20	₽1.		31 600	JAC TON		1	76	÷	-24			
1	21	STOF	35	15 00	d store		1	77	FRC	16 44			
1	22	RCLR	36	12	4 310/2		1	78	9	09			
1	27	+		55	Total		1	79	X	-35			
1	24	Pria	36	ti Dour	+		1	80	•	-62			
1	25	V+V	- 50		••		1	81	1	61			
1	23	0+1 V\V0	16-	71 71			1	82	+	-55			
1	20	∧/\: сто <b>≴</b>	20-	34 a <b>£</b>	Tal A		1	83	INT	16 34			
1	21	6100	22	8 <b>0</b>	119	(17)	1	84	RTN .	24			
1	28	6583	23	es prin	t routine						4		
1	29	SPL	16-								4		
1	30	RCLA	36	11							4		
1	31	X≠Y?	16-	52									
1	32	RTN		24									
1	33	¥LBL4	21	<sup>04</sup> HP-	97 WIN								
1	34	X≠Y	-	41			190				]		
1	35	PRTX	-	14 (									
1	36	X≠Y	-	41 <b>7 1</b> 1	rint .								
1	37	PRTX	-	14							]		
1	38	SPC	16-	11							1		
1	39	RCLA	36								1		
1	40	EEX	-	23							1		
1	41	2		02 G	enerate						1		
1	42	х	-	35 <b>H</b>	P-97 WIN						1		
1	43	9		09 <b>/</b> 1	NIS PLAY						1		
1	44	9		<b>N</b> 9			200				1		
1	45	÷	-	24							1		
1	46	nsp9	-63	69 69							1		
1	47	PRTY		14							1		
1	49	*I BI 8	21	<b>8</b> 8							1		
1	140	TCP9	-67	00 09							1		
1	50	DOF	16	F F las	sh win Displ	AY					1		
1	51	CTOO	20	00							1		
1	JI 152	+1 DI Q	21	00 <b></b>							1		
1	157	#LDL7 7	21	05 07						· · · · · · · · · · · · · · · · · · ·	1		
1	133 154		76	01 15 60-	11 Tot		210				1		
1	134 185	RULE	30	1.5 <b>(266</b> ) 1.5	AL 117						{		
1	100	PRIA	75	14 47 <b>61</b> 0	ca news force						4		
1	136	STUC	30	10 010							4		
]	157	-	-	40	hattan						4		
1	158	STUD	35	14 570	re new borron	n					4		
1	159	LSIX	16-	63			$ \longrightarrow $				4		
1	60	RCLB	36	12			<b>├</b> ─── <b>├</b>				4		
1	161	+		-55			├ I				4		
1	162	STOB	35	12	m Tatal						4		
1	63	PRTX	-	14			220				ł		
ĺ	164	RTN		24			220				ł		
1	165	<b>≭LBL</b> 3	21	03 <b>USE</b>	r win		· · · · ·				4		
t	166	RCLE	36	15							{		
1	67	PRTX	-	-14							4		
5	168	Xey	-	41	ABELS		L I	<b>—</b>	FLAGS	T	SET STATUS		
A		BHP-97		C	Digital	ER	set	0	. 2400	+			
USEr m	ove	move	hrsT		Root	P	PoinT	Ļ		FLAGS	TRIG	DIS	Р
а		b		ERROR	d	е		1				FIY	×
0		1		2500-0	3.000 1.1.1.1	4,10	97 Wint	2		┨ĭ 🗄 😭	GRAD	SCI	
E		6		FRROK	USET WIN	1 NPC	NIN T	-		2 🗆 🛣	RAD 🗆	ENG	
5		° LOOP		l′	°LOOP	PR	INT	30	FAITRY	3 🗆 📕		n	

Program Title WORD ENCODER		
Contributor's Name JOHN R RAUSCH Address 402 VIRGINIA AVE		
City FRANKLIN	State 01-110	Zip Code 45005

Program Description, Equations, Variables THIS PROGRAM IS USED TO ENCODE WORDS INTO A STRING OF UP TO 50 POSITIONS AND WRITE THIS STRING ONTO A DATA CARD TO BE USED BY WORD GAMES LIKE HANG-MAN, WORD BAGLES, AND PROBE. THE WORD GAME SUBROUTINE (ALSO IN THE LIBRARY) SHOULD BE USED IF YOU INTEND TO WRITE YOUR OWN WORD GAMES USING THIS PROGRAM TO ENCODE THE WORDS. ANY WORD FROM ONE TO TEN LETTERS CAN BE ENCODED. THE STRING IS CONSTRUCTED INTO REGISTERS SO THRU S9. EACH POSITION IN THE STRING USES TWO DIGITS. THE FIRST POSITION IN THE STRING CONTAINS THE WORD COUNT. ALL WORDS ARE STORED VARIABLE LENGTH WITH A LETTER COUNT IN THE POS-ITION PRECEEDING THEM. AN ALPHA OVERLAY IS USED TO ENTER LETTERS. THIS METHOD RESULTS IN THE FOLLOWING TWO-DIGIT CODE FOR THE ALPHABET:

Operating Limits and Warnings WORD GAME ARE CONTACIOUS 1

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Sketch(es)	ABC JKL STU	DEF MNO VWX		TO MAKE OVERLAY, COPY THIS PAGE, THEN COVER OVERLAY WITH CLEAR TAPE OR BETTER - COVER FRONT AND BACK WITH CLEAR PLASTIC SHEET AVAILABLE AT OFFICE SUPPLY STORES. CUT OUT ON LINES.
Sample Probl WRITE T ALL OTHE	em(s) En HEM ON ER WOR	NCODE NTO A D GAM	THE WY DATA ( IES BY RY FOR	DRDS "CREATIVE" AND "MINDS" AND DARD. THE DATA CARD IS USED IN THIS AUTHOR AS OF 9-1-76 THAT ARE C SAMPLE JULUSTRATION - SAVE IT JE

Solution(s) 1) LOAD SIDE 1 AND SIDE 2, THEN INITIALIZE BY PRESSING E

Solution(s) 1) LOAD SIDE 1 AND SIDE 2, THEN INITIALIZE BY PRESSING LE LE. DISPLAY FLASHES 49 (THE POSITIONS REMAINING)

2) ENTER NUMBER OF LETTERS IN "CREATIVE" - 8 A → 1 (FIRST LETTER) 3) ENTER LETTERS - 7 D, 6 D, 8 C, 7 B, 1 C, 9 D, 2 B, 8 C -

DISPLAY FLASHES 40 ( THE POSITIONS REMAINING)

4) ENTER NUMBER OF LETTERS IN "MINDS" - 5 A -> 1 (FIRST LETTER)

5) ENTER LETTERS - 5 0,9 0,5 0,8 0,1 0 - DISPLAY

FLASHES 34 (THE POSITIONS REMAINING)

YOU ARE GOING TO TEST ANY OF THEM.

6) WRITE DATA CARD (EVEN THOUGH IT WILL HOLD MORE) I 2 -49 (AUTO-INIT)

Reference (S) 65 NOTES, VOL. 2 NO. 3 PUBLISHED BY HP-65 USERS CLUB, 2541 W. CAMDEN PLACE, SANTA ANA, CALIFORNIA 92704.

### **User Instructions**

	WORD ENCODER Write Write Write Write Write Write Write Write Write	RIGHT F	<u>iitialize</u> Reset	ری م	
STEP	INSTRUCTIONS	INPUT DATA/UNITS	KE	YS	OUTPUT DATA/UNITS
1	LOAD SIDE LAND SIDE 2				
2	PLACE ALPHA OVERLAY OVER KEYS 1-9				
3	NITIALIZE PROGRAM - DISPLAY FLASHES		f	E	-49-
	STRING POSITIONS AVAILABLE				
4	ENTER NUMBER OF LETTERS IN WORD. A WORD	1 to 10	A		1 or Positions
	REQUIRES I POSITION FOR EACH LETTER PLUS I				
	FOR A LETTER COUNT. IF THE NUMBER OF				
	LETTERS YOU ENTER WILL NOT FIT, THE DISPLAY	,			
	WILL AGAIN FLASH THE POSITIONS AVAILABLE,				
	IF THE DISPLAY SHOWS 1 YOU CAN GO TO STEP				
	5 AND ENTER THE LETTERS, IF THE DISPLAY				
	SHOWS "error" SWITCH TO W/PRGM AND NOTE				
	THE STEP NUMBER TO DETERMINE THE CAUSE.				
	STEP 004 - NOT INITIALIZED				
	STEP 006 - PREVIOUS WORD INCOMPLETE				
	STEP OZO - LETTERS < 1				
	STEP 026 - LETTERS > 10				
5	ENTER LETTERS AND/OR GLANKS, A LETTER IS	1-9	в		see text
	ENTERED BY PRESSING THE DIGIT KEY THAT		-OR-		
	HAS THE REQUIRED LETTER ABOVE IT, FOLLOWER		С		
	BY BIF IT IS THE LEFT OF THE THREE LETT-		-OR-		
	ERS, CIFITIS THE CENTER, OR DIFITIS		D		
	THE RIGHT. IF THE WORD HAS BEEN COMPLETED,				
	THE DISPLAY WILL FLASH THE POSITIONS THAT				
	ARE AVAILABLE OR "ord" IS I OR LESS POSITION	5			
	REMAIN . IN THIS CASE EITHER GO TO STEP 4 FOR				
	ANOTHER WORD OR WRITE THE DATA CARD (IN				
	WHICH CASE AN AUTOMATIC INITIALIZATION				
	WILL OCCUR). IF THE WORD HAS NOT BEEN COM-				
	PLETED, THE DISPLAY WILL SHOW THE NUMBER				
	OF THE NEXT LETTER TO BE ENTERED. IF THE				
	DISPLAY SHOWS " & TO ITCH TO W/PRGM				
	AND NOTE THE STEP NUMBER TO DETERMINE				
	THE CAUSE.				
	STEP 043 - PROGRAM IS EXPECTING THE NUMBER				

### **User Instructions**



STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
	OF LETTERS TO BE ENTERED-STEP 4			
	IF AT ANY TIME WHILE ENTERING LETTERS,			
	YOU NEED TO START OVER ON THE WORD, GO			
	TO STEP & TO RESET. AFTER COMPLETING			
	A WORD, IF YOU WANT TO WRITE A DATA			
	CARD BEFORE IT IS COMPLETLY FULL, GO TO			
	STEP 7.			
6	RESET. USED WHEN YOU MAKE A MISTAKE		E	see text
	ENTERING LETTERS OR CHANGE YOUR MIND			
	ABOUT THE WORD. THE DISPLAY WILL SHOW			
	THE POSITIONS AVAILABLE AND EVERTHING			
	WILL BE RESTORED TO WHERE IS WAS			
	WHEN YOU STARTED THE ERRONEOUS WORD.			
	IF THE DISPLAY SHOWS " CITOF" SWITCH TO			
	W/PRGM AND NOTE THE STEP NUMBER TO			
	DETERMINE THE CAUSE.			
	STEP 087 - YOU ARE IN A WORD COMPLETED			
	CONDITION - TOO LATE!			
	·			
7	WRITE DATA CARD. TO WRITE A DATA CARD		A A	see text
	BEFORE ALL POSITIONS ARE USED. IF THE			
	DISPLAY SHOWS "CID", PROCEED AS IN			
	STEP 5. IF THE DISPLAY SHOWS "ETTOP"			
	SWITCH TO W/PRGM AND NOTE THE STEP			
	NUMBER TO DETERMINE THE CAUSE,			
	STEP 105 - YOU ARE NOT IN A WORD			
	COMPLETED SITUATION. YOU			
	CAN EITHER RESET OR COM-			
	PLETE THE WORD.			

28			57 Program	Lis	sting I		
STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
<sup>001</sup> <del>X</del>	FLBLA	312511	NUMBER OF LETTERS.		EEX	43	
	h F? O	357100	SAVES CORRENT REG		1	01	
	h F?2	357102	CONTENT FOR RESET.		0	00	1
	GTOfd	223114	CHECKS FOR CORRECT	060	÷	81	
	n F?1	357101	NUMBER THEN INSERTS		STO (i)	3324	
	GTOFd	223114	IT INTO STRING.		CLX	44	
	STO 8	3308			STO 5	3305	
	h RCI	3534	1		STO 6	3306	
	STO 2	33 02			FISZ	3134	
010	RCL 5	3405	4	<b>*</b>	FLBLO	312500	CHECK FOR WORD
	STO 3	33 03			RCL8	3408	COMPLETE, IF
	RCL 6	3406			RCL7	3407	COMPLETE, DIS-
	5104	3304			9X+Y	3261	PLAY POSITIONS OR
	CLX	44	1	070	GTOI	1055	WRITE DATA CARD
	STO7	3307			h CF I	356101	
	RCLO	3400	1		1	01	
	RCL 8	34 08	1		STO+1	336101	
	1	01			RCLO	3400	
	9XXY	3281			9 X 4 Y	3271	
020	GTO fd	223114	1		GTOFZ	223111	
	+	61	1		f -x-	3184	
		01			h RTN	3522	
	2	02		¥	FIBLI	312501	DISPLAYS NEXT
	9 X <del>í</del> Y	3271	1	080	1	01	LETTER NUMBER.
	GTOfd	223114			STO+7	336107	
	h R I	35 53			RCL 7	3407	
	-	51			hrtn	3522	
	f X < O	3171	4	*	FLBLE	312515	RESET. RESTORE
	GTOZ	55 OS			NF?I	357101	REGISTERS.
030	STOO	3300			hF?2	357102	
	RCL 8	34 08	4		GTOFd	223114	4
	h SFI	355101			CEI	356101	
	GTO B	2212			RCLZ	3402	
*	FLBLD	312514	RIGHT	090	h STI	3533	4
	9	09	4		RCL 3	3403	4
	+	61			STO 5	3305	4
<b>*</b>	FLBLC	3125 13	CENTER		RCL 4	3404	4
	9	09	4		5106	33.06	4

	hGEI	355101			CEL	35(010)	
	GTO B	2212			PCI 2	3402	
*	FIBID	317514	RIGHT	090	h STT	35 33	
	9	09			RCI 3	3403	
	+	61			STOF	33.05	
¥	FIRIC	317513	CENTER		PCI 4	3404	
A	9	09			STOG	33.06	
	+	61			RCL 8	34 08	
<sup>040</sup> ¥	FLBLB	312512	LEET. INSERTS		1	01	
	hF71	357101	LETTER INTO STRING		+	6)	
	hF72	357102	IF CURRENT WORK		STO+0	336100	
	GTOFd	223114	AREA IS FULL IT IS	*	FLBLZ	312502	
	RCL 5	34 05	ADJUSTED TO FRACTION	100	RCLO	3400	
	EEX	43	AND NEXT REGISTER		<b>ξ</b> − <b>χ</b> −	31 84	
	2	02	IS MADE AVAILABLE		<b>h</b> RTN	35 22	
	X	71		*	9LBL 2	32 25 11	WRITE DATA CARD.
	+	61			hF?l	357101	ADJUSTS LAST REG-
	STO 5	33 05			GTOFd	22 31 14	ISTER AND WRITES
050	1	01			RCL 5	34 05	DATA AFTER INSERT-
	STO+6	336106			RCL 6	3106	ING WORD COUNT.
	RCL 6	3406			2	02	
	5	05		110	X	71	
	9X4A	3261		110	à 10°	3253	
	GTOO	22.00			-	81	
	IRCL 5	34 05	PECI		510(1)	13324	
~	I			siens	6	7	8 9
POSIT	IONS WORD	SAVE	SAVE SAVE	° WORK	REGIST	ER LETTER	LETTERS
S0	IS1	S2	S3 S4	S5	S6	S7	S8 S9
(			WORD S	TRINO	5		+
A		3	c	D	-	E	INDEX TO WORD
							STRING REG.

### 67 Program Listing II

				U/								25
STEP	KEY EN	ITRY	KEY (	CODE		COMMENTS		STEP	KEY ENTRY	KEY CODE	СОММ	ENTS
	RCL	١	340	1								
	FCLR	REG	31 4:	3				170				
	FPZ	S	31 48	2								
	FEX		43								]	
	2		02		1						1	
	<u> </u>		81		1						1	
	i STO		224	100	1						-	
120	15101		000	100	ł						4	
	$+ \omega/D$	нтн	<u> असा</u>	~ . ~							4	
<b>*</b>	12 TBI	<u>e</u>	32 2	515	INITI	ALIZE. CLE	ARS				4	
	h SF	0	355	100	STRIN	IG AND PREF	PARES	×			4	
	In CF	1	356	101	IT FOR	R FIRST WO	RD.				4	
	h CF2	2	356	102				180			1	
	FCLR	REG	3) 43	3								
	f PZS	5	3142	2							]	
	frig	FG	3147	3							1	
			01		1						1	
	STO	-	330	6							1	
130	laio	9	250	<b>v</b>							4	
	1										1	
	0		00	-							4	
	h ST	Γ	353	53							4	
	4		04					100			4	
	9		09					190			4	
	STO	0	330	0							4	
	<del>-</del> X	-	318	4								
	<b>h</b> RT	N	352	2								
											1	
											1	
140											1	
											1	
											1	
											4	
								200			4	
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LETTE	85		- 1	CER	TIER			EDEI	UN=INITIALI	FLAGS		DISP
a WRITE	b b			с		" 10119 "	eINI	TIALIZE	ON= LETTER			FIX 🖬
OUEOV				201-0		3	4		2 DECO			SCI 🗖
	~~~ \_	ETTER	S NO.	1003	TIONS	0	-				RAD 🗆	ENG_
3	ь			<b>′</b>		Ø	9		3	3 🗆 🖬		n_ <b>O</b>

Program Title WORD GAME SUBROUT	NNE	
Contributor's Name JOHN R. RAUSCH		
City FRANKLIN	State OHIO	Zip Code 45005

Program Description, Equations, Variables THE PURPOSE OF THIS SUBROUTINE IS TO INTERFACE WORD GAME PROGRAMS WITH DATA-CARD WORDS CREATED BY THE WORD ENCODER PROGRAM. WHEN CALLED, THE NEXT WORD IN THE STRING WILL BE CONSTRUCTED IN A PAIR OF REGISTERS (BEGINNING WITH THE REGISTER NUMBER STORED IN REGISTER B WHEN CALLED) AND THE NUMBER OF LETTERS IN THE WORD WILL BE PLACED IN REGISTER B. IF NO WORDS RE-MAIN, A PAUSE LOOP WITH A ZERO DISPLAY WILL BE EXECUTED UNTIL A WORD CARD 15 READ. UPON RETURN, THE FIRST FIVE OR LESS LETTERS OF THE WORD WILL BE IN THE FIRST REGISTER OF THE PAIR AND THE SIXTH THRU TENTH LETTERS (IF PRESENT) WILL BE IN THE SECOND REGISTER. THE LETTERS ARE STORED AS A FRACTION FOR SIMPLE EXTRACTION, FOR EXAMPLE, THE WORD "CREATIVE" WOULD APPEAR AS THE NUMBER .2524170710 IN THE FIRST REGISTER AND .270217 IN THE SECOND. EACH LETTER OCCUPIES TWO DIGITS. THE NUMBER STORED IN REGISTER 8 PRIOR TO CALLING THE SUBROUTINE MUST BE SIX OR LESS, OR EQUAL TO TWENTY-FOUR. THE ENTRY POINT TO THE SUBROUTINE IS LABEL 3. TO CALL THE SUBROUTINE, YOUR PROGRAM MUST DO THE FOLLOWING INSTRUTIONS: n (REGISTER), STOB, FGSB3. YOUR PROGRAM SHOULD USE THE ALPHA OVERLAY SHOWN IN FIGURE #1 OF THE SCETCHES COMBINED WITH THE CODE SHOWN IN FIGURE #2 FOR LETTER ENTRY. THIS WILL MAKE YOUR PROGRAM CONFORM TO METHOD USED BY THE WORD ENCODER PROGRAM (CONTINUED)

Operating Limits and Warnings THIS SUBROUTINE USES REGISTERS 8,9, A, B, C, ANDI, AS WELL AS ALL TEN SECONDARY REGISTERS TO STORE THE WORD STRING. HOWEVER, REGISTERS 8 ANDI CAN BE USED BY YOUR PROGRAM BETWEEN CALLS. LABELS 3THRU 9 ARE USED. HOWEVER, LABELS 4 AND 6 ARE THE ONLY LABELS BRANCHED TO THAT WILL CAUSE A SEARCH THAT WOULD LOOP THRU MEMORY. THEREFORE, THEY SHOULD NOT BE USED. YOU CAN USE ANY OTHER LABEL THAT CAN BE LOCATED BY A DOWNWARD SEARCH PRIOR TO ENCOUNTERING THIS SUBROUTINE. KEEP IN MIND (CONTINUED)

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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Program Title		
Contributor's Name		
Address	State	Zin Code
City	State	

Program Description, Equations, Variables AS WELL AS ALL OF THE WORD GAME PROGRAMS THAT HAVE BEEN WRITTEN AS OF 9-1-76. USING THIS METHOD, LETTER ENTRY IS ACCOMPLISHED BY PRESSING THE DIGIT KEY THAT HAS THE DESIRED LETTER ABOVE IT FOLLOWED BY B IF IT IS THE LEFT LETTER OF THE THREE, C IF IT IS THE CENTER, OR D IF IT IS THE RIGHT. FOLLOWING LABEL B YOUR PROGRAM CAN PROCESS THE SINGLE LETTER THAT HAS BEEN ENTERED. SUPPOSE YOU WANTED TO ENTER AN "R". YOU WOULD PRESS & FOLLOWED BY D. AT LABEL B THE NUMBER IN X WOULD BE 24 WHICH CORRESPONDS WITH THE SECOND LETTER IN "CREATIVE" THE EXAMPLE SHOWN ON PAGE 1. (6+9+9=24).

USING THIS SUBROUTINE IN CONJUNCTION WITH THE WORD ENCODER PROGRAM ALLOWS YOU TO CONCENTRATE ON THE PROGRAMMING OF THE GAME YOU ARE CREATING WITHOUT HAVING TO PROGRAM THE WORD ENCODING AND THE SUB-SEQUENT ENTRY OF WORDS INTO YOUR PROGRAM. AT THE SAME TIME THIS SHOULD ILLUSTRATE TO THOSE OF YOU WHO ARE NEW TO PROGRAMMING THE ADVANTAGES OF GENERALIZED SUBROUTINES -- EVEN THOUGH A SUBROUTINE OF THIS TYPE OFTEN USES MORE STEPS AND/OR TAKES MORE TIME TO EXECUTE THAN A DEDICATED ROUTINE WRITTEN INTO YOUR PROGRAM. PROGRAMMING THE HP-67 WITH ITS INCREASEDSTORAGE OVER THE HP-65 BRINGS US CLOSER TO THE TECHNIQUES USED ON LARGER COMPUTERS.

OPERATING LIMITS AND WARNINGS THAT YOU WILL BE USING LABEL 3 TO CALL THIS SUBROUTINE. THIS SUBROUTINE MAKES CALLS TO SUBROUTINES ONE LEVEL DEEP. ANY TIME & WORD HAS FIVE OR LESS LETTERS, THE SECOND REGISTER WILL BE ZERO. REGISTER A MUST BE ZERO THE FIRST TIME THIS SUBROUTINE IS CALLED.

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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Sketch(es)       To m         ABC       DEF       GHI         JKL       MNO       PQR         JKL       MNO       PQR         BETTE       BRCK         STU       VWX       YZELK         SHEET       SUPPLY         -FKK	AKE OVERLAY, COPY PAGE THEN COVER PAGE THEN COVER AY WITH CLEAR TAPEOR AY WITH CLEAR TAPEOR AY WITH CLEAR TAPEOR TH CLEAR PLASTIC WITH CLEAR PLASTIC AVAILABLE AT OFFICE AVAILABLE AT OFFICE TORES. CUT ON LINES. ARE #1- -FIGURE #2-						
Sample Problem(s) THE SAMPLE SERVES ONLY TO INDICATE THAT THE SUBROUTINE IS EUNCTIONING PROPERLY. YOU MUST FIRST RUN THE SAMPLE OF THE WORD ENCODER PROGRAM TO CREATE A WORD GARD.							
WRITE THE FOLLOWING PROGRAM INTO MEMORY BEGINNING AT STEP 001: FLBLA, 3, STO 8, FGSB 3, h RTN. NOW FOLLOW THE USER INSTRUCTIONS ON PAGE 4 FOR LINKING THE SUBROUTINE TO THE ABOVE PROGRAM.							
YOU ARE NOW READY TO TEST THE SOLUTION BELOW.							
Solution(s) 1. A SEE PAUSE LOOP WITH ZERO DISPLAY 2. READ IN WORD CARD - PROGRAM WILL RUN A FEW SECONDS - IGNORE DISPLAY 3. REL 0 SEE 8, THE NUMBER OF LETTERS IN THE WORD 4. REL 3 SEE .2524170710, THE FIRST FIVE LETTERS OF "CREATIVE" 5. REL 1 SEE .270217, THE LAST THREE LETTERS OF "CREATIVE" 6. A ROGRAM WILL RUN A FEW SECONDS - IGNORE DISPLAY 7. REL 0 SEE S, THE NUMBER OF LETTER IN THE WORD 8. REL 3 SEE .0527140801, THE WORD "MINDS"							
9. Rel A SEE 0, ONLY FIVE LETTERS							

Reference(s) 65 NOTES, Vol.2 No.3 Published by HP-66 Users Club, 2541 W. Camden Place, Santa Ana, California 92704. Other word game programs that use this subroutine in the Users Library are: 1) HANGMAN WORD GAME, 2) WORD BAGLES, AND 3) PROBE WORD GAME.
## **User Instructions**

WORD GAME SUBROUTINE

(dd)

STEP			INSTRUCTION	IS		INPUT DATA/UNITS	к	EYS		OU DATA	TPUT /UNITS
1	Posi	TION YOUR	R PROGRA	M AT THE	LAST						
	STEP	PIT USES		ORY. IF T	1415 15						
	GREG	ATER THAN	N 134 TH	FSUBBOI	TINE						
		NOT EIT									
2	SET	MERGE	MODE	A RUN MOD	E)		9	MER	Æ		
З	LIN	K WORD	GAME SU	BROUTINE	= to						
	YOU	R PROGRAM	ή.								
			<b>.</b>								
4	1001-	TE OR EVE	ECOTE	NKED DRC	CROM						
				,					7		
				······					-		
		D	LA	BELS	F	FLAGS		S	EI ST	AIUS	
A		в		<u> </u>	-	ļ		S DEF T	TRI	G	DISP
а		b	с	d	e	<u> </u>			DEG	<u> </u>	FIX
0		1	2	BENTRY POINT	4 READ LOOP	2			RAD		
5 <sub>570</sub>	Turnen	6 BULL D L 000	7EXTRACT	8 USED	9 ADT FRACTO	3 USED	$3 \square$				n_2

# Program Listing I

34						s an		74 1	116 1					
STE	Ρ	KEY ENTRY	KEY CODE		COMN	IENTS	STEP	KE	EY ENTRY	KE	Y CODE		COM	MENTS
001	¥	FIBI 3	312503	ENT	RY P	OINT		2	XXO	31-	7)			
		RCLA	34 11	LE OF	EGISTER	RISNOT		R		34	28			
		f X≠O	3161	ZER		ROUTINE		C.	XXO	319	31			
		GTO 5	22.05	IS R	VDASS	FD	060		(SQ 9	312	22 09			
		9,03	09	INITI				5	DIN	25	22			
		L CTT	25.22			INDEX IN 9.		$\frac{1}{c}$		100		FV-		
		6 5 1 1	33 33	SWAI	J KEGI	SIERS.	*			131.0	501	EXI	RHCI	NEXT
		5109	3309	MERG	SE REG	STERSO		1KC		34	13	LET	TERF	rom word
		+ PZS	3142	TO 9	FROM	WORD CARD.		++	X <del>7</del> 0	31		STR	ING.	ALSO
010		hCF3	356103	WHEN	DATA	RECEIVED,		1G1	<u> </u>	55	80	CAL	LED TO	o extract
010		DSPO	2300	SWAP	BACK	REGISTERS,		1RG	219	134	09	WOR	D COUI	NT AND
		CLX	44	EXTR	ACT NU	DIMBER OF		1h	XZI	35	Z4	LET	TER CC	DUNIT. IF
		STOC	33 13	WORS	S ANC	STORE IN		_++_	ISZ	31	34	WOR	K AREF	7 IS ZERO
	¥	FLBLA	312504	REGI	STER	Α.		RC	(i)	34	24	NEX	TREG	ISTER IN
		9 MERGE	3241				070	S	ro c	33	13	STR	ING IS	PUTIN
		h PAUSE	3572					In	X Z Y	35	52	WOR	KARE	θ.
		h E 73	357103	1				In	XZT	25	24	000		
		h F 22	357103	1				10		22	~	i i		
			3301	1						133	12			
			2104	1				IRC		154	15	1		
020		+ P25	3142	1			*	++1	-BL8	31	25 08			
020		+GSB7	312201	1				EE	ΞΧ	43				
		STOA	3311					12		los		1		
	¥	FIBL5	312505	STAP	T NEXT	word.		↓×_		171		1		
			01	DECR	EWEN.	t word		9	FRAC	32	83			
		-	51	COUN	IT, EX	TRACT THE	080	51	2 01	33	13	1		
		STO A	3311	LETT	ER COL	ONT FROM		ln	LSTX	35	8Z			
		fGSB7	312207	STRI	NG AN	D STORE IN		f	INT	31	23	1		
		STOB	3312	REGI	STER	B CIEDR		1h	RTN	35	22			
		001 8	3408	PEGI	STER	BEAR ASE	*	L C I	R) Q	21	25.09	1700	KT X -	TO A FRAC-
		h CTT	25 32		-TTEN	S FOR USE	^	12		07	-307			
030			100 00	145 L	EIIER	COUNTER,		12		21			4	
			44	1						122	-2			
		SIO(i)	3324	1				3		32	35	1		
		+152	3134	1				tži	$O^{\frac{1}{2}}(i)$	133	8124	i i		
		STO (i)	3324	1			000	++1	SZ	31	34			
<b> </b>		+ DSZ	31 33	4			090	μh	RTN	35	22			
		CLX	44											
		STO 8	3308									1		
	¥	FLBL 6	312506	BUI	-D wo	ROLDOP.						l		
		fGSB7	312207	EXEC		NOE FOR								
		RCL (i)	34 24	FOOL								1		
040		FFX	43	ECH		KINGGRU.						1		
		2	50	UNITE		OILT HS HN		Τ						
		×	71		GEK IN	REGISTER		1						
		<u>т</u>	61	SPE	CIFIEL	DINS'UND		1						
			22.24	INRO	EGISTE	R FOLLOWING	100	+						
		sid (i)	3329	WHEN	V FIRST	r register		+		+				
		1	01	15 FU	>LL (FIV	ELETTERS)		+		+				
		STO +8	336108	LABE	1915	CALLED TO								
<b> </b>		5	05	ADJU	ST FUL	L REGISTER				+				
		RCL 8	34 08	TO A	FRACT	ION. WHEN		+						
050		9 X=Y	3251	WORD	DISCO	MPLETED,						1		
050		f GSB 9	312209	LABE		SCALLED								
		RCLB	3412	AGA	INIF	WORD HAS								
		RCL 8	34 08	MOR	ETHE	IN FIVE		L						
		9 X ¥ Y	3261	LET	TERS									
		GTO 6	2206				110							
		5	05											
		-	51											
						REGIS	STERS							
0		1	2	3		4	5		6	7		<sup>8</sup> #c	FFIRST	9 INDEX TO
									L			WOR	DREG	WORD STRING
Ş0		S1	S2	S3		S4	S5		S6	S	7	S8		S9
						WORD	STRI	NG						,
A		REMAINING	BIETTERE		CUNC	K ADEA	D			E			I	SED
		TRING	CURRENT WO	BD										

## **Program Description I**

Program Title HANGMAN WORD GA	ME	
Contributor's Name JOHN R. RAUSCH Address 402 VIRGINIA AVE		
City FRANKLIN	State OIH 10	Zip Code 45005

Program Description, Equations, Variables THIS PROGRAM USES WORDS ON A DATA CARD CREATED BY THE WORD ENCODER PROGRAM TO PLAY HANGMAN WITH YOU. AFTER THE PROGRAM SELECTS A WORD, YOU ARE TOLD THE NUMBER OF LETTERS IN IT. YOU THEN TRY TO GUESS THE WORD BY GUESSING ONE LETTER AT A TIME. AFTER EACH WESS YOU ARE TOLD THE POSITIONS THAT THE LETTER APPEARS IN THE WORD ALONG WITH THE NUMBER OF WRONG GUESSES MADE SO FAR. THE ORIGINAL GAME OF HANGMAN DIDN'T COUNT WRONG GUESSES BUT ADDED ONE FEATURE TO A HANGED STICK FIGURE UNTIL IT WAS COMPLETED -- AT WHICH POINT THE GUESSER LOST. LESS PROFICIENT PLAYERS OFTEN ADDED TOES, FINGERS, HAIR, AND OTHER BODY PARTS TO KEEP FROM LOSING. THIS PROGRAM MAKES NO ATTEMPT TO HANG YOU, BUT IF YOU KEEP TRACK OF YOUR WRONG GUESSES, YOU WILL FIND THAT EVEN "EDUCATED" ADULTS CAN IMPROVE THEIR RECOGNITION OF A WORD WHEN ONLY A FEW LETTERS ARE EXPOSED AFTER SEVERAL SESSIONS OF HANGMAN. HANGMAN IS AN EXCELL-ANT GAME FOR SCHOOL CHILDREN, BUT --- YOU MAY NEVER SEE YOUR CALCULATOR AGAIN. USE ALPHA OVERLAY FOR ENIRY.

OPERATING LIMITS AND WARD CAN HAVE FROM I TO IO LETTERS. THIS PROGRAM WILL NOT FUNCTION WITHOUT THE WORD GAME SUBROU-TINE (IN USER'S LIBRARY)

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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## **Program Description II**

Sketch(es)		DEF MNO VWX	GHI PQR YZBLK	TO MAKE OVERLAY, COPY THIS PAGE, THEN COVER OVERLAY WITH CLEAR TAPE OR BETTER - COVER FRONT AND BACK WITH CLEAR PLASTIC SHEET AVAILABLE AT OFFICE SUPPLY STORES. CUT OUT ON LINES.
Sample Problem(s PROGRAM_TC NOTE: IN S WITH	STEP 7	THE S Y A GR 2 BELO ERO DI	AMPLE IME OF W , THE SPLAY	CARD CREATED BY THE WORD ENCODER HANGMAN. E DISPLAY WILL ENTER A PAUSE LOOP UNTIL YOU READ IN THE DATA CARD.
Solution(s) 1) L 2) SELECT N 3) GUESS " 4) GUESS " 6) GUESS " 6) GUESS " 7) GUESS " THE WORD	LOAD SII R# - & B# - T E# - E LO# - E LO# - E LS "CF		D SIDE 2 2.00 0.01 38.0 20.02 4.02 E". YO	2, THEN INITIALIZE BY PRESSING [] [ SPLAY FLASHES 8 (NUMBER OF LETTERS IN WORD) ("R" IS IN SECOND POSITION) (NO"B", I WRONG GUESS) I ("E" IS IN THIRD & EIGTH POSITIONS) (NO "O", 2 WRONG GUESSES) ("A" IS IN FORTH POSITION) NO CAN CONTINUE IF YOU WANT.

Reference(s) 65 NOTES, VOL. 2 NO. 3 PUBLISHED BY HP-65 USERS CLUB, 2641 W. CAMDEN PLACE, SANTA ANA, CALIFORNIA 92704.

SEE WORD GAME SUBROUTINE FOR DOCUMENTATION ON HOW IT

# **User Instructions**

HANGMAN NEXTWORD LEFT CENTER RIGHT RESET

INITIALIZE

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
١	LOAD SIDE I AND SIDE2			
2	PLACE ALPHA WERLAN WER KEYSI-9			
3	INITIALIZE (IFJUSTSTARTING)		f E	0.00
	OR			
	RESET		E	0.00
4	SELECT NEXT WORD. IF YOU HAVE		A	LETTERS
	JUST INITIALIZED OR THERE ARE NO			
	MORE WORDS, A PAUSE LOOP WITH A ZERO			
	DISPLAY WILL BE EXECUTED UNTIL YOU			
	READ IN A DATA CARD WITH MORE WORDS	•		
	FINALLY, DISPLAY WILL FLASH THE			
	NUMBER OF LETTERS.			
6	GUESS A LETTER, A LETTER IS ENTERED	) 1-9	B	RESULT
	BY PRESSING THE DIGIT KEY THAT HAS THE		-OR-	
	REQUIRED LETTER ABOVE IT, FOLLOWED BY		C	
	B IF IT IS THE LEFT OF THE THREE LET.		-0R-	
	IERS, C IF IT IS THE CENTER, OR D			
	IFIT IS THE RIGHT. THE NUMPER TO THE			
	LEFT OF THE DECIMAL IN THE DISPLAY			
	IS THE POSITIONS THAT THE GUESSED			
	LETTER APPEARS IN (ZERO = WRONG			
	GUESS) AND THE NUMBER TO THE RIGHT			
	IS THE NUMBER OF WRONG GUESSES			
	YOU HAVE MADE ON THE CURRENT WORD.			
	WHEN YOU HAVE GUESSED THE WORD,			
	GO TO STEP 3 . NOTE: YOU DO NOT HAVE			
	TO COMPLETE THE WORD BEFORE SELECT			
	ING THE NEXT ONE IF YOU ARE SURE			
	WHAT IT IS,			

38				67 Pro	gram	Lis	sting I				
ST	EP	KEY ENTRY	KEY CODE	Сомм	ENTS	STEP		KEY CODE		сомм	ENTS
001	<del>X</del>	FLBLA	312511	SELECT NE	EXT WORD.		RCLA	3404			
			133 3 1 10	CHLLS WOR	D GHME		KCL 5	3405	1		
-			ICC DITA	SUBROUTI	NE FOR	060		25.52	1		
			44	WORD. CLE	IAKS		n Kw	3333	1		
		SICA	133.04	WRONG GUE	SS COUNT.				4		
		SIO8	3308	4			3 FRHC	3283	4		
		+0283	312203	4			5104	3304	4		
		n SFO	1355100	4			DSP 2	2302	4		
010		DSPO	2300	4			DLSIX	35 82	4		
		KCL D	1.54 12	-			<u>nkin</u>	3522			
		+-X-	31 84	4		~ ~	H LISLO	312500	OPD	ATES	POSITION
			33 25 11				1		CLO	E, PO	SITION
	*	+TBLD	1312514	RIGHT		070			10 1	REQUI	RES
		9	09	4		0/0	9 XE	36 54	SPE	CIALF	ATTENTION
		+					hLSTX	35 82	4		
	*	+ LBLC	312513	CENTER			KCL6	34 06	4		
		9	09	4			9X=Y	32 51	4		
		+	61		*****		nRI	35 53	ł		
000	*	FLBLB	312512	LEFT. STO	DRES		CLX	44	4		
020		ST03	3303	CUESS LET.	TER IN		RCL5	34 05	4		
<u> </u>		CLX	44	REGISTER	3 THEN		X		4		
		STO5	33.05	LOOPS THR	U WORD		RCLO	34.00	4		
L		STO6	33.06	LOOKING F	or a	080	+	61	-		
		2	05	MATCI4. CA	ILLS LBL	080	STO 5	3305	4		
L		3	03	O WHEN	A MATCH		h RTN	3522	<b> </b>		
		CHS	42	OCCURS TO	D UPPATE	*	grbre	32 25 15	INI	TIALIZ	Ĕ
		hSTI	35 33	THE POSIT	ION CLUE.		LE CL REG	3143			
L		RCLO	34.00	IF CLUE IS	ZERO	*	FLBLE	31 25 15	RES	SET,	
		STOZ	33.02	WHEN FIN	ISHED,		n CFO	356100	4		
030		1	01	ADDS TO W	RONG		CLX	44	4		
		STO+6	336106	GUESS CO	UNTER.		hRTN	3522	<b> </b>		
		RCL 6	34.06	4					WOR	ND GAN	NE SUB-
		6	06	4					ROU	TINE	MUST BE
		9X=Y	3251	4		090			LINI	KED II	VTO
		h SF2	355102	4					STE	FP 88,	
		RCLI	3401						1		
		h F?2	357102						1		
		STOR	33.02						4		
		RCL2	34.02						4		
040		EEX	43						4		
		2	02	1					4		
L		X	17	1				ļ	4		
		9 ERAC	3283						4		
		STO 2	3302	1		100			4		
		n lstx	3582								
		FINT	3183								
		RCL 3	3403	1					1		
		9 X=Y	3251						1		
L		fgsbo	312200	1					1		
050		RCL 6	3406	1							
		RCLB	3412	1							
		9 X≠Y	3261						1		
L		GTO (i)	22.24	4					4		
L		•	83	{		110			1		
		0	00	4					1		
<b> </b>		1	101		DEOIG	TERC	I	1	I		
		11	2	13	HEGIS	5	6	7	8	T	9
ိယ္	ORI	> UWORD	- WORK	GUESS	WRONG	<sup>°</sup> CLUE	LOOP		ľ		-
S0	5	S1	S2	S3	S4	S5	S6	S7	S8		S9
A		<u> </u>	B	c		D		E		INDIO	EDT GTO
										I INDIKE	00 010

				<b>Ľ</b> •	, P	rograi	m I	List	ing II			30
STEP	KEY EN	TRY	KEY	CODE		COMMENTS		STEP	KEY ENTRY	KEY CODE	COMM	IENTS
								170				
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100												
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							F					
	L				LAE	BELS	l	1	FLAGS		SET STATUS	
A NEX	Б	LEF	т	C CEN	ITER	D RIGHT	ERE	SET	OFF = NEXT	FLAGS	TRIG	DISP
а	b			с		d"error "	e INIT	IALIZE	1	ON OFF	DEG 🛛	FIX 🛛
0	1			2		3	4		<sup>2</sup> USED			SCI □ ENG □
5	6			7		8	9		3	3 🗆 🖾		n_2_

### **Program Description I**

Program Title	Pro Football Simulatic	מפ			
Contributor's Name	James S. Hayden				
Address	P.O. Box 345				-
City	Edwards	State	CA	Zip Code	93523

Program Description, Equations, Variables 1. Description: Program is an expanded HP-67 adaption of HP-65 program 01313A "Pro Football Simulation. The program simulates the play of a football game using 13 (expandable to 17 )offensive and 4 defensive plays. Outcomes are formulated to be consistent with professional statistics but may be modified by user. 2. Plays: Each play is defined by a set of three groups of numbers (G1, G2, G3) called from storage by a play number (1 to 13; 17 max). Four defenses (pressure & containment against both passes and runs) are provided. The value of G3 determines the spread of a pseudo random number generator (LBL d) adapted from HP-67 standard pac program 13. The number generated, R, is between 0 and (G3-1). G2=0 denotes a running play and G2>0 a passing play. The value of G2 is also used to bias yardage spreads when the two pass defenses (LBLC & LBLD) are used. Values of G1>5 are treated as negative in the program. G1 biases the yardage spread against run defenses (LBL A & LBL B) and determines the incomplete pass and missed kick probabilities. 3. Algorithms: The yardage outcome from each offense/defense combination is determined as follows: a. LBLA: R-3G1; b. LBLB: R-G1; c. LBLC: R-3G2; d. LBL D: R-G2; e. Prob. of incompletion or missed field goal = 1/G1; f. Prob. of interception or blocked field goal = 1/9; g. Prob. of fumble, blocked punt or penalty on kick-off = 1/40. NOTE: Outcomes simulate pro statistics but user may alter by changing the algorithms and/or play codes.

**Operating Limits and Warnings** 

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

NEITHER HP NOR THE CONTRIBUTOR MAKES ANY EXPRESS OR IMPLIED WARRANTY OF ANY KIND WITH REGARD TO THIS PROGRAM MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NEITHER HP NOR THE CONTRIBUTOR SHALL BE LIABLE FOR INCIDENTAL OR CONSEQUEN-TIAL DAMAGES IN CONNECTION WITH OR ARISING OUT OF THE FURNISHING, USE OR PERFORMANCE OF THIS PROGRAM MATERIAL.

### **Program Description 11**

Sketch(es) 1. <u>Rules of Play</u>: Basic rules of pro football apply. Suggested duration is 25 plays per quarter. (Total playcount is in S8.) 2. <u>Field Layout</u>: Field position is denoted in yards measured from offensive teams goal line. i.e., 0= offensive goal, 50 = 50 yd line, 100 = defenders goal line, etc. 3. <u>Score Requirements</u>: a. Runs, position  $\geq$  100; b. Passes, position  $\geq$  100  $\leq$  110 (> 110 is incomplete); c. Kicks position  $\geq$  110 (zero gain is missed kick.).

Sample Problem(s) Arbitrary starter No selected by looser of coin toss: Key <u>Sample</u> 9, f.B. No. 1 team to kick off, No. 2 team to receive. Key status <u>Position</u> 35: <u>Down</u> 0 <u>Team</u> 1, and <u>Reset</u> fa. <u>(Reset</u> should be performed after each first down, turnover,

or sco	re.)				
Play Defense Outcome -Gain- Status				Situation	Reset
10	*	59	94.11	Ball on No. 2 6 yd line	6.02
13	*	30	36.12	Runback to 36. 1st and 10	
3	В	4	40.22	2nd and 6 on 40	
6	В	-1	39.32	3rd and 7 on 39	
9	D	25	64.42	lst and 10 on No 1's 36 yd line	64.12
5	С	28	92.22	lst and 10 on No 1's 8 yd line	92.12
7	В	14	106.22	Touchdown for No. 2	97.12

\* Stunt defense is automatically used against kicks & runba<sub>CKS</sub>(i.e., Play No. >9).
 \*\* Punts out of play may be put in play at the receivers 20 or runback from status

**Solution(s)** 1. Interpretation of "error" display: Recall -Gain- and status by Keying  $f^{C}$ . a. Run, fumble lost at status position. No runback; b. Pass, interception if gain >0; Ball to be runback. Fumble if gain  $\leq 0$ ; treat as a. above; c. Kick, blocked; ball lost at line of scrimmage; d. Kick-off, illegal procedure, repeat kick-off with 5 yd penalty. 2. Bookkeeping: It is recommended that each player keep a record of play, status, first downs and score.

Reference(s) 1. HP-65 Program 01313A "Pro Football Simulation" by Leonard Kings. 2. HP-67 Standard Pac Program 13.

## **User Instructions**



STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
1.	Load data & program (two sides each)			
2.	Optional: Start with arbitrary number	N	f B	.NN
3.	Reset status yd . down,player	XX.XX	f A	XX.XX
4.	Key in Play No. 1. QB sneak	XX	E	0/*Status
	2. Plunge/Dive			
	3. Slant/Ride			
	4. Draw			
	5. Flow/Counter			
	6. Screen Pass			
	7. Look-in Pass			
	8. Sideline Pass			
	9. Deep Pass			
	10. * Kick-Off			
	11. * Punt			
	12. * Field Goal/Ext. Pt.			
	13. * Runback			
	* Stunt defense is automatically used			
5.	Play Defense			
	Stunt Pressure against run A			
	Pro Containment against Run B			
	Blitz Pressure against Pass C			
	Nickel Containment against pass D		(A,B,C,or D)	-Gain-,Statu
				or Error
6.	If error, obtain -Gain-, Status		f C	-Gain-,Statu
	Interpret per solution 1. Pg 2, Bookkeep			
	and go to Step 3.			
8.	If first down, turnover or score; bookkeep			
	and go to Step 3			
9.	Go to Step 4			

# 97 Program Listing I

STEP #	EY ENTRY	KEY CODE	Сом	MENTS	STEP	<u> </u>		KE			COMM	ENTS	40
001	<b>XLBLE</b>	21-15	Play			057	6100		22 00	GO	to Run		
882	STOI	35 4 <i>6</i>				050	#LBLU	4	21 14 75 10	Nic	kel		
003	9	69	Set Flag			033	RULD		30 12 75 14				
004	2 <b>7</b>	-41	for			000	STOD		3 <b>J 14</b> 00 10				
005	X>Y?	16-34	auto			001			22 12	Go	to Pro		
006	SF2	16 21 02	Stunt			002	FLDLU DOLD	4	ZI 13 72 19	Bli	tz		
867	RCLI	36 45	Set up P	lau		003 064	CTOD		30 12 75 14				
008	INT	16 34	Codes in			004	510D 6706		33 14 00 14				
009	LSTX	16-63	Stack			00J 022	H DI J		22 11 12 14	Go	to stu	n <b>t</b>	
010	FRC	16 44				000	ALDLO DCLO	21	10 14 76 00	Pse	udo Rai	പറന	
011	1	01				001	KULU G		30 00 RG	Niim	her		
012	0	66				000 020	2		80	Gen	erator		
013	877	-41				007	2		87	001	crucor		
014	X	-35				070	r V		-75				
015	INT	16 34				071	EDC		-30 16 AA				
016	LSTX	16-63				077	etos		10 44 75 00				
017	FRC	16 44				013	5100 Brir	•	33 00 72 17				
018	EEX	-23				074	RULL	•	30 I3 -75				
<b>R</b> 19	2	<b>a</b> 2				073	A THT		-30				
<b>R</b> 2A	×	-35				010	INI DTH		10 34				
A21	65Be	23 16 15				070	KiN		24				
R22	RTN	24				070	TLDLU		21 00	Tur	novers		
022 023	xi Bi e	21 16 15	Store Play	y codes		079	F1?	10 4	23 01				
020 024	SEI	16 21 RI	Set Pass i	Flaq		080	6101			Go	to Pass	5	
925	STOA	35 11		2		081	4		- <b>8</b> 4 30	Run			
020 026	5	00 II 05				082	<b>0</b>		00				
020 027	ν <del>τ</del> γ	-41				083	5100	~ 7	35 13				
027 028	X>Y2	16-34				084	658d	23.	16 14				
020 029	CHS	-22				085	X=07		16-43				[
025 A7A	STAD	75 14				086	<del>.</del>	~ 7	-24	Err	or – Fi	ımble	
000 031	R1	-71				087	655C	23 .	16 13				
031 072	P1	-31				088	KIN		24				
002 AZZ	STOR	75 12				089	¥LBL1	•	21 01	Pas	S		
000 074	5766 X=02	16-47				090	KULH		36 11	•			
004 075	0-0: 0F1	16 22 B1	Clear Pass	s flag for		091	5106	~ '	30 13				
000 076	D.i.	-71	Run			092	656d	23 .					
030 077	STOC	35 13				093	X=07		16-43				
007 078	DTOC DT X	-51				094	RIN		24	Inc	omplete	9	
000 079	E22	16 27 82	Test auto	stunt flag		090	Э отоо		- 65		-		
005 DAŭ	ETAA	22 11	Go to Stu	nt		096	5100	~ ,	30 13				
040 041	DTN	24				097	656d	23	16 14				
041 040	*1 DI D	21 10	Pro			098	X=0?		10-43				
042 047	CSRJ	27 16 14				099		07	-24	Err	or-Inte	ercept	or
040 GAA	PCID	76 14				100	658C	23	10 13	Fum	ble		
044 045	-	-45				101	KIN al Di -	<b>a</b> (	, <u>24</u>				
043 BAS	STOF	75 15	Outcome			102	¥LBLC D≠D	Zì.	10 13	Sta	tus		
040 047	ETOR	22 BB	Go to Run			103	F+5		10-31				
041 040	terue ≰iRiù	21 11	Stunt			104		75	01   FF 60				
040 QAQ	FLDER CCRJ	27 16 14				100	51+8	30-3	ວວ⊎ວ [ ≂∕•≘				
073 Q50	9 <b>550</b> 0 9	20 10 14 A2				100	RULE	•	-01	$O_{11}$ +	come		
050 051	<b>د</b> ×	-35				107	ENIT		-21	Jul			
001 052	RCID	36 14				100	ENIT		76 80				
0JZ 057		00 14 B7				109	RULY	,	00 83 _EE	01d	Status	5	
000 054	X	-75				110	+		-35	Add	outcon	ne	
004 055	-	-45				111	•		-62				
000 052	STOF		Outcome			112	1		UI				
670				REGIS	TERS		6	T-7	,	18	т	9	
<sup>0</sup> Seed/	$^{1}QB Sr$	neak <sup>2</sup> Plunge,	/ <sup>3</sup> Slant/	4 Draw	<sup>⊃</sup> _Flow	v/	° Scree	en  ′	Look-In	Si	deline	Dee	p
RANDOMN	2	Dive	<u>Ride</u>	54	<u>Count</u>	er	Pass	- Is	Pass	S8 <sup>P</sup>	ass	S9 Pa	55
Kick-Of	f <b>Punt</b>	Field	G. Burbe					ľ			Play	c.	.
Δ		B BXtra	LC RUNDACI	<u>sı</u>	D C	$\frac{1}{1}$	1 < 5	E			unter I  i	ta	<del>tus</del>
G.	1	G2	Ĭ	G3	- G	-, U.	$\dot{-}$	(	Gain		U U	sed	

# 97 Program Listing II

STEP	KEY	ENTRY	KEY	CODE		COMMENTS		STEP	KEY ENTRY	KEY CODE	сомм	ENTS
	113	+	-	55	Add 1	Down		170				
1	114	ST09 X#Y	35	69 A 1				170				ጥለ
	116	PRTX	_	-14	Flas.	h Outcome						
1	117	R∔	-	31							]	P
i	118	P≢S	16-	51							U.528 7 2 888	41630
1	119 120 -	KIN- NRIA	21 16	24 11	Bese	new status					- E.081	ź
	121	₽₽₽S	16-	51	Nebe	6					9.032	3
	122	ST09	35	09								4
i	123	P#S	16-	-51				100			15.004	5
1	124	KIN + PLL	21 15	24 10	Gham			180			- 21.464	7
	125 -	STOI	21 10	12 46	Star	τ					- 24.583	ε
1	127	<b>≭LB</b> L2	21	02							- 36.862	3
i	128	RCLØ	36	00							] U.UUU A AAA	Ĥ
1	129	9		09 oo							- 0.000	L C
-	130 171	9 7		02 07							- 0.000	D
	132	x	-	35							0.000	E
1	133	FRC	16	44							] 0.000	Ī
i	134	STOØ	35	00 1 -				190				
-	135	DSZI	16 25	46 00							-	S
	130	RTN	22	<b>0</b> 2 24							- 17.813	8
	138	R∕S		51							- 13.003	í
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a Rec	<u>. +</u> >+	b+	art	C S+2		d Random	ер	lav Tor	1 Run / Dago	ON QFF		
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Run 5		6 Pa	SS	- Sta	rt	8	9		Auto Stu		RAD 🗆	ENG 🗆
ľ		ľ		ľ		ľ	ľ		ĭ	3 🗆 🖌		n

### **Program Description I**

Program Title	ELECTRONIC	CONTRACT	BRIDGE	Score	Pad	
Contributor's Na	ame WERNER 23 GUNT	ENGELMA HER ST	IER			
City	MENDHAM		State	<i>N</i> .J.		Zip Code 07945

Program Description, Equations, Variables

THIS PROGRAM AUTOMATICALLY SCORES CONTRACT BRIDGE. THE PROGRAM KEEPS TRACK OF ABOVE AND BELOW LINE SCORES, DOUBLED AND REDOUBLED CONTRACTS, HONORS, VURNERABILITY, GAME STATUS, AND THE TOTAL "NE" AND "THEY" SCORE. AFTER THE CONTRACT IS INPUT, THE PROGRAM PROMPTS FOR DOUBLING, HONORS, AND DUTCOME AND THEN CALCULATES UNDERTRICK PENALTIES, BELOW LINE SCORE, ABOVE LINE SCORE, INSULTS, OVERTRICK PREMIUMS, SLAM BONUSES, AND RUBBER BONUSES. IF DESIRED, THE PROGRAM CALCULATES PREMIUMS FOR UNFINISHED RUBBERS AND PARTIAL GAMES. THE PROGRAM PROPERLY ACCOUNTS FOR DOUBLED OR REDOUBLED CONTRACTS AND FOR VULNERABILITY. THE ABOVE LINE SCORES FOR "WE"(X) AND "THEY" (Y) ARE DISPLAYED IN THE FORMAT XXXXX.YYYYY FOLLOWED BY THE BELOW LINE SCORE IN THE FORMAT XXX.ØØYYY.A VARIETY OF FLASHING DISPLAY MODES INDICATE VULNERABILITY. THE PROGRAM CAN ALSO KEEP RECORD OF THE SCORES OF UP TO 20 INDIVIDUAL PLAYERS. INDIVIDUAL PLAYER SCORES (Z) ARE DISPLAYED IN THE FORMAT NNØØØ222222, FOR EACH PLAYER NUMBER (N).

Operating Limits and Warnings THE PROGRAM CAN HANDLE SCORES UP TO 99999.

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

NEITHER HP NOR THE CONTRIBUTOR MAKES ANY EXPRESS OR IMPLIED WARRANTY OF ANY KIND WITH REGARD TO THIS PROGRAM MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NEITHER HP NOR THE CONTRIBUTOR SHALL BE LIABLE FOR INCIDENTAL OR CONSEQUEN-TIAL DAMAGES IN CONNECTION WITH OR ARISING OUT OF THE FURNISHING, USE OR PERFORMANCE OF THIS PROGRAM MATERIAL.

## **Program Description II**a

etch(es)				
No	RTH			
		NORTH & SOUTH	H ⇒ "WE"	
WEST	EAST	WEST & EAST	⇒ "They"	
SOU	тн			

Sample Problem(s) FOUR PLAYERS ARE PLAYING CONTRACT BRIDGE, CHANGING POSITIONS EVERT 4 HANDS. INITIALLY NO.1 SITS WEST, NO.2 NORTH, NO.3 EAST, AND NO.4 SOUTH. FOR HANDS 5 THROUGH 8. THE POSITIONS ARE: NO.4 AT W, NO.2 N, NO.3 E, AND NO.1 S. Solution LOAD CARD [f][A] LOAD CARD --- 0.00000 HAND No.1: "THEY" 3SPADES -22222.22222 DOUBLED ? NO **3 [CHS][B]** [R/S]-33333.33333 HONORS ? No [R/S] -- 0.00030 \*\*\* ABOVE LINE = "THEY" 30 4[R/S] 0.00093 BELON LINE " THEY " 90, NONE VULNERABLE HAND NO.2: "WE" 5 CLUBS -= 22222.22222 DOUBLED ? NO 5[A] [R/S] -33333.33333 HONORS ? YES, 100 Golution(s) IØØ[R/S] -+44444,44444 OUTCOME ? DOWN | 1 [ CHS] [ R/S] - 100.00080 \*\*\* ABOVE LINE = "WE" 100, "THEY" 80 BELOW LINE - "THEY" 90, NONE VULNERABLE 0.00090 HAND NO.3: "WE" 3 NOTRUMP 3[C] -222222.22222 DOUBLED ? YES 1[R/S] ->33333.33333 HONORS ? NO [ R/S] -4444444444 OUTCOME ? MADE 3 -350.00170\*\*\* ABOVE LINE -"NE" 350 "THEY" 170 3[R/S]

Reference (S) O,0000 NOTHING BELOW LINE IIIII.IIII WE' VULNERABLE

# **Program Description 11**b

Eketch(es) Ita		
HANI	NO.4: WE 6 HEAR	TS Develop 2 Km Ave Develop
	2 FO/67	- 22222 22222 VOUDLED ; TES, AND REDOUBLED
	CLRYSJ	
	150 [K/S]	- 44444.44444 OUTCONE: MADE 6
	6[k/S]	- 999999, 99999 RUBBER COMPLETE
LOAD	ARDULAJ	~ 2 120, 001 10 ABOVE LINE = "WE" 2720, THEY 170
KECORD INDI	VIDUAL SCORES	2)[=++74] [[[[]]] = 0 00000
	ILENI TAZLENIT	[3LENITJ4[E] = 0.00000
	1000 (100 (2)	
Gample Problem(s)	LOAD CARD (C)	- 0.00000
HAND NO.5: N	E 5 DIAMONUS	
	5 LAJ	-22222 DOUBLED: YES
	1 LR/SJ	
	LR/SJ	- 44444. 44444 OUTCONES DOWN 2
	2 LCHSJ LR/SJ	-0.00300 ABOVE LINE = THEY 300
		0.00000 NOTHING BELOW, NONE VULNERABLE
HAND NO.6: "	THEY 2 HEARTS	
	2 [CHS] [B]	- 22222.22222 DOUBLED? No
	[R/S]	->33333,3333 HONORS ? NO
	LR/SJ	->44444.44444 OUTCONE? MADE 3
	3[R/S]	->0.00330 *** ABOVE LINE - THEY 330
		0.00060 BELOW LINE ="THEY" 60, NONE WINERABLE
HAND NO.7: "	THEY 4 CLUBS	
<del>-Colution(s)</del>	4 [CHS][A]	- ZZZZZ . ZZZZZ DOUBLED ? No
	[R/S]	->38333.33333 HONORS ? NO
	[r/s]	-+44444.44444 OUTCONE? MADE 5
	5[R/S]	-> 0.00490 *** ABOVE LINE= "THEY" 490
	•	0.00000 NOTHING BELOW LINE
		22222.22222 "THEY" VULNERABLE
HAND NO.8:	"WE" 3 SPADES	
	[R/S] 3[B]	-> 22722, 22222 DOUBLED ? NO
	[r/s]	
Reference (s)	[R/S]	-+ 44444.44444 OUTCONE? MADE 3
	3 [R/S]	0.00490*** ABOVE LINE="THEY" 490
		90.00000 BELOW LINE "HE" 90
		222 22.22222 # "THEY" VULNERABLE
$\sim$		

# **Program Description 11**c

Skeich(es) OBTAIN SCORES FOR U	NFINISHED RUBBER AND PARTIAL GAME
[R/S]	
LOAD CARD (D [A]	- 140.00790 ABOVE LINE ="WE" 140, "THEY" 790
RECORD INDIVIDUAL SCORES 4[ENTA]2[ENTA]3	CENT +]   [E] -= 0.00000
DISPLAY INDIVIDUAL SCORES	
LBJ	- 100000310. PLAYER NO.1 HAS 310 POINTS 200002860.*** PLAYER NO.2 HAS 2860 POINTS

-Gample Problem(s)	300000960	.*** PLAYER NO.3 #	AS 960 POINTS
	400003510	*** PLAYER NO.4 H	as 3510 Points
	50000000	D. PLAYER NO.5	)
		THROUGH	No Score
	200000000	O. PLAYER NO. 20	)
	20.		
Och tion (c)			
[			

Reference (s)	11 No. 10 10 10 10 10 10 10 10 10 10 10 10 10
	AN A STORE AND CONTRACTOR AS IN

## User Instructions a

CONTRACT BRIDGE SCORING-CARD () NEW RUBBER (\*INDIVID.)

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KE	YS	OUTPUT DATA/UNITS
1	LOAD SIDE I AND SIDE 2 OF CARD ()				
2	INITIALIZE		f	Α	0.00000
3	OPTIONAL: INPUT PREVIOUS ABOVE LINE SCORE	XXXXX.YYYYY	STO	ø	XXXXX.YYYYY
4	LOAD SIDE I AND SIDE 2 OF CARD (2)				XXXXX.YVYYY
5	INPUT NUMBER OF CONTRACT TRICKS:				
	"WE" CONTRACT	#			#.
OR	"THEY "CONTRACT	#	CHS		-#.
6	INPUT CONTRACT SUIT:*				
	CLUBS OR DIAMONDS		Ą		22222.22222
OR	HEARTS OR SPADES		B		22222.22222
OR	NOTRUMP		С		22222.2222
7	IS CONTRACT DOUBLED ?* NO		R/S		33333.33333
ØR	Yes		1	R/S	33333.33333
OR	YES AND REDOUBLED		2	R/S	33333.33333
8	HONORS?*NO		R/S		44444.944444
OR	YES, lou	IØØ	R/S		44444 44444
OR	YES, ISO	15ø	R/S		44444.44444
9	INPUT CONTRACT OUTCOME:				
	LOSS - NUMBER TRICKS DOWN	#	CHS	R/S	OUTPUT
OR	WIN - NUMBER TRICKS MADE (Excluding Book)	#	R/S		OUTPUT
10	IF OUTPUT:				
	XXXXX.YYYYY *** ABOVE LINE SCORE				
	XXX. ØØYYY BELOW LINE SCORE, NONE				
	VULNERABLE				
OR	XXXXX. YYYYY *** ABOVE LINE SCORE				
	XXX. GOYYY ALTERNATING BELOW LINE SCORE,				
	11111. 11111 DISPLAY "WE" VULNERABLE				
OR	XXXXX. YYYYY *** ABOVE LINE SCORE				
	XXX. OBYYY ALTERNATING BELOW LINE SCORE,				
	22222.22222 DISPLAY "THEY" VULNER ABLE				
OR	XXXXX. YYYYY *** ABOVE LINE SCORE				
	"XXX. ØØYYY" FLASHING- BELOW LINE SCORE,				
	BOTH VULNERABLE				
11 .	STOP FLASHING OUTPUT DISPLAY, GO TO		R/S		
	STEPS 5 THROUGH 10 FOR NEW HAND				
12	OPTIONAL: ADD PREMIUMS FOR UNFINISHED				
	RUBBER AND/OR PARTIAL GAME. LOAD SIDE!				
	AND SIDE 2 OF CARD () AND KEY		A		XXXXX YYYYY

7

(W#1 N#1) E#15#

## **User Instructions** b



SILF	INSTRUCTIONS	DATA/UNITS	KEYS	DATA/UNITS		
13	IF OUTPUT = 99999.99999 RUBBER IS COMPLETE					
	LOAD SIDE I AND SIDE 2 OF CARD () AND KEY		Α	XXXXXX.YYYYY		
14	OPTIONAL: RECORD INDIVIDUAL PLAYER SCORES					
	WEST-PLAYER NUMBER	Nw	ENTERP	Nw		
	NORTH-PLAYER NUMBER	NN	ENTER	NN		
	EAST - PLAYER NUMBER	N <sub>E</sub>	ENTER	Ne		
	SOUTH-PLAYER NUMBER	Ne	E	0.00000		
15	OPTIONAL: REVIEW INDIVIDUAL PLAYER SCORES		B	NNØØØ22222		
				FOR N=1		
				THROUGH 20		
16	OPTIONAL: CLEAR ABOVE LINE SCORE	ø	STO Ø	0.00000		
17	FOR NEW RUBBER GO TO STEPS 4 THROUGH 16	·				
	* INPUTS CAN BE CORRECTED BY RETURNING TO					
	STEP 5					

## 67 Program Listing I - Card ①

STEP	KEY ENTRY	к		DE	с Г	OMMENTS	STEP	KF		ĸ		)F		сомм	ENTS	51
001	+ LB/A	31	25	11	RUBBED	SCORE	1		~	<u>г</u>		2			ENTS	
	RCLS	1	34	05					<u> </u>			71				
	RCLG		34	06				×	(=Y ?		32	SI				
	<b>→</b> P		32	72			060	G	TOa	22	31	11	NO PAR	TIAL	0AH6	
	4			04				X	SY2		32	81	WIN	JGR	•	
	X₹Y		35	SZ				G	109		22	09		-		
	X=Y?		32	51				R	CL9		34	09				
	GT05		22	os	7ØØ RU	IBBER		S	T+Ø	33	61	00	"WE" PA	RTIAL	<b>GAME</b>	
	X > Y 2		32	81				G	TOQ	22	31	11				
010	GT06		22	06	Søø Ru	BBER		×L	BL9	31	25	Q				
	GTOd	22	31	_14	UNFINIS	HED RUBBER	•	R	<u>cl9</u>		34	09				
	A LBLS	31	25	05	7ØØ RI	IBBER		<b> </b>	EEX			43				
	1			01			070					05				
	<u> 4105</u>	<u> </u>	22	05	rad o	28 ~0	070	<u> </u>	-	20		81	h-u-u	DAIDT	AL CAM	16
	K LBL6	31	25	06	Spp Ru	ODEK			1+0	33	61	00				
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	CELS	31	<u></u>	05					<u>v</u>		22	00				
	KLLA		34	-24					101		<u>-25</u>	01				
020	CTOL	22	21					1 3	103		33	03				
020	ARIC	22	25	12	CONVED	T TO		- <u>-</u> 2	TOL		22	05				
	FEV	DC_	_ω_	42	"THEY	" FORMAT		<u> </u>	5			20				
	.5			2	11101	TURINAI		<u> </u>	ø			00				
	÷			21			080	S	109		33	09	50			
	RTN	<u> </u>	35	22				<u> </u>	TAR		33	.0.2	-,-			
	+ IBLb	37	25	12	SCORE			5	T+2	33	61	20	100			
	CF2	35	61	02	"WE" O	R "THEY"			Q			00				
	RCL4		34	04					17x		35	62				
	X(Ø?		31	71					ÉEX			43				
030	SF2	35	51	02					5			ŌS				
	R+		35	53					X			71				
	F2?	35	ור	02				S	TOC		33	13	1111.11	111		
	GSBC	32	22	13				E	NT4			41				
	ST+Ø	33	61	00			090		+			61				
	GTDa	22	31	11			_	S	rod		33	14	22222.2	2222		
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	I			01	AND/OR	PARTIAL			X			71				
	5			05	GANE			ST	DE		33	12	44444.4	4444		
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040	5107		33	07					K/S		2-	84		7.7 -		
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SO SCOR	E SI SCORE	5	S2 <b>SC</b>	ORE	S3 SCOE	E S4 Scole	S5 SCOR	2E	S6 SCOR	E S	57 SCO	8E	S8 <b>SCO</b>	26	S9 SCORE	5
No.1 & NO	.11 No.24 No.	12	No.3	¢ No.13	No.4 & NO	14 NO.5E NO.15	NO.6 & N	0.16	NO.7 & NO.	.17	10.8 ¢ 1	N9-13	NO.7 E N	0.14	No.10 Ę No	.70
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### 52

## 67 Program Listing II - Card ①

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	C.T.	01		27	01	NOR	S, No. >1Ø			Ø			00		
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## 67 Program Listing I - Card @

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SIEP	KEY ENIRY	ĸ	EYCO	DE		COMM	ENTS		STEP	KEY ENTRY	K	EY CO	DE		COMN	IENTS	
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# 67 Program Listing II-Card @

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## **Program Description I**

Program Title	Duplicate Bridge Score	with	Running	Totals		
Contributor's Name	Robert L. Patton, Jr.					
City	Arlington	State	Texas	Zip Code	76012	

Program Description, Equations, Variables Contract_made:
Score = $(R1 \cdot R2 + R6) \cdot R3 + R7 \cdot R8 + 5$
+ R4 if game bid • 10
+ (R1-5) · R5 if slam bi <b>d</b>
+ 5 if doubled
where Rl = contract level (1 to 7)
R2 = points per trick (2 or 3)
R3 = doubling multiplier (2 doubled, 4 redoubled, else 1)
R4 = game bonus (45 vulnerable, else 25)
R5 = slam bonus (75 vulnerable, else 50)
R6 = 1 if notrump, else 0
R7 = overtricks
R8 = points per overtrick
Contract set:
Score = $[R0 \cdot ETV \cdot R3 + (R0-1) \cdot 10 \cdot INT(R3/2)] \cdot 10$
where RO = number of tricks down
R3 = doubling multiplier (see above)
ETV = exceptional trick value = 5 not vul., = 10 vul.
Operating Limits and Warnings
Warning note: If you have entered a wrong contract,
press f b to clear it before entering the right contract.
This program has been verified only with respect to the numerical example given in Program Description II. User accepts and uses

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

NEITHER HP NOR THE CONTRIBUTOR MAKES ANY EXPRESS OR IMPLIED WARRANTY OF ANY KIND WITH REGARD TO THIS PROGRAM MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NEITHER HP NOR THE CONTRIBUTOR SHALL BE LIABLE FOR INCIDENTAL OR CONSEQUEN-TIAL DAMAGES IN CONNECTION WITH OR ARISING OUT OF THE FURNISHING, USE OR PERFORMANCE OF THIS PROGRAM MATERIAL.

## **Program Description 11**

Sample Problem(s)       A round of Chicago (4 deal bridge).         Hand 1 (no one vulnerable)       Your side bids 2 hearts doubled and makes 3.         2 [5] [1] 3 [2] [5] giving 570, then [f] [a] for your score.         Hand 2 (They are vulnerable)         They bid 6 diamonds and make 6.         6 [2] [6] [7] [6] giving 1370, then [f] [6] for their score.         Hand 3 (You are vulnerable)         You bid 3 notrump and go down 2.         3 [A] [2] [2] [3] giving 200, then [f] [6] for their score.         Hand 4 (Both vulnerable)         They bid 5 clubs, doubled and redoubled and go down 2.         5 [6] [7] [7] [7] [7] [7] [7] [7] [7] [7] [7	
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Sample Problem(s)       A round of Chicago (4 deal bridge).         Hand 1 (no one vulnerable)       Your side bids 2 hearts doubled and makes 3.         2 [B] [] 3 [f] [b] giving 570, then [f] [a] for your score.         Hand 2 (They are vulnerable)         They bid 6 diamonds and make 6.         6 [C] [E] 6 [f] [b] giving 1370, then [f] [e] for their score.         Hand 3 (You are vulnerable)         You bid 3 notrump and go down 2.         3 [A] [E] 2 [f] [d] giving 200, then [f] [e] for their score.         Hand 4 (Both vulnerable)         They bid 5 clubs, doubled and redoubled and go down 2.         5 [C] [D] [E] 2 [f] [d] giving 1000 then [f] [a] giving a total of 1570 for you.         To read their total:         0 [f] [e] giving 1570, so this round was a tie.         Clear scores for next game: [f] [c]         Reference(s)	
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# **User Instructions**

	Duplicate	Bridge	Score		
WE +	made? MAJOR	reset MINOR	down? DBL	they + VUL	2

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KE	YS	OUTPUT DATA/UNITS
1	Load side 1 and side 2.				
2	After bidding, enter:				
	contract level (1 to 7)	contract			
	and if notrump press		A		
	or if hearts or spades press		B		
	or if diamonds or clubs press		C		
	then if doubled press		D		
	and if redoubled press again		D		
	then if vulnerable press		E		
3.	After hand is played enter:				
	number of tricks made	tricks	f	Ъ	score
	or number o <b>f</b> tricks down	tricks	f	d	score
4	Optional: To keep a running score as				
	for the game of Chicago:				
	for your score press		f	al	total
	for opponents score press		f	e	total
5	To read total score at any time:				
	yours	0	<b>f</b>	a	total
	opponents	0	f	l e l	total
				[]	
6	To correct a total score:			l 1	
	enter correction $(+ \text{ or } -)$ and for				
	yours	corr.	f	a	total
	opponents	corr.	f	e	total
7	To clear total scores for a new game:		f	C	0.

## Program Listing I

STEP	KEY ENTRY	KEY COD		СОММ	ENTS	STEP	KEY ENTRY	KE	Y CODE		COM	MENTS
001	F LBL A	31 25 1		NT			+		61	· Ad	d For	NT.
	1		님	+ ho thu	me adden		RCL 3		34 03	} He	ndle d	oubles.
	>(0 6	33 0	$\frac{6}{2}$			060	AVEU		71	ר ריי ר		
		31 25	<u>}</u>	MAJO	R		JAT A		22 04	( A	dd ga'	me bonus
	1	5, 23 (	H s	et extra	10 Points		RCL 4		34 04	( IF	c earn	ed.
	STO 2	33 0	2 P	ver major	suit		+		61	J		
	h Rt	35 5	3 4	+104.			F LBL 4	31	25 04	•		
	FLBLC	31 25	3	MINO	R		RCLI		34 01	]((,	ntract	evel-S)
010	STO I	33	<u> </u>				5		05	1	Y	
	2	(	<u></u>	add 20 point	nts/thick		-		51	, 1	elan	Longs)
	ST0 + 2	33 61 0	- 신	<b>6 1 1 1</b>			RILS		34 05		5145	
	KUZ	22	2	OVERTHICK	s per	070	A E X < O		21 71	/ ] τα	- neag	tive, no
	2	35		50+ 804	<b>A</b>				44	5 31	an bo	nvs.
	5	6	512	value ad	der.		+	1	61	-		
	STO 4	33	4)	•			5		05	22		1
	5	6	S)				+		61	5 191	rt scori	e bohus.
	0		3	set slam	bonus,		RCL 7		34 07	)		
020	STO 5	33	<u>s</u> )				RCL 8		34 08	Jov	erthic	ጘና
	1	(	1	set doub	11~9		X		71	\ ·	bonvs.	
	5703	33	35	multipile	r.		+		61	ŗ		
	L RTN	35	2	- 130	<b>-</b>	080	0		00	1		
	FLBLD	3) 25	<u>+</u> ,	D.BL		080	n 234	120	33 32	b D.	ubled b	onus.
	RCL S	22 (1	31	Double the	doubling		N F: 0	55	11 00			
	510 7 5	33 61	위신	wittpite	~ •		IGTO I)		22 01	J		
				Set poin	ts per		h RTN		35 22			
	570 8	33 (	8)	overtric	ĸ.		F LBL O	31	25 00	7 Se	+ down	- + + 1645
030	h F ? 0	35 71	ōŃ	IF redoubl	ed, double		CHS		42	} •	ositive	
	STO + 8	33 61 0	85	points per	OVER THICK.		3 LBLF d	32	25 14		Dow	~?
	hSFO	35 51	>0 -	sex doubles	d Rlag.		5T0 0		33 00			
	h RTN	35	22		<b>-</b>		5		05	)		
	FLBLE	31 25	5	VUL		090	×		17			
	4		4	Set vulne	hable		ENTER +		41	/ c	ompute	basic
	5		र्घ (	game add	ler		h F! I	35	10 17		sch na	me.
	STO 4	33	<u>4</u>				+		61			
			쉬(	set vulner	rable		X		5T 05			
040	5	32	भा	slam bon	us,		RCI D	+	24 00	く		
	PCIS	34 (	<b>e</b> ti	To double					01			
	hF?O	35 71	51	TH MOUSIC	a, cousie		-		51			
	STO + 8	33 61	8)	POINTS PER	OVERTRICK.		1		01		- 	adde.
	h SF I	35 51	21-10	set vulner	able Flag.	100	0		00	5		4 h h h
	h RTN	35	22				X		11		FOF ET	
	9 LBLF b	32 25	2	Made	[]		RCL 3		34 03		thens	aiwn.
	RCLI	34	भा	Consideration			2	-	02			
	-		1	COMPUTE OF				-	21 92			
050	FXC0	31		asters wa	s set.				31 05	)		
	STO 7	22	<u> 위</u>				E IBI I	31	25 01			
	9		9.	Game test	value.		+		61	] _		
	RCL I	34	う	Compute 1	basic		l		01	( +	nish a	11
	RCL2	34	22	Contract	4+164	110	0		00	[ C9	Iculatio	ons.
	X	·	<u>11</u> ノ	score.			X		71	Į		
	RCL 6	34	6		050		N CF O	135	61 00			
O TRICK		2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<del>с 1</del>	3 DOURS INC	4 GAME	5 SLAM	6 No TO	MP 7	OVED -	8 201	NTS PEO	9
DOW		PER TR		AULTIPLIER	BONUS	BONUS	ADDEA	2 -	TRICKS	OVE	ERTRICK	-
SO WE	S1 THEY	S2		S3	S4	S5	S6	S7	7	S8	· · · · ·	S9
TOTA	L TOTAL											
Α	E	3		С		D		E			Ι Το	TALS NTROL

				6	7 P	rograr	n	List	ing II			50
STEP	KEY	ENTRY	KEY	CODE		COMMENTS		STEP	KEY ENTRY	KEY CODE	СОММ	ENTS
	hc	FI	35 6	1 01	Rese	* clags		170				
	FCL	REG	3	1 43	j una			170				
	3 LB	LFA	32 2	5 11		We +						
	1			61	Esta	blish 'we'					]	
				00	S regi	Ster						
120	912	0 2	32 29	2 02		Then +						
	1		52 -0	01	ζ Es+	ablish 'they'						
	1			01	5 reg	1ster.						
	F LB	L 2	3) 25	02				180				
	hs		35	53	L Add	SCOLE						
	STO	+ (i)	33 61	24	) *•	40491.						
	RC	L(i)	34	7 24	- Reca	11 total score	•					
	hr	TN	3	5 22								
130	5 6	LF C	32 2	5 / <u>5</u> 1 43		Keset						
	F P	25	31	42	Cle	ar all						
	7 7	L REG	3)	43	)							
		.X	25 ()	44	<b>.</b>			190				
	hc	F	35 6	1 01	$\left  \right\rangle c \left  e \right $	un <i>Rlags</i> .						
	5.	2TN	39	5 22								
140												
								200				
150												
								210				
160												
								220				
						SELS			FLAGS		SET STATUS	
		B	100	С			E,			FI AGS	TRIG	DISP
	4 / / / /	b NI		с р.			e -		1	ON OFF		
0 COMPU	TED	1 FINI	ae ( Sh	2 TOT	AL	3	46	AME	2	0   X0   1   X0	DEG ⊠ GRAD □	FIX ⊠ SCI □
<b>Dow</b> 5	N	<u>C ΑLCUL</u> 6	ATIONS	<b>5 Co</b> 7	RE	8	<b>B</b> 9	PASS	3		RAD 🗆	ENG 🗆

### **Program Description I**

Program Title	Battleship				
Contributor's Nar Address 63 City Dearb	<sub>ne</sub> Richard Toptani 3 Centralia orn Heights	State	Michigan	Zip Code	48127

Program Description, Equations, Variables You are the commander of a naval attack team. Air scouts have informed you of an enemy battleship ahead. Upon placing a grid over the general area, you see it is in an area with both X and Y coordinates ≥0 and <100. For each shot you input X and Y coordinates. Your instruments then tell you how far away your shot was from the enemy and how many torpedoes you have left (you begin with 15). A shot ≤1 unit from the correct coordinates is a direct hit and displays 8888888888. A shot ≤5 units from the coordinates (and not a direct hit) is a minor hit. This does not destroy the enemy, but this starts him on evasive action, changing his coordinates. The more times he is hit, the less he can run each time. The enemy battleship only moves after a minor hit. On the fifth minor hit, the ship is destroyed and 777777777 is displayed. If the ship is not destroyed after 15 shots, 111111111 is displayed and you lose. A new game begins automatically after you win or lose.

The level of difficulty for the game can be changed as shown below. Simply change the values in the steps as show.

	LEVEL	STEP 65	STEP 75	STEP 38	STEPS 35-36
	Novice	5	4	7	16
	Amateur	4	5	8	13
	Advanced	3	7	10	10
a malafika dika maka sa sa sa sa sa sa	Professional	2	9	12	8

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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# **Program Description 11**

Sketch(es)		

Sample Problem(s) Keystrokes	
25 [A]	15.00 # torpedoes
	0.00
50 [ENTER↑] 50 [R/S]	31.02 distance
	14.00 # torpedoes left
40 [ENTER↑] 50 [R/S]	29.02
-	13.00
30 [ENTER↑] 50 [R/S]	30.36
	12.00
35 [ENTER+] 50 [R/S]	29.27
	11.00
38 [ENTER↑] 50 [R/S]	29.02
	10.00
39 [ENTER↑] 50 [R/S]	29.00
	9.00
39 [ENTER↑] 21 [R/S]	58.00
	8.00
39 [ENTER↑] 79 [R/S]	0.00
	8888888888 YOU WIN
	15.00 NEW GAME
	0.00

Reference (s)

## **User Instructions**

	<b>1</b> Se 10 < X	eed (<100	BAT	TLESHIP			2	
STEP		INSTRUCTI	ONS		INPUT DATA/UNITS	KEY	′S	OUTPUT DATA/UNITS
1.	Load card							0.00
2.	Input seed	10 <x<100< td=""><td></td><td></td><td>seed</td><td></td><td></td><td>seed</td></x<100<>			seed			seed
3.	Ready for s	hooting				A [		15.00 0.00
4.	Input shot	(X and Y;	≥0 and	<100)	X Y	ENTER [ [R/S] [	↑	X Distance torpedoes left
5.	Repeat step	o 4 until	you win	or lose				
6.	To recall #	f minor h	its			RCL [	0	# hits
7.	New game be	gins auto	omatical	ly upon				
	victory or game at oth	defeat. Ier times	To begin	nanew		[f][GS	B][9]	<u>15.00</u> 0.00
					ELAGS		SET STATI	
A Start	В	C	D	E	0	FLAGS	TRIG	DISP
а	b	С	d	е	1	ON OFF 0 □ 🛛	DEG 🖄	FIX 🕅
<sup>5</sup> Used	<sup>1</sup> You win	Next shot or you lose	<sup>3</sup> Win <sup>8</sup>	<sup>4</sup> <sup>9</sup> New Game	2 3	1 □ 🖄 2 □ 🖄 3 □ 🕅	GRAD 🗆 RAD 🗆	SCI □ ENG □ n2_

## 97 Program Listing I

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP K	EY ENTRY	KEY CODE	COMMENTS
80	í *LBLA	21 11		057	χ2	53	
66	2 LOG	16 32		<b>0</b> 58	X∓Y	-41	
88	3 FRC	16 44	Random #	859	RCL1	36 Ø1	
00	4 EEX	-23		060	-	-45	
00	52	02		061	X٤	53	
00	6 X	-35		862	+	-55	
00	7 ST03	35 03		863	18	54	
00	8 INT	16 34		й64	PSE	16 51	
88	9 ST01	35 01	X <sub>2</sub>	065	5	65	
01	0 LSTX	16-63	(Sood for next grand)	866	XIY	-41	
01	1 FRC	15 44	(Seed for next game)	867	X>Y2	16-34	Shoot within 5?
01	2 EEX	-23		<b>8</b> 68	LT02	22 B2	No, shoot again
01	32	<i>82</i>		869	1	61	Yes, continue
61	4 x	-35		905 970	⊻÷¥	-41	
01	5 ABS	16 31		971	XZY9	16-35	Shot within 1?
Ū1	6 INT	16 34		872	011 01	22 G1	Yes, you win
Ø1	7 ST02	35 02	1 <sup>4</sup> 2	012	6701	22 DI G1	
<b>A</b> 1		36 01		013 674	ст.а	75_55 80	
R1	9 INT	16 34		074	5170	33-3 <b>3 00</b> RA	
82	A STAL	35 01		07J		<b>04</b> 76 00	# minor hits
02 02	1 1	00 01 01		010	KULU VVVO	30 00 16-74	5 minor hits?
82	2 I	01 01		070	AZ1: CTOT	10-34	Yes, you win
02 02	2 I 	01 01		078	6103	22 03 75 45 07	No, enemy moves
02 02	3 I a 1	at		079	51-7	35-45 07	
02 00	7 1 5 i	81		080	KULI OT I	36 07	
02 00	5 1 E 1	01 01		681	51-1	30-40 01	
02 02	0 1 7 :	61 61		882	51-2	30-40 02	X<0?
02 00	1 I 0 1	01 01		883	KULI	36 81	Yes
02 Q2	0 1 0 1	01 01		884	X (07 0105	16-4J CC 05	Make it positive
97	5 1 G 1	01 01		<b>8</b> 85	6105	22 0J 72 0D	•
00 00	1 5708	75 02		886	KULZ	36 02 17 15	Y<0?
63 67		33 80		887	XX07	16-43	Yes, make positive
03 07	2 U 7 V	_75		688	6103	22 00	No. next shot
03	а стла	75 <i>85</i>		<b>0</b> 89	6102	22 82	,,
00 07	4 3106 5 1	33 80 Bi		<b>U</b> 90	#LBLD	21 00	
00 07	5 I E E	85		091	KUL7	30 87	
03 07	6 6 7 стај	00 75 AC		092	2	02 75	
03 67	7 3101 5 7	33 46		093	X 67.4	-30 75 55 84	
00 07	о ( со стат	75 87		<b>U</b> 94	51+1	35-55 01	
03 04	9 3107 A Drio	33 B1 72 B0		095	51+2	33-33 02	Next shot
04 GA	0 KOLO 1 7	30 00 87		896	6102	22 02	
04 Q4	1 ( 2 V	- 75		097	¥LBL3	21 Ø3 76 of	You win
04	Z ^ 7 CTO5	-35 75 95		698	KULD	35 00	
04 Q4	3 3103	33 83		699	PKIA	-14	New game
04 04	4 #LDL2 5 8871	21 02 15 05 45	Decrease #torpedoes	100	6109	22 03	
04	3 0321 2 CTGC	10 2J 46 00 85		161	#LBL1	21 01	You win
04 04	5 5105 7 5710	22 00 72 80	You lose	102	RULO	30 80	
04	A BETU	30 80		103	FRIA	-14	Next game
04	о <i>гкіл</i> о стаа	-14 00 00	Begin new game	104	¥LBL9	21 05	-
04	9 6103 6 41012	22 0J 01 BE		105	ULX	-51	
0J 65	U ALDEO	21 00 75 AS		106	5100	35 00	Prepares
00	A BOE	30 40 (2 5)		107	KULJ	36 03	New
00	2 F3E 7 PLV	10 31	[	108	F i	16-24	Seed
<b>8</b> 3	5 ULA X 570	-31	Accept snot	109	X	-30	
0J 05	4 K∕Ə E D∂io	J1 72 89		110	GIUH	22 11	
65	J KULZ C	30 UZ _AF		111	KIN	24	
69	e –	-40	REGIS	112	- K∕S	51	
#Mino	$r \mid \chi_2$	$^{2}$ $Y_{2}$		777777777	6888888	7 Maell 8888	ווווווויין א <b>ו</b>
hits		<u> </u>		5	156	S7	58 59
50	51	52	54	55	30	5'	
<u></u>		l IB		)	1	E	Lunnadaga laft
•		- 					# to peaces left

### NOTES

NOTES

### NOTES

#### **Hewlett-Packard Software**

In terms of power and flexibility, the problem-solving potential of the Hewlett-Packard line of fully programmable calculators is nearly limitless. And in order to see the practical side of this potential, we have several different types of software to help save you time and programming effort. Every one of our software solutions has been carefully selected to effectively increase your problem-solving potential. Chances are, we already have the solutions you're looking for.

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Mechanical Engineering Surveying Civil Engineering Navigation

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The Users' Library Solutions Books will compliment our other applications of software and provide you with a valuable new tool for program solutions.

<b>Options/Technical Stock Analysis</b>	Medical Practitioner		
Portfolio Management/Bonds & Notes	Anesthesia		
Real Estate Investment	Cardiac		
Taxes	Pulmonary		
Home Construction Estimating	Chemistry		
Marketing/Sales	Optics		
Home Management	Physics		
Small Business	Earth Sciences		
Antennas	<b>Energy Conservation</b>		
Butterworth and Chebyshev Filters	Space Science		
Thermal and Transport Sciences	Biology		
EE (Lab)	Games		
Industrial Engineering	Games of Chance		
Aeronautical Engineering	Aircraft Operation		
Control Systems	Avigation		
Beams and Columns	Calendars		
High-Level Math	Photo Dark Room		
Test Statistics	COGO-Surveying		
Geometry	Astrology		
<b>Reliability</b> / <b>QA</b>	Forestry		

### GAMES

Eleven programs chosen to provide pleasure and enjoyment for a large cross-section of individuals. There are gambling games, number and word games, war games and others, like bride scorekeeping and football. Hopefully, these selections will provide continuing challenge and interest to the user.

### RISK

BLACKJACK WITH A PERMANENT BANK BELL-FRUIT (Mills Standard) TURN THE DIE WORD ENCODER WORD GAME SUBROUTINE HANGMAN WORD GAME PRO FOOTBALL SIMULATION ELECTRONIC CONTRACT BRIDGE SCORE PAD DUPLICATE BRIDGE SCORE WITH RUNNING TOTALS BATTLESHIP

