Casino 48

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Part 1

CASINO 48

Thank you for purchasing CASINO 48, a fun-filled simulation of a casino for the Hewlett-Packard 48SX calculator. Casino 48 contains four games: Blackjack, Video Poker, Slots, and Roulette. Use Casino 48 to learn to play, to improve your skills, and to have fun.

HOW TO USE THIS MANUAL
Casino 48 is designed to be user friendly and you may not need to use the manual at all. But it's short, so why not read it?

GETTING STARTED
First, install the enclosed memory card; Casino 48 can be installed in either plug-in port. Refer to your 48SX owners manual for information on how to install plug-in cards. To start Casino 48 press [< -] [LIBRARY] [CAS48] [CAS48] (that is the yellow shift, then the up arrow, and then soft keys).
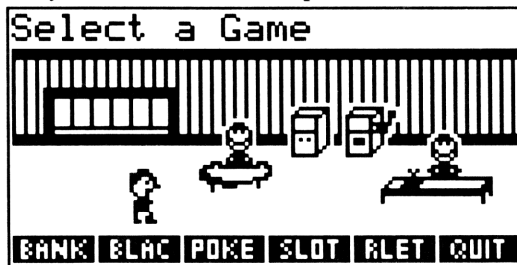
[BANK]   Press [BANK] to go to the bank.

[BLAC]   Press [BLAC] to go to the blackjack table.

[POKE]   Press [POKE] to go to the Video Poker machine.

[SLOT]   Press [SLOT] to go to the Slot machine.

[RLET]   Press [RLET] to go to the Roulette table.

[QUIT]   Press [QUIT] to leave the casino.

ADDITIONAL FEATURES

Press ON during any game to leave the casino.

If you press an incorrect key (or an alarm goes off) the screen can be redrawn by pressing one of the cursor control keys.

Casino 48 responds to the setting of the BEEP flag to control the sound. To turn sound on or off press [MODES] [BEEP]. Refer to your 48SX owners manual for more information.

WARNINGS:

You should always quit by pressing ON or by using the [QUIT] key. Casino 48 plays in a directory it creates "CASINODIR"; it uses the custom menu CST to store menus and sets user assigned keys. Using [QUIT] or ON restores your user keys and flag settings. If you want to just make a quick calculation and then return to the casino you can, but be careful to always return and use [QUIT]. If you change directories then be sure to return to the CASINODIR. The casino menu can be restored by pressing [CST].

You should never store variables in CASINODIR because they may interfere with Casino 48 or be overwritten while playing the game.

Casino 48 clears the stack and the graphics screen PICT.

Casino 48 requires approximately 3K bytes of memory to run. If you ever get an insufficient memory error then you should quit and free up some memory. The CASINODIR will use 266 bytes of memory even after you have quit. Three variables are saved: BANK (your bank), BET (the last value you bet), and DECK (your shuffled deck of cards for blackjack).

Part 2
BANK

The bank allows you to set the amount in chips you are carrying. You can use the bank to set this amount to between $1 and $9000. To go to the bank press [BANK] in the casino.

```
BANK is $0
Enter Amount of BANK
and Press SBAN



SBAN                        QUIT
```

Key in the amount you wish to set your bank to and press [SBAN]. If you don't want to change your bank then press [QUIT].

The slot machine requires only a quarter to play, but all the other games require a minimum bet of $1. The bank is saved even after leaving the casino, so you can set the bank once and it will track your winnings over many visits to the casino.

ODDS AND PAYOFFS
Different games in the casino offer varying payoffs. The thing to remember is not to confuse the payoff with the odds.

For example, in blackjack the odds are "1 **to** 1" meaning that you win the same amount as you bet.

In video poker and roulette the payoffs are displayed not the odds. Therefore when you win "1 **for** 1" at video poker the game has actually been a push because the pot is the same size as the bet.

Part 3

BLACKJACK

Casino 48 offers a full featured game of Blackjack. The goal of the game is to get a hand with a value closer to 21 than the dealer without going over 21. In blackjack, the face cards count 10, the other cards count their face value except the ace which can count either one or eleven. For example, a king and a seven would total 17 points. The ace counts one or eleven depending on which value gives the best total. For example, an ace and a queen would total 21 but an ace, five, and ten would total 16. When the ace is valued at eleven the total is called a "soft" hand; all other totals are called "hard". The game is played with one or more decks of 52 cards. Casino 48 uses four decks.

The game begins with the deal. The player and the dealer are each dealt two cards. One of the dealer's cards is visible; this is known as the dealer's up card. The player is then given the choice to "stay" (draw no more cards) or to "hit" (take another card). The player can take as many cards as he or she wishes as long as the total does not go over 21. If the player's total goes over 21 then the player has "busted" and house wins immediately. Once the player stays then the dealer plays. The dealer always plays the same way; the dealer hits when its total is less than 17 and stays otherwise. After the dealer plays the winner is determined. If the totals are equal then it is a tie and no one wins (a "push").

If the player's or the dealer's first two cards total 21 then it is a blackjack. If the dealer has blackjack then the house wins immediately. If the player has blackjack then he or she wins immediately. Blackjack pays the player 1.5 times the bet.

The basic rules above apply to blackjack as played in most casinos. In addition to the hit and stay a few other options are usually available.

If the dealer's up card is a ace then you can buy insurance. Insurance costs half your bet. If the dealer has a blackjack then the insurance pays twice its

value and you lose your original bet for a net of no loss. If the dealer doesn't have blackjack then you lose the insurance.

When you have your first two cards you can also "double down". With this option your bet is doubled and you are given exactly one more card. This is a good thing to do if you have a five and a six for example because you have a good chance of getting 21. Casino 48 allows this option.

If your first two cards have the same value then you can split them into two hands. This is a good thing to do when you have two aces, for example, because a soft total of 12 is not as good as playing the aces separately. Casino 48 allows splitting pairs and splitting any resulting pairs again. You can split until you have up to four hands in play at once. Most casinos allow splitting pairs but have restrictions on following splits. Some casinos allow you to double down on a split hand; Casino 48 does not allow this option.

A few casinos allow you to surrender your hand for half your bet. Casino 48 does not allow this option.

The results of all these options is a very fair game with only a slight edge to the house. The edge is so small that a player who "counts cards" can win. The first thing you need to beat the house is a good basic strategy. When do you hit, stay or double down? The recommend key gives the best basic strategy for a multiple deck game. Then to win, all you have to know is whether there are mostly tens and aces left in the deck or low cards. When the deck has more high cards left, it is to the players advantage, and he or she should raise the bet. Although some card counters also vary their strategy, it is the changes in the bet that count.

To go to the Blackjack table press [BLAC] in the casino.
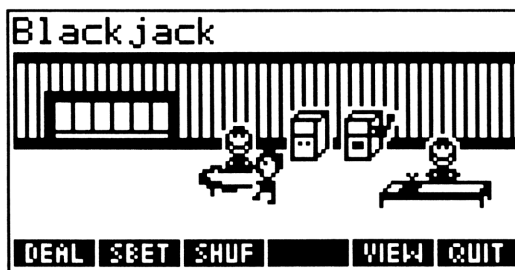
[DEAL]   Press [DEAL] to deal your hand. See below for your choices after pressing [DEAL].

[SBET]   Press [SBET] to display or change your bet. To change your bet, key in the amount of your bet and press [SBET]. To display your bet press [SBET] with no arguments.

[SHUF]   Press [SHUF] to reshuffle the decks. The four decks are well shuffled, unfortunately this takes some time.

[VIEW]   Press [VIEW] to restore the screen if needed.
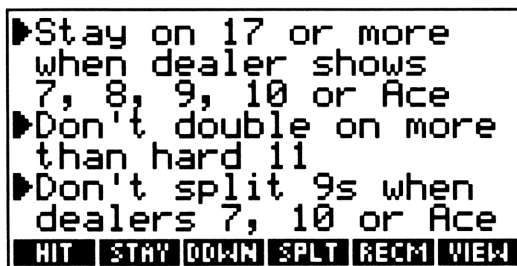
[QUIT]   Press [QUIT] to leave the Blackjack table.

DEAL

After pressing [DEAL] the screen should look similar to this:

[HIT]   Press [HIT] if you want another card.

[STAY]   Press [STAY] if you wish to stay.

[DDWN]   Press [DDWN] if you want to double down. You can double down only when you have your first two cards. Your bet is doubled and you are given one card.

[SPLT]   Press [SPLT] to split a pair. If you have a pair you can split them into two hands. You can continue to split any resulting pairs until you have a maximum of four hands in play at once.

[RECM]   Don't know what to do? Then press [RECM].

```
▶Stay on 17 or more
 when dealer shows
 7, 8, 9, 10 or Ace
▶Don't double on more
 than hard 11
▶Don't split 9s when
 dealers 7, 10 or Ace
 HIT  STAY DOWN SPLT RECM VIEW
```

The recommend function gives up to three messages: Hit or stay, double down or don't double down, and split or don't split. If it recommends all three then the split is best, then the double down, and last the hit.

[VIEW]   Press [VIEW] to restore the screen if needed, or to return to the card view after pressing [RECM].

INSURANCE
If the dealer's up card is an ace then you are offered insurance. Insurance costs half your bet and pays 2 to 1.

```
Do you want insurance?
 K  J
 ♡  ♣
 YES        VIEW RECM  NO
```
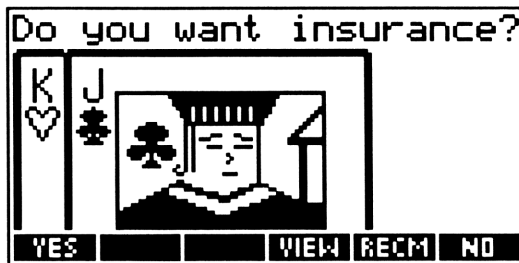
[YES]   Press [YES] to buy insurance.

[NO]   Press [NO] to decline.

If the dealer has 21 then the game is over; if you did not buy insurance then you lose your original bet, if you did buy insurance then you lose nothing. If the dealer does not have 21 then you lose the insurance if you bought it and the game continues.

Part 4

VIDEO

POKER

Video Poker is a variation of five card draw, the variation is that you do not compete with anyone but only attempt to improve your hand. Each hand is played with a fresh deck and the payoffs vary with the quality of the hand. The game is started with the deal. The player is dealt five cards. The player then has the option to discard unwanted cards. The player draws new cards to replace the ones discarded and the value of the resulting hand is determined.

The table below gives the payoffs for each hand:

Royal Flush - Pays 100 for 1.
The best hand in poker is a straight flush with an ace high: ace, king, queen, jack, and ten, all of the same suit.

Straight Flush - Pays 50 for 1.
Five consecutive valued cards, all of the same suit.

Four of a kind - Pays 25 for 1.
All four cards with same value. For example: four aces. Note that unlike real poker, the value of four aces or four twos is the same.

Full House - Pays 10 for 1.
Three of a kind and a pair; for example three aces and two kings.

Flush - Pays 8 for 1.
All five cards with the same suit.

Straight - Pays 5 for 1.
Five consecutive valued cards. For example: ace, two, three, four and five.

Three of a kind - Pays 3 for 1.
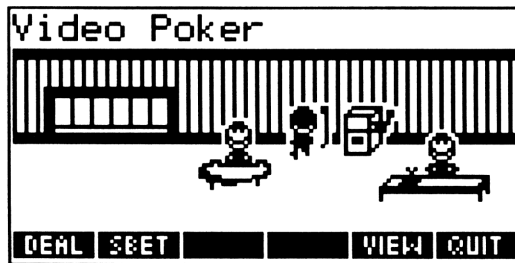Three cards with same value. For example: three aces.

Two pairs - Pays 2 for 1.
Two sets of cards with the same value. For example: two aces and two kings.

Pair of Aces- Pays 1 for 1.
Two aces.

To go to the video poker machine press [POKE] in the casino.

[DEAL]   Press [DEAL] to deal your hand. See below for your options
            after pressing [DEAL].

[SBET]   Press [SBET] to display or change your bet. To change your
            bet, key in the amount of your bet and press [SBET]. To
            display your bet press [SBET] with no arguments.

[VIEW]   Press [VIEW] to restore the screen if needed.

[QUIT]   Press [QUIT] to leave the Video Poker machine.

DEAL

After pressing [DEAL] the screen should look similar to this:
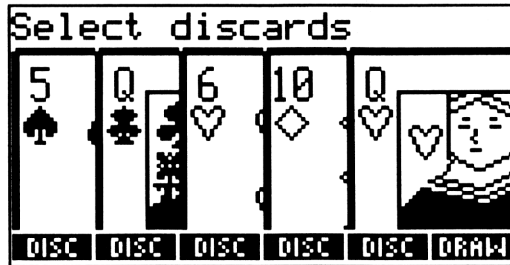
Select discards

[DISC]   [DISC] is used as a toggle to select the discards. Cards marked with a X will be discarded when you press [DRAW]. To select a discard, press the [DISC] key below the card that you wish to discard.

[DRAW]   Press [DRAW] after you have selected your discards to draw new cards.

Part 5

SLOT

MACHINE

The Casino 48 slot machine is a 25 cent machine with three wheels. The object of slots is to line up the symbols on the wheel. Various amounts of coins are returned when the symbols line up.

If the first wheel is a JACKPOT or cherries then the machine will return one coin.

If the first two wheels match then the machine will return amounts varying from 2 coins for the double bars to 16 coins for the JACKPOT.
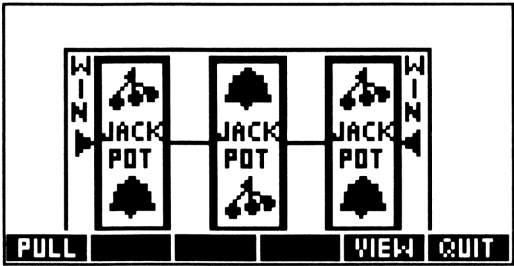
If all three wheels match then the machine will return amounts varying from 8 coins for the bars to 200 coins ($50) for the JACKPOT.

To go to the slot machine press [SLOT] in the casino.
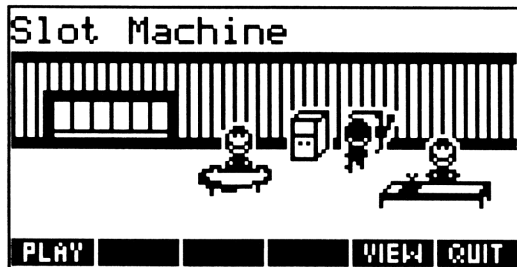
[PLAY]   Press [PLAY] to start playing slots.

After pressing [PLAY] the screen should look like this:

[PULL]   Press [PULL] to pull the handle and start the wheels moving. Each pull costs you $0.25.

[VIEW]   Press [VIEW] to redraw the screen if needed.

[QUIT]   Press [QUIT] to return to leave the slot machine.

PATTERN			COINS RETURNED
JACKPOT	-	-	1
JACKPOT	JACKPOT	-	16
JACKPOT	JACKPOT	JACKPOT	200
CHERRY	-	-	1
CHERRY	CHERRY	-	8
CHERRY	CHERRY	CHERRY	40
BAR	BAR	-	4
BAR	BAR	BAR	8
=BAR=	=BAR=	-	2
=BAR=	=BAR=	=BAR=	10
BELL	BELL	-	8
BELL	BELL	BELL	40
7	7	-	8
7	7	7	20
OTHERS	OTHERS	-	2
OTHERS	OTHERS	OTHERS	40

The odds are that a total of 6662 coins will be returned per 8000 spins.

Part 6

ROULETTE

The object of roulette is to bet on the number that the ball will land on. The roulette wheel has numbers 1 to 36 plus 0 and 00. There are many possible bets at the roulette table, and the payoffs vary with the bet.

To bet on any single number, simply place your bet on that number (including 0 or 00).

Bet on two numbers by placing your bet between the two numbers.

Bet on four numbers by placing your bet on the corner where the four numbers intersect.

Bet on three numbers by placing the bet on the bottom of a row of numbers. For example, just below the 1 bets on 1, 2, and 3.

Bet on six numbers by placing your bet on the bottom of a row between the three number bets. For example, just below the intersection of the 1 and 4 bets on 1, 2, 3, 4, 5, and 6.

Bet on a whole column by placing your bet to the right of the column. For example, placing the bet to the right of the 36 bets on 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, and 36.

The areas marked 1st 12, etc allow a bet to be placed on 12 numbers.

The last bets are the even money bets: 1 to 18, 19 to 36, Even, Odd, Red and Black. They are located at the bottom of the table. They also lose when the ball lands on 0 or 00.

The payoffs are easy to figure. If there wasn't a 0 and 00 then the game would be completely even. So if you bet on one number, your payoff is 36 times your bet; if you bet on two, then its 18; and twelve numbers return three times the bet.
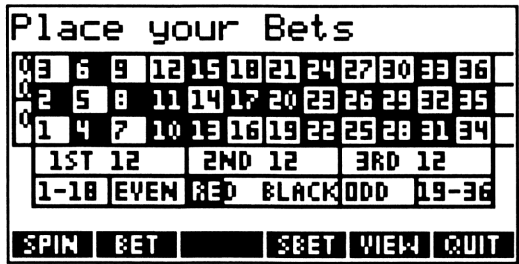
To go to the roulette table press [ROUL] in the casino.

[PLAY]   Press [PLAY] to start playing roulette.

PLAY

After pressing [PLAY] the screen will look like this:

[SPIN]   Press [SPIN] after you have placed all of your bets.

[BET]   Use the cursor control keys to move the cursor to the location you wish to place your bet and press [BET]. You may place more bets if you wish.

[SBET]   Press [SBET] to display or change your bet. To change your bet, key in the amount of your bet and press [SBET]. To display your bet press [SBET] with no arguments. You may use [SBET] to make different bets on different locations. When you press [BET] the current value of your bet is placed at that location.

[VIEW]   Press [VIEW] to restore the screen if needed.

[QUIT]   Press [QUIT] to leave the Roulette table.

Part 7
ADDITIONAL
FEATURES

Some commands are provided on the card to allow you to create your own card game or check the blackjack recommendations.

[RECM]   [RECM] requires no arguments but uses the PH (player hand) and DH (dealer hand) variables as input. PH should contain a list of the players cards. DH should contain a list of the dealers cards. DH should have only two cards; the second card is the up card. For example:

{ 1 2 3 }	Player has ace, two and three
'PH' STO	Store player's hand
{ 0 11 }	Dealer shows a jack
'DH' STO	Store dealer's hand
RECM	

By default RECM only gives information on Hit or Stay; to see all the information store only two cards in the 'PH' variable and store an empty list in the 'SH1' variable: { } 'SH1' STO.

[ECAR]   Erases the graphics screen, places a blank menu into the screen and stores #0d into CRDX.

[DCAR]   Draws a card on the screen, and adds #13d to CRDX. It takes one argument; a real number representing the card. The card is encoded as rank.suit; for example: the ace of clubs is 1.1 and the king of hearts is 13.3. The suits are: .1 = clubs, .2 = spades, .3 = hearts, and .4 = diamonds. The variable CRDX specifies the location at which the card is to be displayed.

This first example program displays a random card and can be used for cutting cards:

RCARD	Program name
< < ECAR	Start program, erase screen
{#0d #0d} PVIEW	Display screen
3 FREEZE	Freeze display
RAND 13 * IP 1 +	Calculate random rank
RAND 4 * IP 1 +	Calculate random suit
10 / +	Format card
DUP	Make a copy of the card for other uses
DCAR	Display card
> >	End program

The second example is for practice card counting. Card counting allows a player to beat the house in blackjack. This program uses the RCARD program to display random cards. It then adds 1 to the count for a 3 to 6 and subracts 1 for a ten valued card. When the count is high, the player should raise the bet: at less than 0 - bet 1 unit, with 0 or 1 - bet 2 units, with 2 - bet 3 units, with 3,4, or 5 - bet 4 units and with 6 or more - bet 5 units.

CPRAC	Program name
< < 0 SWAP 1 SWAP	Start program
START	Begin Loop
RCARD	Display a random card
IP	Integer Part (don't care suit)
CASE	
DUP DUP	
2 > SWAP 7 < AND	Card is 3-6
THEN DROP 1 + END	add 1 to count
9 >	Card is 10 valued
THEN 1 - END	subtract 1 from the count
END	end of CASE statement
NEXT	do next card
> >	End of program

The CPRAC program takes the number of cards to count form the stack and keeps track of the count. When done, you can compare your count to the 48SX to see how well you can count cards.

Also, check for an enhanced version of CPRAC on the HP bulletin board (503) 750-4448.

Part 8

ERRORS and

PROBLEMS

INVALID CASINODIR

Casino 48 uses a directory called CASINODIR. You have a variable in your home directory with the same name. Rename the variable and try again.

BANK is empty

Your bank is empty; you must quit and go to the bank. Press [QUIT] [BANK].

Invalid Bet

You have tried to place a bet on the roulette table in an invalid location. Use the cursor control keys to move the cursor and try again.

OTHER PROBLEMS

If you just can't seem to get it to work then try this:

    1.   Turn off the calculator, and remove the card.

    2.   Turn on the calculator and purge CASINODIR.

    3.   Turn off the calculator, install the card, and try again.

If that doesn't work or the calculator is hung up try to reset your calculator. See your owners manual for more information.

Each time a card is installed or after a system halt, your calculator checks it and installs any library functions. If the check-sum fails, then an invalid plug-in message is displayed, and the library functions are not made available. Use this feature to verify the plug-in card:

1. Perform a system halt; press and hold [ON] [C].

2. Press [< -] [LIBRARY]. If [CAS48] is not present on a soft key, then the card has failed the selftest. You may have to press [NXT] to see more of the menu.

If you have another card installed which has invalid data (such as a new RAM card) then you will get the invalid plug-in message.

If the [CAS48] menu key **does** appear then the card has passed the check-sum, and any problem is most likely not a fault with the card.

If the [CAS48] menu key **does not** appear then the card may be defective. The most common cause of a selftest failure is poor contact between the card and the calculator. Please try removing and re-installing the card, also make sure the card is completely inserted. If the card still fails the selftest then the card requires service.

WARRANTY INFORMATION

Casino 48 is warranted by Preston Brown Labs against defects in materials and workmanship for one year from the date of original purchase. If you sell your unit or give it as a gift, the warranty is automatically transferred to the new owner and remains in effect for the original one-year period. During the warranty period, we will repair or, at our option, replace at no charge a product that proves to be defective, provided you return the product, shipping prepaid, to Preston Brown Labs, 2597 Pierce, Eugene, OR 97405. This warranty does not apply if the product has been damaged by accident or misuse or as a result of service or modification by other than an authorized service center.

No other express warranty is given. The repair or replacement of a product is your exclusive remedy. ANY OTHER IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE ONE-YEAR DURATION OF THE WARRANTY. IN NO EVENT SHALL PRESTON BROWN BE LIABLE FOR CONSEQUENTIAL DAMAGES.

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