CS 246 Final Project
Straight Demo

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Deck Demo

Deck Demo-- Generating a new Deck game

We need to call the executable ./straights with one number argument as the seed to generating the random game. After we used the makefile's make command created the straights executable. We can call "./straight <number>" with one number (provided seed file with 1 in it) in it as the seed.(notice, 1 would be the seed for this demo, but we can use different seed).

Then, the program ask each player is human or computer. h stands for human and c stand for computer player. There would be 52 cards as normal in real life without the jokers. They are equally delivered to 4 players (13 cards each).

```
h68he@ubuntu1804-010:~/cs246/w21/a6$ make
```

```
h68he@ubuntu1804-002:~/cs246/w21/submit$ ./straights 1
Is Player1 a human (h) or a computer (c)?
```

Seed have 1 in it as our seed. This demo case, we set player 1-3 as computer, and player 4 is human.

```
h68he@ubuntu1804-002:~/cs246/w21/submit$ ./straights 1
Is Player1 a human (h) or a computer (c)?
c
Is Player2 a human (h) or a computer (c)?
c
Is Player3 a human (h) or a computer (c)?
c
Is Player4 a human (h) or a computer (c)?
h
A new round begins. It's Player4's turn to play.
Cards on the table:
------------------------------------------------------------
|Clubs:                                                     |
|Dimonds:                                                   |
|Hears:                                                     |
|Spades:                                                    |
------------------------------------------------------------
Your hand: AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
Legal plays: 7S
deck
9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
6H JH 7D 5H 2S 4C JC KD 8C 7H JS AS QD
QS KC 9D 4S 4H 6C JD AC AH 9S 2C TC 3D
AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
```

```
deck
9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
6H JH 7D 5H 2S 4C JC KD 8C 7H JS AS QD
QS KC 9D 4S 4H 6C JD AC AH 9S 2C TC 3D
AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
```

Invalid Cases: no argument; to many arguments; invalid number argument

```
h68he@ubuntu1804-010:~/cs246/w21/a6$ ./straights ji
stoi
h68he@ubuntu1804-010:~/cs246/w21/a6$ ./straights 13 13
we expect to have one number argument as the seed
```

```
h68he@ubuntu1804-010:~/cs246/w21/a6$ ./q6
we expect to have one number argument as the seed
```


Deck Demo--- Full process:

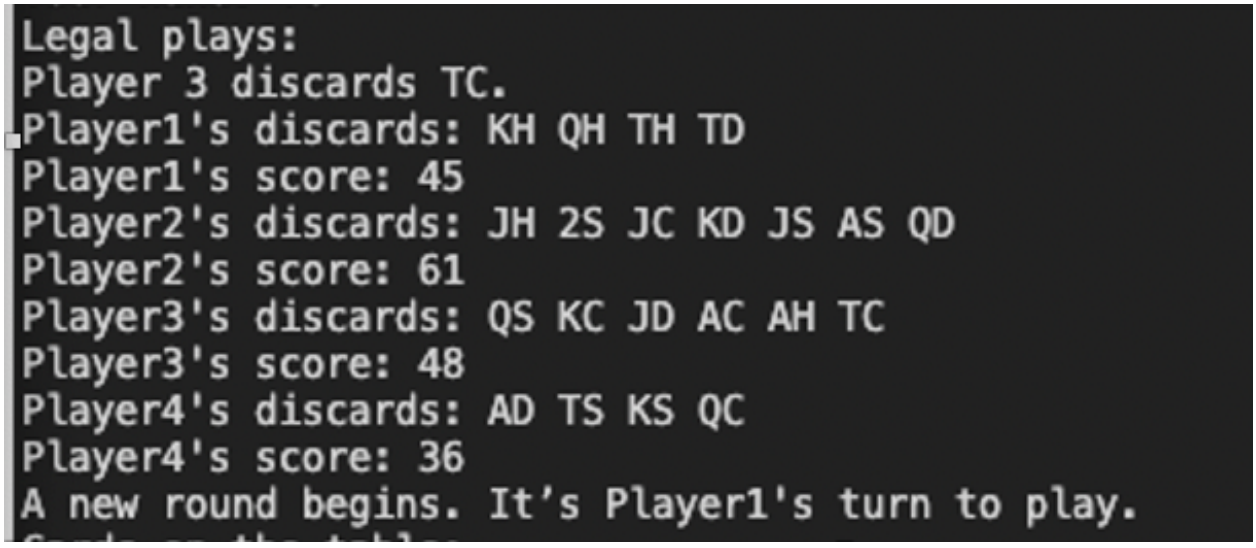
After generating a new deck for the game. We would shuffle for each round. At the start of each round, we would decide which player got 7 Spade to play first. In our demo case, player 4 got to play first.

```
A new round begins. It's Player4's turn to play.
Cards on the table:
-------------------------------------------------------------
|Clubs:                                                     |
|Dimonds:                                                   |
|Hears:                                                     |
|Spades:                                                    |
-------------------------------------------------------------
Your hand: AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
Legal plays: 7S
deck
9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
6H JH 7D 5H 2S 4C JC KD 8C 7H JS AS QD
QS KC 9D 4S 4H 6C JD AC AH 9S 2C TC 3D
AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
play 7
```

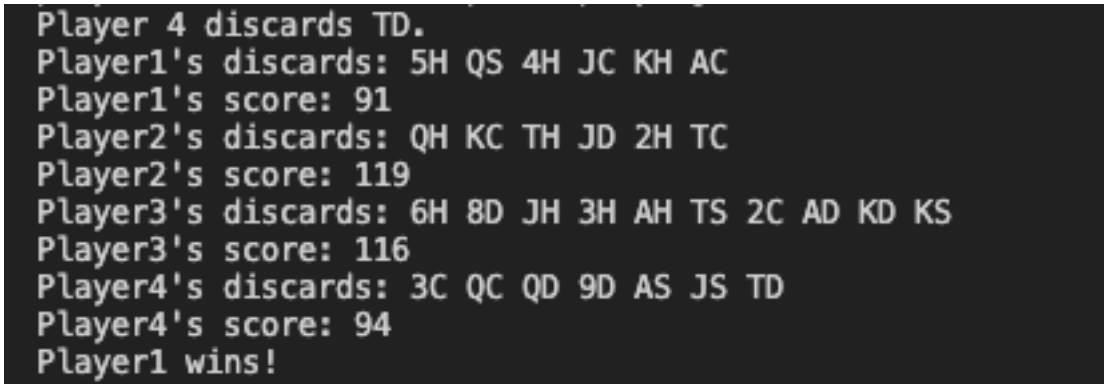
Then we will continue the cycle from 1 -> 2-> 3->4->1 players to make their move.

Now, human player can command play <card>, discard<card>, deck, ragequit, quit, to make a move. Meanwhile computer player, would play automatically.

For each round, player will play until they have no cards in hand. The program will print the accumulated scores and discards in this round. 1. If there is no player has exceeded 80 points, then the game will continue. We would print the message “A new round begins. It’s Playerx’s turn to play. “ (the player with spade 7 will play first) Then, a new round begin with reshuffled cards.

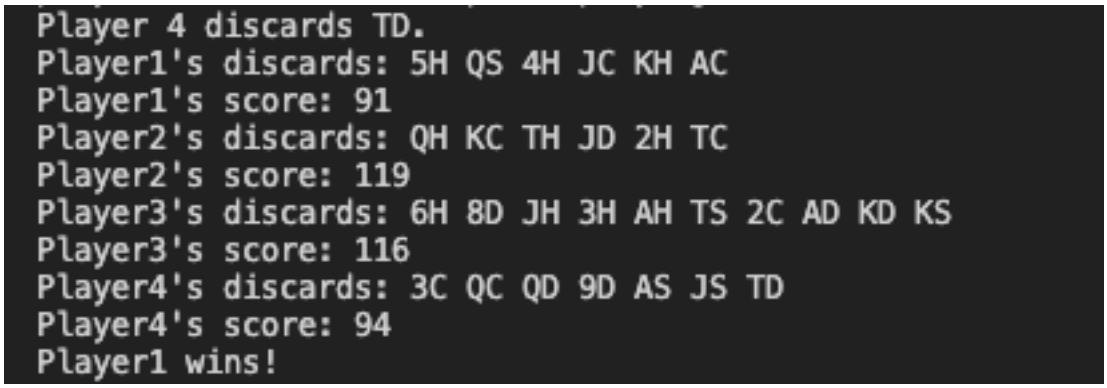


2. If there is player exceeded 80 points, then the we print the winning message “Playerx wins!”



Deck Demo—winning

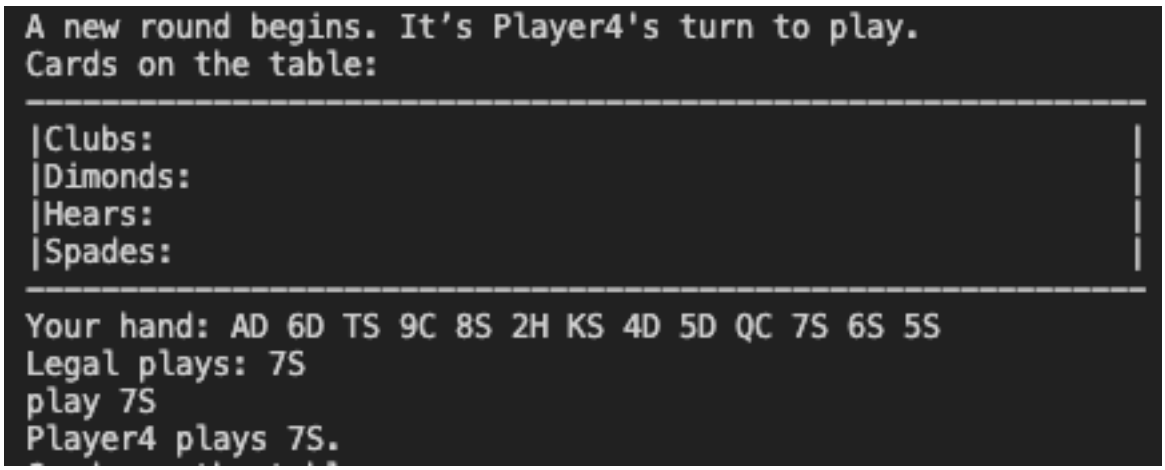
If there is someone exceed 80 points with the sum of the old accumulated score and the new score in this round, we would consider the player with lowest score to be the winner. “Playerx wins!” message will be printed. If there is multiple winner, multiple winning message will be printed.



Human Player Demo

Human Player Demo Player make a move process :

When a player got to play on his/her turn, the program will printout the played cards on the table, the cards on the player’s hand, and the legal plays of the player in this turn. Then we would expect the player to input: ”deck”, “play <card>”, “discards <card>”, “ragequit”, or “quit”.



The case of invalid input is handled by giving error message and expect the receive new input.

```
ja
this is invalid input
```

Human Player Demo Deck:

“deck” command will print out the full shuffled deck in this game. The order is shuffled depending on the seed

```
deck
9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
6H JH 7D 5H 2S 4C JC KD 8C 7H JS AS QD
QS KC 9D 4S 4H 6C JD AC AH 9S 2C TC 3D
AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
```


Human Player Demo play <card> :

1. We expect valid card input, the non-valid input format would receive error message and expect to get a new command. (including cards not in hand)(as invalid card)

```
Cards on the table:
Clubs: 7
Dimonds:
Hears:
Spades: 7
Your hand: 6H JH 7D 5H 2S 4C JC KD 8C 7H JS AS QD
Legal plays: 7D 8C 7H
play BB
this is a invalid card
```

2. If the cards in not legal play, error message would be printed. (not legal play)

```
Cards on the table:
Clubs: 7
Dimonds:
Hears:
Spades: 7
Your hand: 6H JH 7D 5H 2S 4C JC KD 8C 7H JS AS QD
Legal plays: 7D 8C 7H
play BB
this is a invalid card
play JH
This is not a legal play.
```

3. If it is a valid move, then cards on the deck and in hands will be updated

```
Cards on the table:
Clubs:
Dimonds:
Hears:
Spades: 7
Your hand: 9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
Legal plays: 7C
play 7C
Player1 plays 7C.
```


Human Player Demo discard <card> :

1. We expect valid card input, the non-valid input would receive and expect to get new message. If there is legal move, any cards to discard would all be error.(error message is that there is legal play)

```
Cards on the table:
Clubs:
Dimonds:
Hears:
Spades: 7 8
Your hand: KC 9D 4S 4H 6C JD AC AH 9S 2C TC 3D
Legal plays: 9S
discard KC
You have a legal play. You may not discard.
```

2. If the card is not a valid card format or not in hands (error message is that it is a invalid card)

```
Cards on the table:
Clubs:
Dimonds:
Hears:
Spades: 7
Your hand: 6H JH 7D 5H 2S 4C JC KD 8C 7H JS AS QD
Legal plays:
discard 6S
this is an invalid card
```

3. If the card is a valid move, then we would get a message of successfully plays.

```
Cards on the table:
Clubs:
Dimonds:
Hears:
Spades: 7
Your hand: 9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
Legal plays:
play 9S
this is a invalid card
play 9H
This is not a legal play.
discard 9H
Player 1 discards 9H.
```


Human Player Demo ragequit :

If the player input command “ragequit”, then the player would have computer strategy and let computer play. 1. If there is no legal play, then the computer will discard the first card in hand

```
Cards on the table:
Clubs:
Dimonds:
Hears:
Spades: 2 3 4 5 6 7 8 9
Your hand: 8H 5C QH 8D TH 2D TD 3C
Legal plays:
ragequit
Player1 ragequits. A computer will now take over.
Player 1 discards 8H.
```

2. If there is legal play, then the computer will play the first legal play.

```
Cards on the table:
Clubs:
Dimonds:
Hears:
Spades:
Your hand: AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
Legal plays: 7S
Player4 plays 7S.
```

Human Player Demo exit

If the command is exit, then the game will terminate immediately.

```
Cards on the table:
Clubs:
Dimonds:
Hears:
Spades: 7
Your hand: 9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
Legal plays:
quit
h68he@ubuntu1804-010:~/cs246/w21/a6$
```

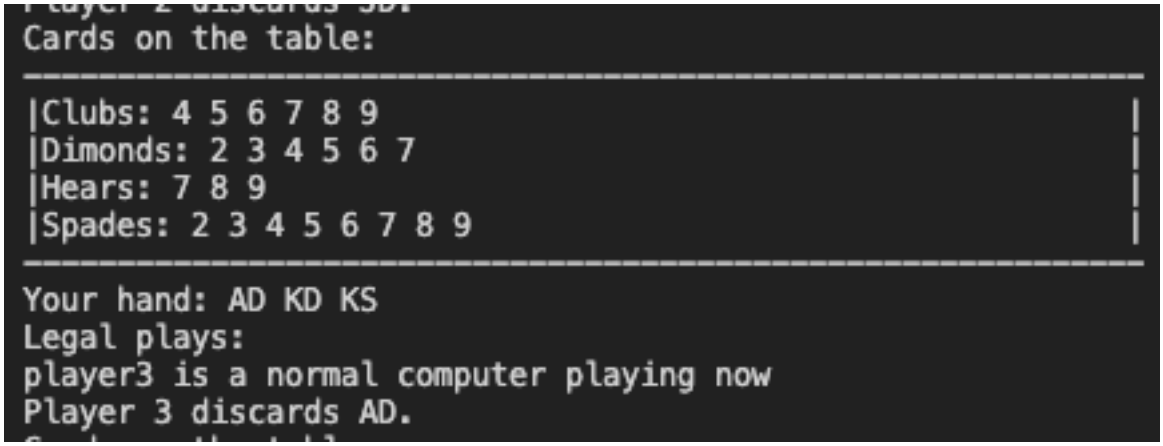

Computer Player Demo

Computer Player Demo

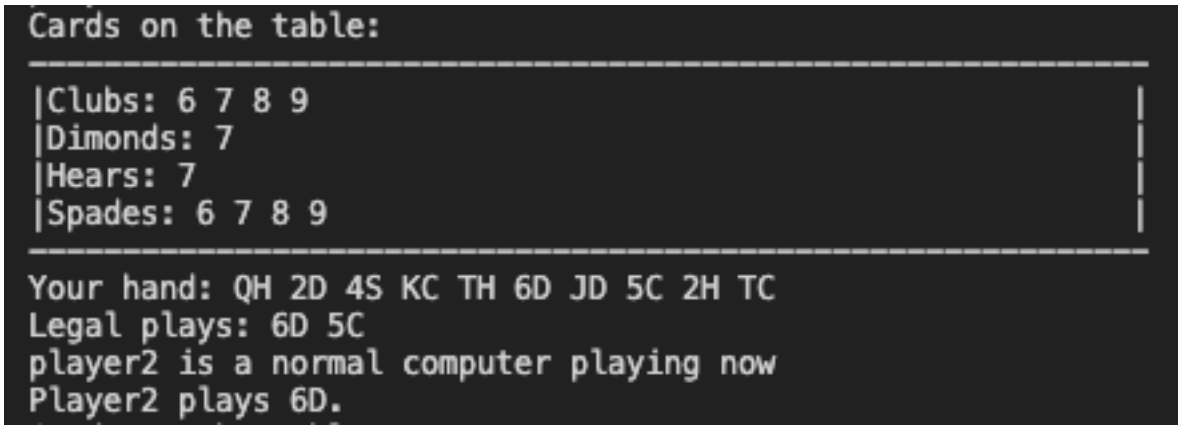
After ragequit of a player, the player's strategy will become computer strategy.

My program has normal computer and smart computer. If the player is having the highest score, the smart computer would discard the lowest rank's card, and play the highest rank's card. Otherwise, it is a normal computer:

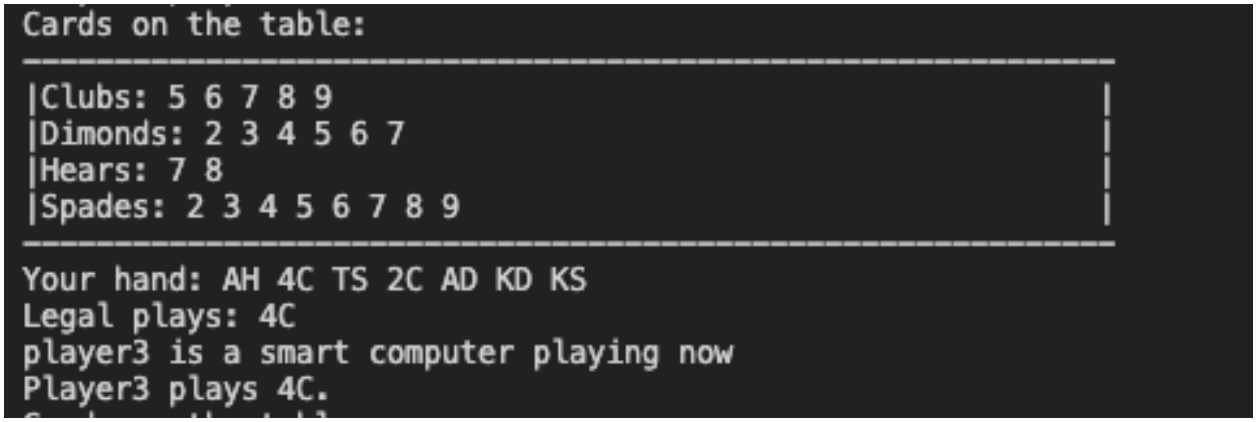
1. If there is no legal play, then the computer will discard the first card in hand



2. If there is legal play, then the computer will play the first legal play.\

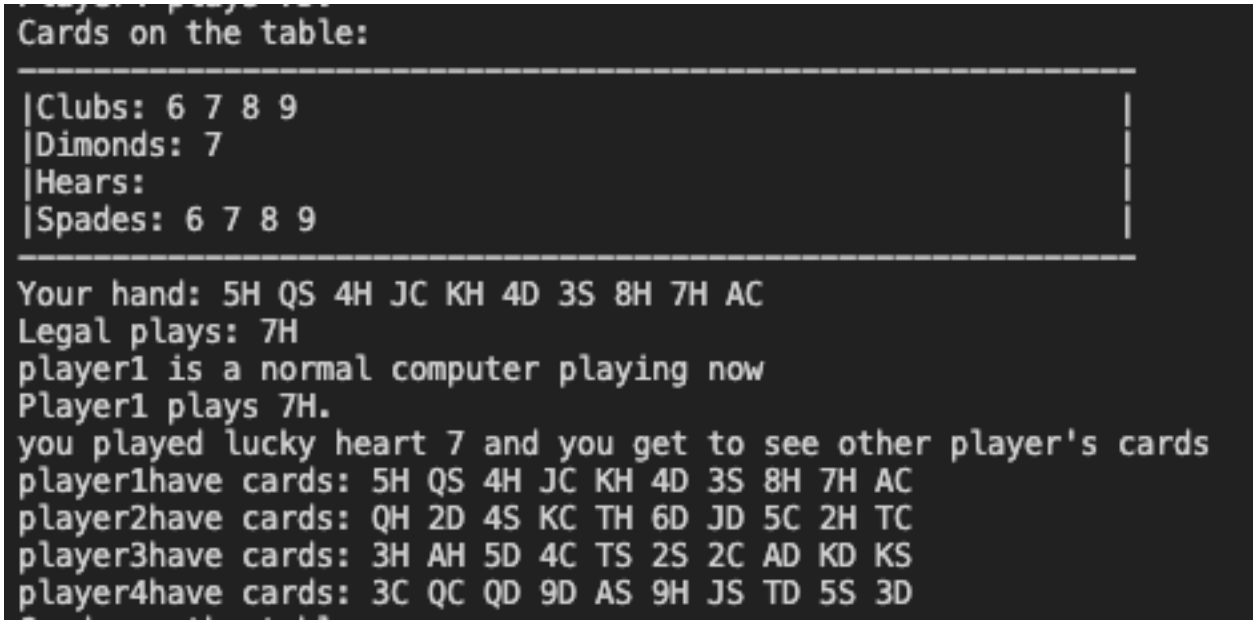


3. My computer has smarter computer strategy.



Extra feature.

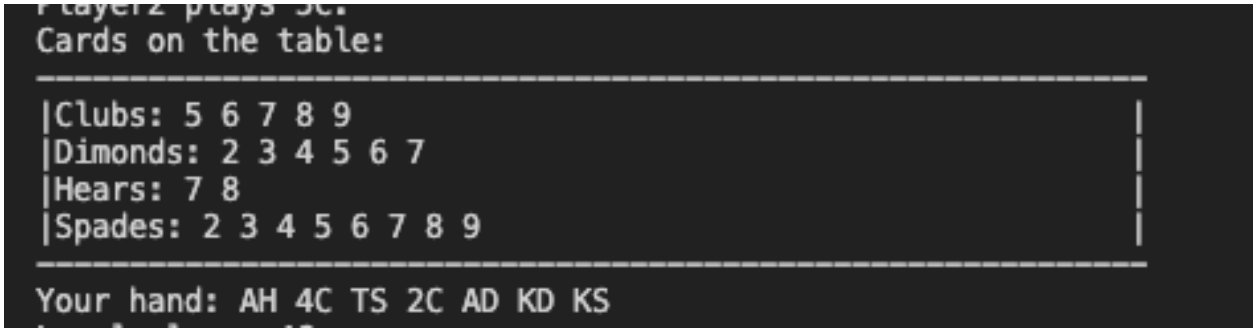
1. Special house rule, the heart 7 is a lucky card. Who plays heart 7 get to see other player's cards in hand.



2. My program has normal computer and smart computer. If the player is having the highest score, the smart computer would discard the lowest rank's card, and play the highest rank's card. Otherwise, it is a normal computer:

I explained in the computer demo.

3. In order to have a better view of the game interface, this program have a special display of deck.


Player2 plays 3C.
Cards on the table:
|Clubs: 5 6 7 8 9
|Dimonds: 2 3 4 5 6 7
|Hears: 7 8
|Spades: 2 3 4 5 6 7 8 9
Your hand: AH 4C TS 2C AD KD KS