The program can take a value from the command line argument (an integer) as a seed and use that seed to shuffle the deck. If no seed is inputted, a random seed is generated from the program to be used.

All demos on this document are tested with seed = 1

Upon launching the program, the user is prompted the following Query:

```
Is Player1 a human (h) or a computer (c)?
```

The program takes the first character from the user input as the answer.

By default, if the input is not 'h', the program will create a computer player. This query repeats 4 times for all 4 players.

Every round, the current cards played on the table is displayed in order of increasing rank along with the player's hand and the legal plays they have. If it is the first turn, the only legal play is the 7 of Spades.

```
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: 4S QH 5S 7C 6D QC 9C AD KH 7S TC AH 7H
Legal plays: 7S
```

The round begins with first announcing the player starting the round

```
A new round begins. It's Player3's turn to Play
```

Analysis of computer.in

This demo input file is the game played by only computers. This file requires no other input other than the initial 4 prompts about whether the player is human or a computer. The computer algorithm behaves as the following:

If there are legal plays, play the first legal play. If there are no legal plays, discard the first card in your hand.

This can be tested through observing the computers behavior. For example: given the following plays:

```
A new round begins. It's Player4's turn to Play
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: AC 6C 9H 4D 7C JC 7S 3H AD 7H 3C AH 8D
Legal plays: 7S
Player4 plays 7S
Clubs:
Diamonds:
Hearts:
Spades: 7
Your hand: QC 4C 8S KH 9C 7D 4H TC KC QS 8H 5S 5D
Legal plays: 8S 7D
Player1 plays 8S
Clubs:
Diamonds:
Hearts:
Spades: 7  8
Your hand: 5C QD 9S 2C KS TH 9D JD AS JS 2S 6H 2H
Legal plays: 9S
Player2 plays 9S
Clubs:
Diamonds:
Hearts:
Spades: 7  8  9
Your hand: KD 3D TD 5H 6S JH 3S 2D TS QH 8C 4S 6D
Legal plays: 6S TS
Player3 plays 6S
Clubs:
Diamonds:
Hearts:
Spades: 6  7  8  9
Your hand: AC 6C 9H 4D 7C JC 3H AD 7H 3C AH 8D
Legal plays: 7C 7H
Player4 plays 7C
Clubs: 7
Diamonds:
Hearts:
Spades: 6  7  8  9
Your hand: QC 4C KH 9C 7D 4H TC KC QS 8H 5S 5D
Legal plays: 7D 5S
Player1 plays 7D
Clubs: 7
Diamonds: 7
Hearts:
Spades: 6  7  8  9
Your hand: 5C QD 2C KS TH 9D JD AS JS 2S 6H 2H
Legal plays:
Player2 discards 5C
Clubs: 7
Diamonds: 7
Hearts:
Spades: 6  7  8  9
Your hand: KD 3D TD 5H JH 3S 2D TS QH 8C 4S 6D
Legal plays: TS 8C 6D
Player3 plays TS
```

It can be observed that every computer will play the first cards listed under “Legal Plays” if there exists one and discard the first card listed under “Your hand” if there does not exist a legal play.

Analysis of single_player.in

This file tests the behavior of player input given the following commands:

Test Case	Input Equivalent	Expected Outcome
Playing valid card	Play 8S	Prompt shows that that player plays that specific card
Discarding card valid	Discard 4C	Prompt shows that player discards that specific card
Playing invalid card	Play KH	Prompt shows that the card selected cannot be played Asks for input again
Playing non-existing card	Play AS	Prompt shows that the card selected cannot be played Asks for input again.
Discarding non-existing card	Discard 9H	Prompt shows that card selected is not in hand. Asks for input again
Discarding card with legal plays	Discard 9C	Prompt show that player has legal plays. Asks for input again
Showing Deck	deck	The game deck is outputted
Rage quit	ragequit	Prompt shows player+# has ragequit and computer will take over. Current and future rounds are then played by the computer

Currently, running the "quit" command while playing as a player will cause memory leaks.

For All demo tests:

After the round is complete (when all players have no cards in their hands), the calculation is displayed and the player's points are calculated:

```
Player1's discards: 6D TD 5D AS KS KD QD
Player1's score: 30 + 60 = 90
Player2's discards: KC JD QC
Player2's score: 40 + 36 = 76
Player3's discards: 3D AD JC 4D
Player3's score: 28 + 19 = 47
Player4's discards: 2D
Player4's score: 18 + 2 = 20
```

The game ends when at least one player's score exceeds or equals 80 and the winner is calculated and outputted.

```
Player4 wins!
```