Homework #2 POOCasino

B01902080 資工四 王于青

1. How to play the game

(1) In the correct folder (i.e., hw2/), enter "make" and "make run" to start the game.

(2) Follow the screenshots and instructions highlighted below:

   a. Enter your name:

```
POOCasino Jacks or better, written by b01902080 Yu-Ching Wang
Please enter your name: Urchin Sea
```

   b. Enter your bet in current round:

```
Welcome, Urchin Sea.
You have 1000 P-dollars now.
Please enter your P-dollar bet for round 1 (1-5 or 0 for quitting the game): 4
```

   c. Choose the cards you want to keep (in "abcde"):

```
Your cards are (a) H5 (b) D7 (c) SJ (d) HQ (e) DK
Which cards do you want to keep? cde
```

   d. The results and payoff will be showed on the screen:

```
Okay. I will discard (a) H5 (b) D7.
Your new cards are C3 S7 SJ HQ DK.
You get a no hand. The payoff is 0.
You have 996 P-dollars now.
Please enter your P-dollar bet for round 2 (1-5 or 0 for quitting the game):
```

   e. You can start a new round, or enter "0" bet to quit the game:

```
Please enter your P-dollar bet for round 2 (1-5 or 0 for quitting the game): 0
Good bye, Urchin Sea. You played for 1 round and have 996 P-dollars now.
```

2. Methods used to test the correctness of my program

I implement two classes, HandCreator.java and StatusChecker.java, to check the following things respectively:

(1) The correctness of computer's determination of player's hand.

The class HandCreator can create all kinds of special hands by calling target method (e.g., handCreator.royalFlush()). Therefore, for each kind of hand, I first assign the hand created by HandCreator to player.
Then, I call computer. calculateHand() used in my game to determine which kind of hand the player gets.
Finally, I check if the returned type of hand is the same as what I ask HandCreator to create.
The output of testing is as shown on the right.

```
Royal Flush
D10 DJ DQ DK DA   royal flush
S10 SJ SQ SK SA   royal flush
D10 DJ DQ DK DA   royal flush
D10 DJ DQ DK DA   royal flush
C10 CJ CQ CK CA   royal flush
Straight Flush
S2 S3 S4 S5 S6    straight flush
S3 S4 S5 S6 S7    straight flush
H7 H8 H9 H10 HJ   straight flush
D8 D9 D10 DJ DQ   straight flush
D4 D5 D6 D7 D8    straight flush
Four Of A Kind
C4 D4 H4 S4 C9    four of a kind
S8 C9 D9 H9 S9    four of a kind
C2 D2 H2 S2 DK    four of a kind
C5 CK DK HK SK    four of a kind
C3 C9 D9 H9 S9    four of a kind
```

(2) The correctness of player's P-dollar account.

The class StatusChecker will store the current player's account, bet, hand, and payoff.

Therefore, when calling statusChecker.isCorrect(), StatusChecker will calculate the account and payoff based on its database and check if they are identical to player's current data.

3. The output from three rounds of the game

```
urchinsea@UR-VB:/media/sf_sf/foop/hw2$ make run
java -cp src POOCasino
POOCasino Jacks or better, written by b01902080 Yu-Ching Wang
Please enter your name: Urchin Sea
Welcome, Urchin Sea.
You have 1000 P-dollars now.
Please enter your P-dollar bet for round 1 (1-5 or 0 for quitting the game): 3
Your cards are (a) C4 (b) H4 (c) C9 (d) C10 (e) HK
Which cards do you want to keep? de
Okay. I will discard (a) C4 (b) H4 (c) C9.
Your new cards are S7 C10 CJ DQ HK.
You get a no hand. The payoff is 0.
You have 997 P-dollars now.
Please enter your P-dollar bet for round 2 (1-5 or 0 for quitting the game): 5
Your cards are (a) D10 (b) DJ (c) DQ (d) DK (e) DA
Which cards do you want to keep? abcde
Okay. I will discard.
Your new cards are D10 DJ DQ DK DA.
You get a royal flush hand. The payoff is 4000.
You have 4992 P-dollars now.
Please enter your P-dollar bet for round 3 (1-5 or 0 for quitting the game): 4
Your cards are (a) S4 (b) D5 (c) H6 (d) S8 (e) H10
Which cards do you want to keep? abcd
Okay. I will discard (e) H10.
Your new cards are S4 D5 H6 D7 S8.
You get a straight hand. The payoff is 16.
You have 5004 P-dollars now.
Please enter your P-dollar bet for round 4 (1-5 or 0 for quitting the game): 0
Good bye, Urchin Sea. You played for 3 round and have 5004 P-dollars now.
```

4. BONUS implementation

The test classes HandCreator.java and StatusChecker.java are my bonus implementation.

Also, I add some checking mechanisms to detect the validity of user inputs.

```
Please enter your P-dollar bet for round 1 (1-5 or 0 for quitting the game): 100
Invalid bet.
Please enter your P-dollar bet for round 1 (1-5 or 0 for quitting the game): -2
Invalid bet.
Please enter your P-dollar bet for round 1 (1-5 or 0 for quitting the game): 4
Your cards are (a) C3 (b) H4 (c) H6 (d) CA (e) HA
```

```
Your cards are (a) H8 (b) S8 (c) SQ (d) SK (e) DA
Which cards do you want to keep? abcf
Invalid card ID (f)
Okay. I will discard (d) SK (e) DA.
```