

Name: Sanat Bhalla (20908162)
CS246 Final Project (Hydra)
University of Waterloo

DEMO –

This demo is done in testing mode to counter randomness

Rules –

- A player can play the card in hand on a head whose value is less than or equal to it. If there is no such head, then the oldest head is cut off and moved to the player's discard pile, and the player puts 2 new heads.

Since #2 and #3 are the only valid heads, any other value entered by the player will be considered as an invalid move. Here, however #2 has 7D which is smaller than JH but the player has an option of playing it on #3 with KC bigger than JH. In this case, inputting #2 as the move will be invalid.

```
Heads:
2: 7D (2)
3: KC (1)

--- TESTING MODE ---

Set Player 2 Head
Card value?
j
Suit?
h

Players:
Player 1: 53 (50 draw, 3 discard)
Player 2: 51 (51 draw, 0 discard) + 1 in hand, 0 remaining, 0 in reserve

Player 2 you are holding a JH. Your move?
2

Invalid Move
Your move?
5

Invalid Move
Your move?
3

Does Player 2 want to leave? The computer will take over for the player. (y/n)
n

Heads:
2: 7D (2)
3: JH (2)

Players:
Player 1: 53 (50 draw, 3 discard)
Player 2: 51 (51 draw, 0 discard)

Player 1, it is your turn.

Heads:
2: 7D (2)
3: JH (2)
```

Here, although the player had 2 moves, since the play card (9S) was placed on the head (9D), the player would end his turn and the remaining card would be returned to the draw pile.

```
Heads:
2: 2C (1)
3: 9D (1)

--- TESTING MODE ---

Set Player 1 Head
Card value?
9
Suit?
s

Players:
Player 1: 52 (52 draw, 0 discard) + 1 in hand, 1 remaining, 0 in reserve
Player 2: 53 (51 draw, 2 discard)

Player 1 you are holding a 9S. Your move?
3

Does Player 1 want to leave? The computer will take over for the player. (y/n)
n

Heads:
2: 2C (1)
3: 9S (2)

Players:
Player 1: 52 (52 draw, 0 discard)
Player 2: 53 (51 draw, 2 discard)

Player 2, it is your turn.

Heads:
2: 2C (1)
3: 9S (2)
```

- A player has to cut the head when there is no place he can play the card (ie all the heads are less than the play card in hand).

Here, since both the heads are smaller than JD, the player had to cut the oldest heads off. Although the player selected #3, but since #2 is an older head than #3, the player has to cut #2.

```
Heads:
2: 5S (1)
3: 9C (1)

--- TESTING MODE ---

Set Player 1 Head
Card value?
j
Suit?
d

Players:
Player 1: 52 (52 draw, 0 discard) + 1 in hand, 1 remaining, 0 in reserve
Player 2: 53 (51 draw, 2 discard)

Player 1 you are holding a JD. Your move?
3
3 is not the oldest head.
Cutting out heads #2
```

- A player can put the play card in the reserve or swap it with the reserve when the number of heads is greater than 1 by inputting move 0.

Here, the head size is 1 so calling the reserve is illegal.

```
s24bhall@ubuntu2004-004:~/cs246/s21/hydra$ ./hydra
How many players?
2

===== WELCOME TO HYDRA =====

Heads:
1: KD (1)

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 54 (54 draw, 0 discard)

Player 2, it is your turn.

Heads:
1: KD (1)

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 53 (53 draw, 0 discard) + 1 in hand, 0 remaining, 0 in reserve

Player 2 you are holding a 4D. Your move?
0

Cannot put reserve when number of heads is 1
```

Since heads were more than 2, the player put JH in the reserve first by entering 0 and then swap 3H with it by entering 0 again.

```
Heads:
2: 10C (1)
3: 8H (1)

Players:
Player 1: 52 (52 draw, 0 discard) + 1 in hand, 1 remaining, 0 in reserve
Player 2: 53 (51 draw, 2 discard)

Player 1 you are holding a JH. Your move?
0

Heads:
2: 10C (1)
3: 8H (1)

Players:
Player 1: 51 (51 draw, 0 discard) + 1 in hand, 0 remaining, 1 in reserve
Player 2: 53 (51 draw, 2 discard)

Player 1 you are holding a 3H. Your move?
0

Heads:
2: 10C (1)
3: 8H (1)

Players:
Player 1: 51 (51 draw, 0 discard) + 1 in hand, 0 remaining, 1 in reserve
Player 2: 53 (51 draw, 2 discard)

Player 1 you are holding a JH. Your move?
2
```

- Setting Joker to 2 when it is the head and set its value whenever it comes as the top card on the draw pile.

Here, since it is the first head, the value is 2J.

```
s24bhall@ubuntu2004-004:~/cs246/s21/hydra$ ./hydra -testing
How many players?
2

===== WELCOME TO HYDRA =====

--- TESTING MODE ---

Set first Head Player 1
Card value?
joker

Heads:
1: 2J (1)

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 54 (54 draw, 0 discard)

Player 2, it is your turn.

Heads:
1: 2J (1)
```

Here, since the Joker is placed on an existing head, the player had to choose a value for the card less than the head card. Since, the chose head was 10S, the value of the Joker card has to between A – 10, and choosing a higher value than 10 would be considered invalid. Hence, the Joker could not take the value Q but 9 was allowed. If the person would have chosen 10, then the player would have ended his turn there.

```
Heads:
2: 5S (1)
3: 10S (1)

--- TESTING MODE ---

Set Player 1 Head
Card value?
joker

Players:
Player 1: 52 (52 draw, 0 discard) + 1 in hand, 1 remaining, 0 in reserve
Player 2: 53 (51 draw, 2 discard)

Player 1 you are holding a Joker. Your move?
3
Joker value?
Q

Joker value must be between (A-10)
Joker value?
9

Heads:
2: 5S (1)
3: 9J (2)
```

- Pure House Rule (Bonus) – Here, both the cards of player 1 (1 in hand and 1 remaining) are played on heads #3 since “JH” was the same card on the heads as in the player’s hands and the Pure House rule applies here since --pure was passed in as a command-line argument.

```

Heads:
2: 6S (1)
3: JH (1)

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 53 (51 draw, 2 discard)

Player 1, it is your turn.

Heads:
2: 6S (1)
3: JH (1)

--- TESTING MODE ---

Set Player 1 Head
Card value?
j
Suit?
h

Players:
Player 1: 52 (52 draw, 0 discard) + 1 in hand, 1 remaining, 0 in reserve
Player 2: 53 (51 draw, 2 discard)

Player 1 you are holding a JH. Your move?
3
== Pure House ==

Heads:
2: 6S (1)
3: 3S (3)

Players:
Player 1: 50 (50 draw, 0 discard)
Player 2: 53 (51 draw, 2 discard)

Player 2, it is your turn.

```

- Grammar (Bonus) – Here, “an” is printed before 8 since --grammar was passed in as the command line argument.

```

s24bhall@ubuntu2004-002:~/cs246/s21/hydra$ ./hydra -testing --grammar
How many players?
2

===== WELCOME TO HYDRA =====

--- TESTING MODE ---

Set first Head Player 1
Card value?
10
Suit?
c

Heads:
1: 10C (1)

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 54 (54 draw, 0 discard)

Player 2, it is your turn.

Heads:
1: 10C (1)

--- TESTING MODE ---

Set Player 2 Head
Card value?
8
Suit?
d

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 53 (53 draw, 0 discard) + 1 in hand, 0 remaining, 0 in reserve

Player 2 you are holding an 8D. Your move?
1

```

- Computer Player (Bonus) –

The player should enter --comp as the command line argument. The number of computer players are between 1 and the number of players.

```
s24bhall@ubuntu2004-008:~/cs246/s21/hydra$ ./hydra -testing --comp
How many players?
3
How many computers?
1
```

```
Heads:
1: 5C (1)

--- TESTING MODE ---

Set Player 2 Head
Card value?
6
Suit?
h

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 53 (53 draw, 0 discard) + 1 in hand, 0 remaining, 0 in reserve
Player 3: 54 (54 draw, 0 discard)

Player 2 you are holding a 6H. Your move?

=== COMPUTER PLAYER ===
Computer Player 2 move: #1
Cutting out heads #1
```

Suppose Player 2 is a human in the picture below, the game will ask them if they want to stay after their turn. If the player wishes to leave, a computer takes over for them and will automatically make a move from their next turn.

```
Heads:
1: 7D (1)

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 54 (54 draw, 0 discard)
Player 3: 54 (54 draw, 0 discard)

Player 2, it is your turn.

Heads:
1: 7D (1)

--- TESTING MODE ---

Set Player 2 Head
Card value?
3
Suit?
h

Players:
Player 1: 53 (53 draw, 0 discard)
Player 2: 53 (53 draw, 0 discard) + 1 in hand, 0 remaining, 0 in reserve
Player 3: 54 (54 draw, 0 discard)

Player 2 you are holding a 3H. Your move?
1

Does Player 2 want to leave (y/n):
y
```