

CS246 final project straights - Demo

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Start the game and choose player type

The program can read a number as seed to shuffle, if no argument is provided, the program randomly generates a seed so program can always start no matter if the seed is provided or not. When the command is “./straights {seed}”:

```
j867chen@ubuntu1804-008:~/cs246/w21/myfinal$ ./straights 234
Is Player1 a human (h) or a computer (c)?
```

When the command is “./straights”:

```
j867chen@ubuntu1804-008:~/cs246/w21/myfinal$ ./straights
Is Player1 a human (h) or a computer (c)?
```

Game will start after choosing player type for all the 4 players. Game can start when all players are computer.

```
j867chen@ubuntu1804-008:~/cs246/w21/myfinal$ ./straights 234
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)?
c
Player4 plays 7S.
Player1 discards TS.
```

Game can start when all players are human.

```
j867chen@ubuntu1804-008:~/cs246/w21/myfinal$ ./straights 234
Is Player1 a human (h) or a computer (c)?
h
Is Player2 a human (h) or a computer (c)?
h
Is Player3 a human (h) or a computer (c)?
h
Is Player4 a human (h) or a computer (c)?
h
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: KC 9H 8D 7S 6D JC 9S 4C 9D AS QC 3S 2D
Legal plays: 7S
```

Game can start when some players are computer, and some are not.

```
j867chen@ubuntu1804-008:~/cs246/w21/myfinal$ ./straights 234
Is Player1 a human (h) or a computer (c)?
h
Is Player2 a human (h) or a computer (c)?
c
Is Player3 a human (h) or a computer (c)?
h
Is Player4 a human (h) or a computer (c)?
c
Player4 plays 7S.
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades: 7
```

Program only accept “h” or “c” as input here.

If user does not type h or c when selecting user type, program will do nothing and ask for user type again until correct input is provided.

```
j867chen@ubuntu1804-008:~/cs246/w21/myfinal$ ./straights 234
Is Player1 a human (h) or a computer (c)?
f
Please enter h or c.
Is Player1 a human (h) or a computer (c)?
453
Please enter h or c.
Is Player1 a human (h) or a computer (c)?
{}
Please enter h or c.
Is Player1 a human (h) or a computer (c)?
h
Is Player2 a human (h) or a computer (c)?
v
Please enter h or c.
Is Player2 a human (h) or a computer (c)?
```

After the game start, player with the card 7S always plays first no matter it's a human player or computer.

```
j867chen@ubuntu1804-004:~/cs246/w21/myfinal$ ./straights 13
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)?
c
Player2 plays 7S.
Player3 plays 6S.
Player4 plays 5S.
Player1 plays 8S.
```

```
Is Player1 a human (h) or a computer (c)?
h
Is Player2 a human (h) or a computer (c)?
h
Is Player3 a human (h) or a computer (c)?
h
Is Player4 a human (h) or a computer (c)?
h
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: 7S QH 4H 7C KD 8H QD 4C KS 4S 9H 6D 2D
Legal plays: 7S
play 7S
Player1 plays 7S.
```

Command “deck”

Before shuffling the card, the card on the deck will be in the order of AC 2C 3C ... TC JC QC KC AD 2D ... QD KD AH 2H ... QH KH AS 2S ... QS KS. Please check the code at game.cc line 7.

```
7  Game::Game()
8  {
9      for(int i = 0; i < 4; i++){
10         for (int j = 1; j < 14; j++){
11             if(i == 0) {
12                 Card c{j, 'C'};
13                 deck.emplace_back(c);
14             }
15             if(i == 1) {
16                 Card c{j, 'D'};
17                 deck.emplace_back(c);
18             }
19             if(i == 2) {
20                 Card c{j, 'H'};
21                 deck.emplace_back(c);
22             }
23             if(i == 3) {
24                 Card c{j, 'S'};
25                 deck.emplace_back(c);
26             }
27         }
28     }
29 }
30
```

The entire deck will be printed in order and has 13 cards per row no matter when the command “deck” is input

```
j867chen@ubuntu1804-010:~/cs246/w21/myfinal$ ./straights 238425
Is Player1 a human (h) or a computer (c)?
h
Is Player2 a human (h) or a computer (c)?
h
Is Player3 a human (h) or a computer (c)?
h
Is Player4 a human (h) or a computer (c)?
h
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: 9C 7S 2H 2S 9S 6C AC KC 5C QC 8D 4C JD
Legal plays: 7S
deck
9C 7S 2H 2S 9S 6C AC KC 5C QC 8D 4C JD
AD TH 8S TS 3H 7D TD 3C KD AS 5H TC 5D
7H 6D JC 9D AH 5S JH 4S 6S KS 6H 2D 4D
QD 4H 7C KH 3D 3S 2C 9H 8H QH 8C QS JS
play 7S
Player1 plays 7S.
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades: 7
Your hand: AD TH 8S TS 3H 7D TD 3C KD AS 5H TC 5D
Legal plays: 8S 7D
deck
9C 7S 2H 2S 9S 6C AC KC 5C QC 8D 4C JD
AD TH 8S TS 3H 7D TD 3C KD AS 5H TC 5D
7H 6D JC 9D AH 5S JH 4S 6S KS 6H 2D 4D
QD 4H 7C KH 3D 3S 2C 9H 8H QH 8C QS JS
```

The card will be shuffled differently if different seed is provided.

```
j867chen@ubuntu1804-010:~/cs246/w21/myfinal$ ./straights
Is Player1 a human (h) or a computer (c)?
h
Is Player2 a human (h) or a computer (c)?
h
Is Player3 a human (h) or a computer (c)?
h
Is Player4 a human (h) or a computer (c)?
h
Cards on the table:
Clubs:
Diamonds:
Hearts:
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
```

```
j867chen@ubuntu1804-010:~/cs246/w21/myfinal$ ./straights 238
Is Player1 a human (h) or a computer (c)?
h
Is Player2 a human (h) or a computer (c)?
h
Is Player3 a human (h) or a computer (c)?
h
Is Player4 a human (h) or a computer (c)?
h
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: AD TD 9S QD 7S KS 4S 3H 4H 3D JS 8S 8H
Legal plays: 7S
deck
8C JC 5H 4C TH 8D AH 6S 6D JH TC 4D QC
QH 2S 2D 9D AS TS 5S QS 2C 3C 6C 7H JD
KD 5C AC 9H KC 2H 9C 5D 3S KH 7C 7D 6H
AD TD 9S QD 7S KS 4S 3H 4H 3D JS 8S 8H
```

Command “play”

If the player is a computer, only “Player[x] plays [card]” or “Player[x] discards [card]” will be printed

```
j867chen@ubuntu1804-010:~/cs246/w21/myfinal$ ./straights 238425
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)?
c
Player1 plays 7S.
Player2 plays 8S.
Player3 plays 7H.
Player4 plays 7C.
Player1 plays 9S.
Player2 plays TS.
Player3 plays 6S.
Player4 plays 8H.
Player1 plays 6C.
Player2 plays 7D.
Player3 plays 6D.
Player4 plays 9H.
Player1 plays 5C.
Player2 plays TH.
Player3 plays 5S.
Player4 plays 8C.
Player1 plays 9C.
Player2 plays TC.
Player3 plays JC.
Player4 plays JS.
Player1 plays QC.
Player2 plays 5D.
Player3 plays JH.
Player4 plays QH.
Player1 plays KC.
Player2 discards AD.
Player3 plays 4S.
Player4 plays KH.
Player1 plays 8D.
Player2 discards 3H.
Player3 plays 9D.
Player4 plays 3S.
Player1 plays 2S.
Player2 plays TD.
```


The game will play automatically and end itself even if all players are computer.

```
Player4 plays 4D.
Player1 plays 8H.
Player2 plays 9H.
Player3 plays 3D.
Player4 plays 7C.
Player1 plays 6C.
Player2 discards KS.
Player3 plays 6H.
Player4 plays 6S.
Player1 plays JD.
Player2 plays QD.
Player3 plays KD.
Player4 plays 2D.
Player1 plays 5H.
Player2 discards QH.
Player3 plays 5S.
Player4 plays 4S.
Player1 plays 4H.
Player2 plays 3H.
Player3 plays 3S.
Player1's discards: 5C
Player1's score: 35 + 5 = 40
Player2's discards: AD KS QH
Player2's score: 58 + 26 = 84
Player3's discards:
Player3's score: 0 + 0 = 0
Player4's discards:
Player4's score: 0 + 0 = 0
Player3 wins!
Player4 wins!
i867chen@ubuntu1804:010~$ ./cs246/4v21/myfinal$ ./straightc 238425
```

If it's a human player's turn, type "play <card>" will play the card if the card is valid.

```
Cards on the table:
Clubs:
Diamonds:
Hearts:
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.
```

If the player tries to play a card that is not a legal play, or the player does not have it, the program will do nothing and keep asking for input until the correct command is provided.

```
Cards on the table:
Clubs: 7
Diamonds:
Hearts:
Spades: 7
Your hand: 6H JH 7D 5H 2S 4C JC KD 8C 7H JS AS QD
Legal plays: 7D 8C 7H
play 4C
This is not a legal play.
play 2D
This is not a legal play.
play 78
This is not a legal play.
```

If the command is not one of “play <card>”, “discard <card>”, “deck”, “ragequit” or “quit”, the program will do nothing and keep asking for input until the correct command is provided.

```
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
Legal plays: 7S
wefds
This is not a legal command.
234
This is not a legal command.
{}
This is not a legal command.
play
2342
This is not a legal play.
```

After the correct command is provided, the program will keep going and the next player will keep playing.

```
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: AD 6D TS 9C 8S 2H KS 4D 5D QC 7S 6S 5S
Legal plays: 7S
wefds
This is not a legal command.
234
This is not a legal command.
{}
This is not a legal command.
play
2342
This is not a legal play.
play 7S
Player4 plays 7S.
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades: 7
Your hand: 9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
Legal plays: 7C
```

Command “discard”

If it's a human player's turn, type “discard <card>” will discard the card if there is no legal play.

```
Cards on the table:
Clubs:
Diamonds: 6 7
Hearts: 5 6 7 8
Spades: 5 6 7 8
Your hand: QH 2S 2D 9D AS TS QS 2C 3C 6C JD
Legal plays:
discard QH
Player2 discards QH.
```

If the player tries to discard when there is a legal play, program will do nothing and keep asking for input until the correct command is received.

```
Cards on the table:
Clubs:
Diamonds: 6 7
Hearts: 5 6 7 8
Spades: 5 6 7 8
Your hand: KD 5C AC 9H KC 2H 9C 5D 3S KH 7C
Legal plays: 9H 5D 7C
discard 9H
You have a legal play. You may not discard.
discard 5C
You have a legal play. You may not discard.
discard 897
You have a legal play. You may not discard.
play 9H
Player3 plays 9H.
```

If the player tries to discard a card that is not in their hand cards, program will do nothing and keep asking for input until the correct command is received.

```
Cards on the table:
Clubs:
Diamonds: 4 5 6 7 8 9
Hearts: 4 5 6 7 8 9
Spades: 4 5 6 7 8
Your hand: 2S 2D AS TS QS 2C 3C 6C JD
Legal plays:
discard 2H
You don't have this card.
discard TD
You don't have this card.
discard 249KJHJ
You don't have this card.
play 2S
This is not a legal play.
discard 2S
Player2 discards 2S.
```

Command “ragequit”

When a player type “ragequit”, a computer will take over and play automatically from now on.

```
Cards on the table:
Clubs:
Diamonds: 4 5 6 7 8 9
Hearts: 4 5 6 7 8 9
Spades: 4 5 6 7 8
Your hand: KD 5C AC KC 2H 9C 3S KH 7C
Legal plays: 3S 7C
ragequit
Player3 ragequits. A computer will now take over.
Player3 plays 3S.
Cards on the table:
Clubs:
Diamonds: 4 5 6 7 8 9
Hearts: 4 5 6 7 8 9
Spades: 3 4 5 6 7 8
Your hand: AD TD 9S QD KS 3H 3D JS
Legal plays: TD 9S 3H 3D
play 3D
Player4 plays 3D.
Cards on the table:
Clubs:
Diamonds: 3 4 5 6 7 8 9
Hearts: 4 5 6 7 8 9
Spades: 3 4 5 6 7 8
Your hand: 8C JC 4C TH AH JH TC QC
Legal plays: TH
play TH
Player1 plays TH.
Cards on the table:
Clubs:
Diamonds: 3 4 5 6 7 8 9
Hearts: 4 5 6 7 8 9 T
Spades: 3 4 5 6 7 8
Your hand: 2D AS TS QS 2C 3C 6C JD
Legal plays: 2D
play 2D
Player2 plays 2D.
Player3 plays 7C.
```

If all player ragequit, the game will automatically play and end itself.

```
Cards on the table:
Clubs: 7 8
Diamonds: A 2 3 4 5 6 7 8 9
Hearts: 4 5 6 7 8 9 T
Spades: 3 4 5 6 7 8
Your hand: AS TS QS 2C 3C 6C JD
Legal plays: 6C
ragequit
Player2 ragequits. A computer will now take over.
Player2 plays 6C.
Player3 plays 5C.
Player1's discards:
Player1's score: 0 + 0 = 0
Player2's discards: QH 2S
Player2's score: 66 + 14 = 80
Player3's discards:
Player3's score: 0 + 0 = 0
Player4's discards:
Player4's score: 0 + 0 = 0
Player1 wins!
Player3 wins!
Player4 wins!
```

Command “quit”

After player types “quit”, the program will terminate immediately.

```
j867chen@ubuntu1804-002:~/cs246/w21/myfinal$ ./straights 238234
Is Player1 a human (h) or a computer (c)?
h
Is Player2 a human (h) or a computer (c)?
h
Is Player3 a human (h) or a computer (c)?
h
Is Player4 a human (h) or a computer (c)?
h
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: AC TD 9D AS 3H 6D KS 3C QC 7S TC JD 9H
Legal plays: 7S
play 7S
Player4 plays 7S.
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades: 7
Your hand: 7C 4C AD KH QD JC AH 2C 5D 2D 5S 6S 6C
Legal plays: 7C 6S
play 7C
Player1 plays 7C.
Cards on the table:
Clubs: 7
Diamonds:
Hearts:
Spades: 7
Your hand: 3D 2S 6H KC QS 5H 7H 3S JS 2H JH KD 8D
Legal plays: 7H
quit
j867chen@ubuntu1804-002:~/cs246/w21/myfinal$
```

Display the cards

After player play a card, the card will be placed on the table and be displayed, cards will same suit will be displayed in the order of rank.

```
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: AC TD 9D AS 3H 6D KS 3C QC 7S TC JD 9H
Legal plays: 7S
play 7S
Player4 plays 7S.
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades: 7
Your hand: 7C 4C AD KH QD JC AH 2C 5D 2D 5S 6S 6C
Legal plays: 7C 6S
play 7C
Player1 plays 7C.
Cards on the table:
Clubs: 7
Diamonds:
Hearts:
Spades: 7
Your hand: 3D 2S 6H KC QS 5H 7H 3S JS 2H JH KD 8D
Legal plays: 7H
play 7H
Player2 plays 7H.
Cards on the table:
Clubs: 7
Diamonds:
Hearts: 7
Spades: 7
Your hand: 4S 9S 8S 8H 7D QH 5C TH 4H TS 4D 9C 8C
Legal plays: 8S 8H 7D 8C
play 8S
Player3 plays 8S.
Cards on the table:
Clubs: 7
Diamonds:
Hearts: 7
Spades: 7 8
Your hand: AC TD 9D AS 3H 6D KS 3C QC TC JD 9H
Legal plays:
```


After player discard a card, the card will not be placed on the table and will not be displayed.

```
Cards on the table:
Clubs: 7
Diamonds:
Hearts: 7
Spades: 7 8
Your hand: AC TD 9D AS 3H 6D KS 3C QC TC JD 9H
Legal plays:
discard AC
Player4 discards AC.
Cards on the table:
Clubs: 7
Diamonds:
Hearts: 7
Spades: 7 8
Your hand: 4C AD KH QD JC AH 2C 5D 2D 5S 6S 6C
Legal plays: 6S 6C
play 6C
Player1 plays 6C.
Cards on the table:
Clubs: 6 7
Diamonds:
Hearts: 7
Spades: 7 8
Your hand: 3D 2S 6H KC QS 5H 3S JS 2H JH KD 8D
Legal plays: 6H
```

After player play or discard a card, the card will not be displayed as the player's handcard anymore.

```
Cards on the table:
Clubs: 2 3 4 5 6 7 8 9
Diamonds: 3 4 5 6 7 8 9 T J
Hearts: 2 3 4 5 6 7 8 9 T J Q K
Spades: A 2 3 4 5 6 7 8
Your hand: KC QS AD
Legal plays:
discard AD
Player1 discards AD.
Player2 discards JC.
Player3 plays QD.
Player4 plays 9S.
Cards on the table:
Clubs: 2 3 4 5 6 7 8 9
Diamonds: 3 4 5 6 7 8 9 T J Q
Hearts: 2 3 4 5 6 7 8 9 T J Q K
Spades: A 2 3 4 5 6 7 8 9
Your hand: KC QS
Legal plays:
```

```

Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades:
Your hand: TH 9H KC QS AD 5S 3H 6C 9D AS TD 7S 2C
Legal plays: 7S
play 7S
Player1 plays 7S.
Player2 plays 6S.
Player3 plays 7H.
Player4 plays 6H.
Cards on the table:
Clubs:
Diamonds:
Hearts: 6 7
Spades: 6 7
Your hand: TH 9H KC QS AD 5S 3H 6C 9D AS TD 2C
Legal plays: 5S
play 5S
Player1 plays 5S.
Player2 plays 8H.
Player3 plays 7C.
Player4 plays 5H.
Cards on the table:
Clubs: 7
Diamonds:
Hearts: 5 6 7 8
Spades: 5 6 7
Your hand: TH 9H KC QS AD 3H 6C 9D AS TD 2C
Legal plays: 9H 6C
play 9H
Player1 plays 9H.
Player2 plays 4S.
Player3 plays 4H.
Player4 plays 3S.
Cards on the table:
Clubs: 7
Diamonds:
Hearts: 4 5 6 7 8 9
Spades: 3 4 5 6 7
Your hand: TH KC QS AD 3H 6C 9D AS TD 2C
Legal plays: TH 3H 6C

```

End the game

When a player's score is over 80, the game ends and players with lowest score win. There can be multiple winners.

```
Player1's discards:
Player1's score: 0 + 0 = 0
Player2's discards:
Player2's score: 0 + 0 = 0
Player3's discards: QS
Player3's score: 72 + 12 = 84
Player4's discards:
Player4's score: 0 + 0 = 0
Player1 wins!
Player2 wins!
Player4 wins!
```

```
Player1's discards: TS 2C 2D 4C JS
Player1's score: 64 + 29 = 93
Player2's discards: 3C QH AD KH AC
Player2's score: 72 + 30 = 102
Player3's discards:
Player3's score: 0 + 0 = 0
Player4's discards:
Player4's score: 0 + 0 = 0
Player3 wins!
Player4 wins!
```

If no one achieve score of 80 after all cards are played or discarded, the game will shuffle again and restart.

```
Cards on the table:
Clubs: 3 4 5 6 7 8 9 T J Q K
Diamonds: A 2 3 4 5 6 7 8 9 T J Q K
Hearts: 2 3 4 5 6 7 8 9 T J Q K
Spades: 2 3 4 5 6 7 8 9 T J
Your hand: KS
Legal plays:
discard KS
Player1 discards KS.
Player2 plays AH.
Player3 plays QS.
Player4 discards AC.
Player4 plays 7S.
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades: 7
Your hand: 8S TH TD QD AH 6H 9S 7C 9C 2S 4D AD 5D
Legal plays: 8S 7C
```