

Straights Demo

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Upon completing the compilation process, call the executable with the random seed of 5 specified as a command-line argument as shown below. Afterwards, specify that each player is a computer player by typing 'c' in response to each of the prompts.

```
szuccher@ubuntu1804-002:~$ cd cs246/straights/  
szuccher@ubuntu1804-002:~/cs246/straights$ make  
make: 'straights' is up to date.  
szuccher@ubuntu1804-002:~/cs246/straights$ ./straights 5  
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
```

After replying to each of these prompts, a game will play out between the four computer players, eventually ending in a win for Player 1.

Start up the program again, this time passing the random seed of 13. This time, instead of typing in 'c' for any of the players, try to type in another character other than 'c' or 'h'. The program will redirect you, telling you to enter a valid option.

This time, the game will end in a draw, and both Players 1 and 4 will have won.

```
szuccher@ubuntu1804-010:~/cs246/straights$ ./straights 13  
Is Player1 a human (h) or a computer (c)?  
c  
Is Player2 a human (h) or a computer (c)?  
t  
Please enter a valid option.  
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's score: 39  
Player2's discards:  
AD KH AS KC  
Player2's score: 47  
Player3's discards:  
QH TC JC 3S QC  
Player3's score: 112  
Player4's discards:  
4S 2S  
Player4's score: 39  
Player1 wins!  
Player4 wins!
```

This demos all the options available for only computer players. Next, this document will demo options involving human players.

Run the executable with the random seed 1. Set Player1 to be a human player by typing 'h' in response to the first prompt, and type 'c' in response to the rest to create computer players.

```
szuccher@ubuntu1804-010:~/cs246/straight$ ./straight 1
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)?
c
Is Player4 a human (h) or a computer (c)?
c

Player4 plays 7S.
Cards on the table:
Clubs:
Diamonds:
Hearts:
Spades: 7S
Your hand:
 9H 3H KH 7C 3S 8H 5C QH 8D TH 2D TD 3C
Legal plays: 7C
█
```

You have a play (the seven of clubs) so you should probably play it. Type “play 7C” in order to play the card.

```
Player1 plays 7C.
Player2 plays 7D.
Player3 plays 6C.
Player4 plays 6D.
Cards on the table:
Clubs: 6C 7C
Diamonds: 6D 7D
Hearts:
Spades: 7S
Your hand:
 9H 3H KH 3S 8H 5C QH 8D TH 2D TD 3C
Legal plays: 5C 8D
█
```

Now you have a couple choices. Try playing a card that you don't have; play the five of diamonds. Type “play 5D”.

```
play 5D
This is not a legal play.
█
```

Try discarding the five of clubs; type “discard 5D”.

```
discard 5D
You have a legal play. You may not discard.
█
```

Take a look at the deck; type “deck”.

```
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
```

As you're the first player, your hand is the first row. You should be able to recognize it as your original hand.

Over the next few rounds, continue playing by making the following moves:

"play 5C" "play 3C" "play 8D" "play TD" "play 8H" "play 9H" "play TH" "play QH" "play KH"
"play 3H" "play 3S" "play 2D"

You finished your first round! You're in pretty good shape; your score is still 0, and you haven't yet discarded any cards.

```
Player1's discards:
```

```
Player1's score: 0
```

```
Player2's discards:
```

```
Player2's score: 0
```

```
Player3's discards:
```

```
QS AH
```

```
Player3's score: 13
```

```
Player4's discards:
```

```
AD 2H KS
```

```
Player4's score: 16
```

Make sure to check the deck for the next round by using the command "deck". Once again, the first row should be recognizable as your current hand.

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

Make the following play: "play 7H". Now you don't have any valid plays! Oh no! Try playing the ace of hearts, just in case it works, by using the command "play AH". You should get a message that this is not a legal play. Discard a card; try discarding the ace of clubs by typing "discard AC". Seeing as you had to discard a card, you've had enough with this round. Type "ragequit" to have a computer player take over. As you're the only human player, the computer players will play out the rest of the game for you.

```

play 7H
Player1 plays 7H.
Player2 plays 7C.
Player3 plays 8C.
Player4 plays 6H.
Cards on the table:
Clubs: 7C 8C
Diamonds:
Hearts: 6H 7H
Spades: 5S 6S 7S
Your hand:
  AH 9D 3D 5C TS AC 3S TC KD 9S JH KH
Legal plays:
play AH
This is not a legal play.
discard AC
Player 1 discards AC.
Player2 plays 6C.
Player3 plays 9C.
Player4 plays 5H.
Cards on the table:
Clubs: 6C 7C 8C 9C
Diamonds:
Hearts: 5H 6H 7H
Spades: 5S 6S 7S
Your hand:
  AH 9D 3D 5C TS 3S TC KD 9S JH KH
Legal plays: 5C TC
ragequit
Player1 ragequits. A computer will now take over.

```

It was probably a good idea that you ragequit, since Player 4 ended up winning. Try playing the game again by running it with the random seed 1. This time, make the following plays: “play 7C”, “play 8D”, “play TD”, “play 5C”, “play 8H”, “play 3H”, “play 3C”, “play 9H”, “play TH”, “play QH”, “play KH”, “discard 2D”, “play 3S”.

This time you had to discard a card in the first round! Changing things up didn’t help too much.

```

Player1's discards:
  2D
Player1's score: 2
Player2's discards:
  2S AS
Player2's score: 3
Player3's discards:

Player3's score: 0
Player4's discards:
  AD
Player4's score: 1

```

Try checking the deck; note that this is the same deck from last time despite the fact that you’ve made different plays. The cards are stacked against you. You may as well just quit; type “quit” to end the game.

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

Now play through a game all the way through with four human players; call the executable with the random seed 8, and set all four players to human by typing 'h' for each of the four prompts. Make the following plays, or you can just play this however you want, the above is just an example to showcase how this works. Basically this is just to prove that you can play a round with four players.

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

After you do this, ragequit down to only one player and play a few turns, again to prove that the game works in this state. Afterwards, you can quit out.

Next, to show off the bonus features, call straights with the random seed 13 and the letter S as arguments.

```
szuccher@ubuntu1804-010:~/cs246/straights$ ./straights 13 S
```

Choose four computer players by typing 'c' in response to the prompts. This time, you'll see that Player 4 has won solely instead of the tie found previously when using the random seed of 13. This is because the argument of S causes the AI to make smarter and better moves. You can see that the game lasted longer as a result of this better AI, taking six rounds to finish instead of three.

```
Player1's discards:
AH AC 2D 4H
Player1's score: 59
Player2's discards:
AD AS 5H KH
Player2's score: 63
Player3's discards:
2H 2C 2S 3H 3D 6H JH
Player3's score: 101
Player4's discards:
TH QH
Player4's score: 43
Player4 wins!
```

The final bonus feature and last thing I have to show off is an improved UI. To see this, run straights with the flag T and whichever random seed you wish to see (or with none at all). Choose one human player with 'h', and set the rest to computer players with 'c'. After setting up the game, you should see a board similar to the one shown in the second picture below. This board is a major improvement on the base UI for the game.

```

szuccher@ubuntu1804-010:~/cs246/straights$ ./straights T
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)?
c
Is Player4 a human (h) or a computer (c)?
c

```

```

=====CLUBS=====

```

```

=====DIAMONDS=====

```

```

=====HEARTS=====

```

```

-----
| 7H |
|    |
-----

```

```

=====SPADES=====

```

```

-----
| 7S | | 8S |
|    | |    |
-----

```

Your hand:

```

-----
| KH | | 4C | | TD | | QS | | 5H | | 9S | | 4H | | 6D | | 9H | | AD | | 6S | | AC | | 5S |
|    | |    | |    | |    | |    | |    | |    | |    | |    | |    | |    | |    |
-----

```

Legal plays:

```

-----
| 9S | | 6S |
|    | |    |
-----

```

You might also want to try using the command “deck” in order to see the whole deck in this style of UI (shown on the next page below).

That’s all I really have to show with this game! I hope that this shows off enough of the components of the game, and I hope you have a very happy holiday season!

deck

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