

## Final project: Simulation of a multiplayer game using Catalan Cards

Write a program that simulates a card game involving 3 players and a deck of 48 Catalan cards shown below

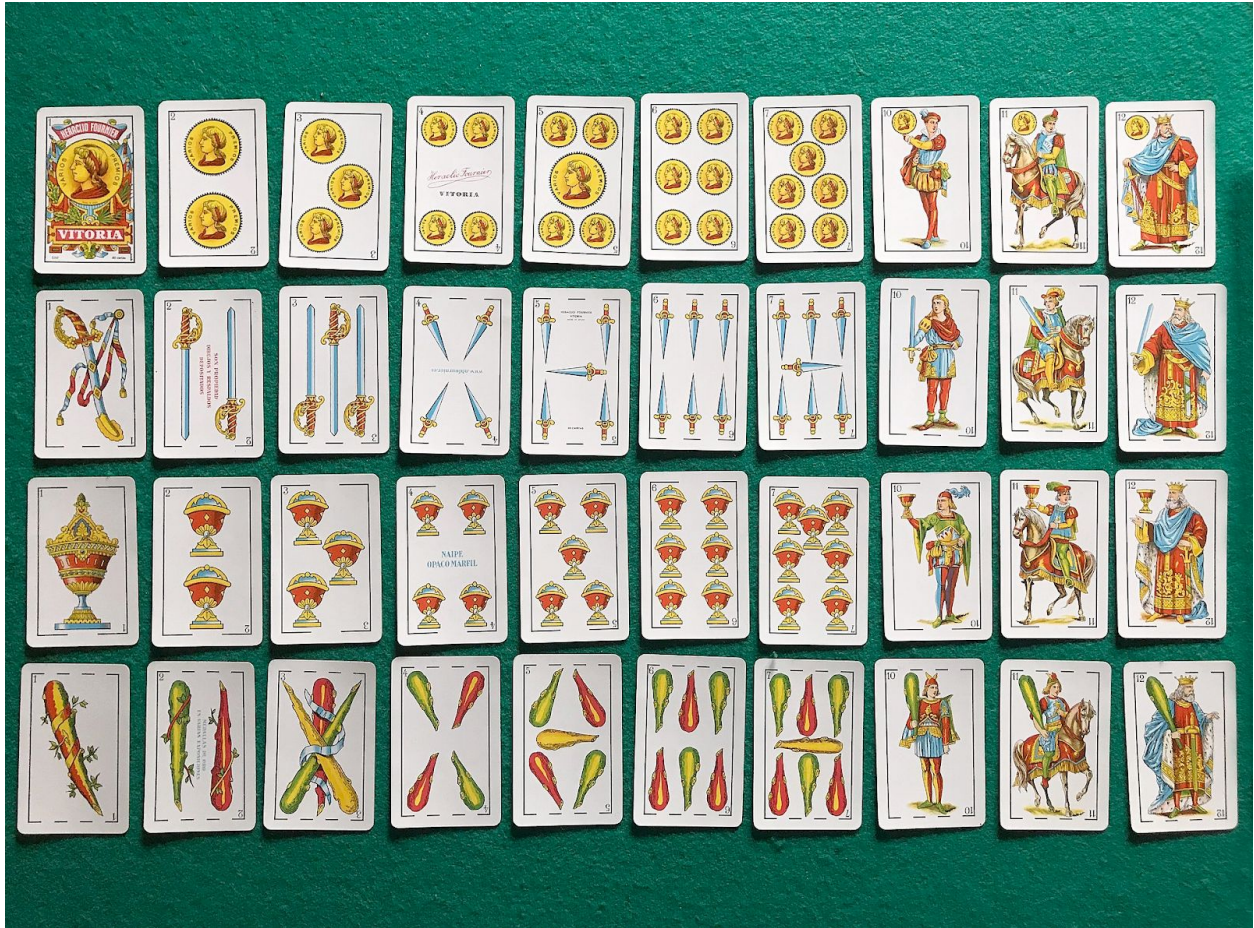


Image courtesy wikipedia:

[https://en.wikipedia.org/wiki/Spanish\\_playing\\_cards#/media/File:Spanish\\_deck\\_Fournier.jpg](https://en.wikipedia.org/wiki/Spanish_playing_cards#/media/File:Spanish_deck_Fournier.jpg)

Each card in the deck is identified by its suit and value.

The suit of a card maybe any among the following: "Clubs", "Golds", "Cups", "Swords"

The value of the card can be any number from 1 to 12 (Note that there are 12 values per suit even though the image above only shows 10)

Your program should use an interactive menu to simulate the progress of the game among 3 players.

The program begins by displaying the following menu options and prompt the user to select an option: (10 pts)

**s: start new game**

**p: Pull cards for all players**

**o: output deck**

**h: output players' hand**

**e: exchange one card**

**d: declare winner**

**q: quit**

**Select an option:**

Note the last prompt must end with a newline.

If the user selects option **q**, the program should end.

If the user selects any other option, the program should take the appropriate action and display the menu again.

If the user selects options **p, o, h, e, d** before selecting **s**, the program should print the message **"Please select option s to start a new game"** and it should display the menu again.

### **s: start new game (20 pts)**

The user selects this option to start a new game. When this option is selected, the program should do three things:

- 1) Prompt the user to enter the names of the three players as follows: (5 pts)

**Enter player 1's name:**

Alexander the Great

**Enter player 2's name:**

Bismarck

**Enter player 3's name:**

Charles V of Spain

- 2) Build a deck of 48 Catalan cards using an appropriate data structure (list/dictionary/etc) (10 pts)
- 3) Create an empty hand of cards for each player using an appropriate data structure. If the players' hand has cards from a previous game, those cards should be deleted. (5 pts)

**p: Pull cards for all players (10 pts)**

*If the deck has at least 9 cards, add three cards from the deck to each of the player's hand. Do not overwrite the cards that are already in the player's hand. The cards should be selected from the deck at random. The deck should be updated so that the cards that are given to the players are removed from the deck.*

Hint: Consider using an appropriate function from the random module: `random.randint()` or `random.shuffle()`

**o: output deck (5 pts)**

Print the cards remaining in the deck first in the order of their suit: "Clubs", "Golds", "Cups", "Swords". For each suit print the cards in ascending order of the values. Below is an example of a deck that has only 12 cards left:

**Clubs 1**  
**Clubs 7**  
**Clubs 10**  
**Clubs 13**  
**Golds 2**  
**Golds 9**  
**Golds 11**  
**Golds 12**  
**Cups 2**  
**Cups 9**  
**Cups 11**  
**Swords 2**

**h: output players' hand (5 pts)**

Print the name of each player followed by the cards in that player's hand using the same format as above. An example output is shown below:

**Alexander the Great**

**Golds 8**  
**Cups 3**  
**Cups 10**

**Bismarck**

**Clubs 12**  
**Golds 7**  
**Cups 1**

**Charles V of Spain**

**Clubs 8**

**Golds 9**

**Swords 5**

**e: exchange one card (20 pts)**

Each player gives its minimum value card to the next player (the suit doesn't matter) in the following order:

Player 1 gives their minimum value card to player 2,

player 2 gives their minimum value card to player 3. The card selected must be among the cards player 2 had prior to receiving player 1's min card.

player 3 gives their minimum value card to player 1. The card selected must be among the cards player 3 had prior to receiving player 2's min card.

For example , suppose each player originally had the cards shown below:

**Alexander the Great**

**Golds 8**

**Cups 3**

**Cups 10**

**Bismarck**

**Clubs 12**

**Golds 7**

**Cups 1**

**Charles V of Spain**

**Clubs 8**

**Golds 9**

**Swords 5**

After selecting option e and option h again (to display the cards), the output of the program should be the following:

**Alexander the Great**

**Golds 8**

**Cups 10**

**Swords 5**

**Bismarck**

**Clubs 12**

**Golds 7**

**Cups 3**

**Charles V of Spain**

**Clubs 8**

**Golds 9**

**Cups 1**

**d: declare winner (10 pts)**

Calculate the total value of the cards in each player's hand and then announce a winner. Print the score of each player and then print the name of the winner, see example below:

**Alexander the Great has 23 points.**

**Bismarck has 22 points.**

**Charles V of Spain has 18 points.**

**The winner is "Alexander the Great" with 23 points!**

**q: quit (5 pts)**

Quit the game

10 pts for commenting your code

5 pts for passing the autograded test on zylab