

Macao - User Guide

AI Lab Skills Final Project

Isabela-Maria Negoita
Group 85

March 2023

Contents

1	Introduction	2
2	Guide	3
3	Example	5

1 Introduction

The program represents a shell-based implementation of the card game Macao where players can go against each other or opt to play against a number of computer-generated players. Macao (also known as Macau) is a popular Eastern-European card game, whose rules are similar to UNO. Its rules slightly vary from region to region. This application is most representative of the way the game is played in Romania. A fairly comprehensive overview of the Romanian version of Macao can be found [here](#). Since the game is not widely known outside Eastern Europe, there are scarcely any pre-existing applications of it, which is partly why I chose this game specifically for my final project. A similar, android-based graphical version of the game can be downloaded from the Google Play Store.

2 Guide

The program allows the user to play through several games of Macao, until they wish to quit. The version of Python I have used is Python 3.10.10. The only imported module is "random", which is built-in. Therefore, there are no specific requirements to be able to run this application.

As the program is shell-based with no graphic interface, cards are represented in the format [*'rank'*] of [*'suit'*], for example [A of Clubs], [5 of Diamonds]. There are no Joker cards in the deck.

The main rule of Macao is to put down cards which match the one on the table in either suit or rank.

The game can be played by anywhere between 2 and 5 players. The user can also opt to add computer-players to the game, which will perform random moves. The game may also be played exclusively among computer players. Each of the participants is at first dealt 5 cards randomly, which represent their initial 'hand'.

After initialising the players, a random card is "put on the table" and the game starts. If it is the turn of a human player, they will be shown their hand and asked which move they wish to perform. This input is case sensitive, and the program will warn the user if they do not enter their choice properly or try to perform a move which is not allowed. The players may also opt to not put down a card by inputting "pass", in which case they will draw a random card. In the case of a computer player, the random move chosen will be displayed.

If the player has no cards which match the one on the table in either suit or rank, their turn is skipped and one card is automatically added to their hand.

In the game there exist several "special" cards, namely the 2's, 3's, 4's and A's. Each of these perform a particular action, the specifics of which are explained in Table 1.

Once a player has only one card in their hand, they must say "Macao", otherwise they are forced to draw 5 cards from the deck.

The winner of the game is the first player to get rid of all the cards in their hand.

During gameplay, a player may opt to quit the game at any time by inputting the "q" or "quit" command when they are prompted to make a move.

After a game of Macao ends, the user is asked whether they would like to play another. If they answer "yes" or "y", a new round of Macao starts. Otherwise, if their answer is "no" or "n", the program terminates.

In Table 2 you can find an overview of the inputs expected from users.

Special card	Power	Explanation
2's and 3's (any suit)	Force draw 2 or 3 cards	When played, the next player is forced to draw the respective amount of cards from the deck. They are cumulative. For example, if a 2 was played, the next player may avoid drawing 2 by playing a 3, in which case the next participant will have to draw 5 unless they have another 2 or 3 to play, and so on.
4's (any suit)	Skip a turn	When played, the next player is forced to skip their turn.
A's (any suit)	Change the suit or rank	When played, the current player is allowed to change either the suit or the rank of the card on the table to their own preference.

Table 1: Special Cards Descriptions

- How many players will participate in the game?	A number between 2-5 is expected.
- For a human player, input 'H'. To play against a computer, input 'C'. - What is your name?	If writing 'H', the program will create a human player and ask for their name. For C, a computer player will be generated. This is not case-sensitive.
- What card would you like to play? Please write it as '/rank/ of /suit/'	A human player can make their move by writing the card they wish to play in the appropriate format, which is also case-sensitive. The program will warn the user if the card they are trying to play is not a legal move. If the input is "pass", the player skips their turn and opts to draw a card. If they input "q" or "quit" here, the current session of Macao ends.
- Would you like to change the suit or rank? - What would you like to change it to?	When an A is played, the player is first asked whether they wish to change the rank or suit. Following that, they asked the specific value they want to change their choice to.
- Would you like to play another game? [yes/no]	Once a game of Macao ends or is quit by a player, they are asked whether they would like to play another, to which they may answer "yes"/"y" or "no"/"n".

Table 2: User Input Guide

3 Example

In the following section you can find several examples of typical use-cases of the program.

```
iPython Console
Console 1/A X

Welcome to the game of Macao!

In [4]:
How many players will participate in the game? 3
Let's initialise player 1 !
For a human player, input 'H'. To play against a computer, input 'C'. h
What is your name? Player 1
This is your current hand: [2 of Clubs] | [8 of Diamonds] | [A of Diamonds] | [8 of Clubs] | [3 of Clubs] |
Let's initialise player 2 !
For a human player, input 'H'. To play against a computer, input 'C'. H
What is your name? Player 2
This is your current hand: [K of Diamonds] | [8 of Hearts] | [6 of Diamonds] | [9 of Diamonds] | [10 of Clubs] |
Let's initialise player 3 !
For a human player, input 'H'. To play against a computer, input 'C'. c
Generating computer player...

Round 1
It is Player 1 's turn
The card on the table is [6 of Hearts]

This is your current hand: [2 of Clubs] | [8 of Diamonds] | [A of Diamonds] | [8 of Clubs] | [3 of Clubs] |
You have no moves you can make! You will draw a card.
This is your current hand: [2 of Clubs] | [8 of Diamonds] | [A of Diamonds] | [8 of Clubs] | [3 of Clubs] | [5 of Spades] |
```

Figure 1: Initialise a game with 2 human players and a computer

```
IPython Console
Console 1/A X
Waiting for the computer to make a move...
The computer has chosen [3 of Diamonds]
A force draw card has been chosen. The next player will have to draw 3

Round 12
It is Computer 's turn
The card on the table is [3 of Diamonds]
Waiting for the computer to make a move...
The computer has chosen [8 of Diamonds]
The computer has force drawn 3 cards

Round 13
It is Computer 's turn
The card on the table is [8 of Diamonds]
Waiting for the computer to make a move...
The computer has chosen [4 of Diamonds]

Round 14
It is Computer 's turn
A "4" was played, therefore this turn will be skipped.

Round 15
It is Computer 's turn
```

Figure 2: A force draw and a "4" being played between computers

```
IPython Console
Console 1/A X
Round 4
It is Player 1 's turn
The card on the table is [6 of Diamonds]
This is your current hand: [2 of Clubs] | [8 of Diamonds] | [A of Diamonds] | [8 of Clubs] | [3 of Clubs] | [5 of Spades] |
What card would you like to play? Please write it as '/rank/ of /suit/' 8 of Spades
The card chosen is not in your hand!
Be mindful of capitalisation :)
This is your current hand: [2 of Clubs] | [8 of Diamonds] | [A of Diamonds] | [8 of Clubs] | [3 of Clubs] | [5 of Spades] |
What card would you like to play? Please write it as '/rank/ of /suit/' A of Diamonds
This is your current hand: [2 of Clubs] | [8 of Diamonds] | [8 of Clubs] | [3 of Clubs] | [5 of Spades] |
You've played an A, which grants you the power to change the suit or rank.
Would you like to change the suit or rank? suit
What would you like to change it to? 7
Please enter a valid suit or rank, depending on what you chose.
Suits are represented by ['Clubs', 'Diamonds', 'Hearts', 'Spades']
Ranks are represented by ['2', '3', '4', '5', '6', '7', '8', '9', '10', 'J', 'Q', 'K', 'A']
What would you like to change it to? Spades

Round 5
It is Player 2 's turn
The card on the table is [6 of Spades]
```

Figure 3: Changing the suit using "A"

```
iPython Console
Console 1/A X
It is Computer 's turn
The card on the table is [4 of Hearts]

Waiting for the computer to make a move...
The computer has chosen [2 of Hearts]
A force draw card has been played. The next player will have to draw 2

Round 25

It is Player 1 's turn
The card on the table is [2 of Hearts]

This is your current hand: [2 of Clubs] | [8 of Diamonds] | [8 of Clubs] | [3 of Clubs] | [Q of Clubs] | [3 of Diamonds] | [3 of Hearts] |

What card would you like to play? Please write it as '/rank/ of /suit/' 2 of Clubs
This is your current hand: [8 of Diamonds] | [8 of Clubs] | [3 of Clubs] | [Q of Clubs] | [3 of Diamonds] | [3 of Hearts] |
A force draw card has been played. The next player will have to draw 4

Round 26

It is Player 2 's turn
The card on the table is [2 of Clubs]

This is your current hand: [K of Diamonds] | [9 of Diamonds] | [10 of Clubs] | [7 of Diamonds] | [5 of Clubs] | [7 of Clubs] | [10 of Spades] |

What card would you like to play? Please write it as '/rank/ of /suit/' 5 of Clubs
This is your current hand: [K of Diamonds] | [9 of Diamonds] | [10 of Clubs] | [7 of Diamonds] | [7 of Clubs] | [10 of Spades] |

You have to draw 4 cards
This is your current hand: [K of Diamonds] | [9 of Diamonds] | [10 of Clubs] | [7 of Diamonds] | [7 of Clubs] | [10 of Spades] | [5 of Diamonds] | [10 of
Hearts] | [8 of Spades] | [K of Spades] |
```

Figure 4: Example of a force draw

```
iPython Console
Console 1/A X
Round 29

It is Player 2 's turn
The card on the table is [Q of Clubs]

This is your current hand: [K of Diamonds] | [9 of Diamonds] | [10 of Clubs] | [7 of Diamonds] | [7 of Clubs] | [10 of Spades] | [5 of Diamonds] | [10 of
Hearts] | [8 of Spades] | [K of Spades] |

What card would you like to play? Please write it as '/rank/ of /suit/' quit
Quitting current game...

Would you like to play another game? [yes/no] y

Welcome to the game of Macao!

How many players will participate in the game? 2
Let's initialise player 1 !

For a human player, input 'H'. To play against a computer, input 'C'. h

What is your name? Player 1
This is your current hand: [2 of Hearts] | [J of Spades] | [6 of Spades] | [A of Hearts] | [10 of Hearts] |

Let's initialise player 2 !

For a human player, input 'H'. To play against a computer, input 'C'. C
Generating computer player...

Round 1
```

Figure 5: Quitting an ongoing game and starting a new one

```
Python 3.7.4 Shell
Python Console
Console 1/A X

Round 40
It is Computer 's turn
The card on the table is [8 of Diamonds]
Waiting for the computer to make a move...
The computer says MACAO!
The computer has chosen [3 of Diamonds]
Computer has won the game!

Would you like to play another game? [yes/no] no
Goodbye!
In [5]: |
```

Figure 6: Exiting the program after a game is won by the computer

```
Round 32
It is Player 2 's turn
The card on the table is [10 of Spades]
This is your current hand: [Q of Spades] |

What card would you like to play? Please write it as '/rank/ of /suit/' Q of Spades
Uh oh! You have only one card, why didn't you say MACAO? :(
You're gonna have to draw 5 now....
This is your current hand: [Q of Spades] | [Q of Hearts] | [K of Spades] | [Q of Diamonds] | [8 of Diamonds] | [J of Clubs] |

What card would you like to play? Please write it as '/rank/ of /suit/' Q of Spades
This is your current hand: [Q of Hearts] | [K of Spades] | [Q of Diamonds] | [8 of Diamonds] | [J of Clubs] |
```

Figure 7: A player forgetting to say "Macao"