Stracciacamicia

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1 Stracciacamicia (Shred Shirt)

An Italian card game

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1.1 Introduction

1.1.1 When and why

Just after the end of my exams, being that most of my friends from Italy were busy studying since exams end most of the times one month later than my university, I came up with this idea. *Stracciacamicia* is a famous card game, easy to understand and played by many to spend time in company. I wanted to practice some of the skills I learnt from my first exam with python (Fundamentals of Computer Science, first year), so please note that the knowledge base is less than my present level. Anyway, I decided to keep it as original as possible, in order to show what are the main concepts I acquired during the first year of programming. All the work done has been moved to this notebook to make it more easy to understand for the reader.

1.1.2 Rules of the game & code adaptation

I could not find a precise international version, so I decided to copy and paste the Wikipedia's page, translated from Italian below. For the sake of shortness, only the most important concepts were kept.

Rag shirt or scamicia is a card game popular in Italy through a deck of 40 divided into 4 suits (cups, coins, sticks, swords) of 10 cards each and played by 2 or more people, even in odd numbers. The rules of the game are very simple, so much so that it is preferred by children who are starting to learn the use of playing cards. Each player may not use more than one hand during the game. This must be the same both when placing the card and when beating on the deck of cards when 2 identical cards are thrown in a row.

Arrangement of cards Once the cards have been shuffled and divided by the player on his left, they are divided into equal piles, as many as there are players. Once the turn is over, the player on your right will serve the cards.

The cards must obviously be thrown in different ways depending on the number of players. If there are 2 players they should be gently placed by turning it from the top; if there are 3 players the cards must be turned, always gently, but from the side.

Game Each player holds his own bundle, as he received it and without looking at its contents. The only winning cards are the ace , two and three of any suit.

The first player places the top card of their pile on the table in a visible way. The other players take turns doing the same, so as to form a common pile in the center of the table.

When a player plays one of the three winning cards, the next player is obliged to play the indicated number of cards (1 for the ace, 2 for the two and three for the three). If during these play one of the winning cards comes up, the obligation is interrupted and it is up to the next player to play the number of cards indicated. If the player forced to play the cards does not place a winning card, the pile of cards on the table is taken by the player who played the last card. This will place the cards under yours and start a new game. In Sicily, when a card equal to the previous one is placed, it is necessary to beat the pile with the hand to grab it.

The endless game There is a deck configuration that leads to an infinite game, i.e. in which players will never reach zero cards, as after a certain sequence of moves they will return to the initial state. It was found in 2017 [1] , and is the following (0 indicates a card other than ace, 2 and 3):

Player 1: 0 0 3 0 2 0 2 0 3 0 3 1 0 0 0 0 0 3 1 0

Player 2: 0 0 1 0 0 2 0 0 0 0 2 0 0 0 0 0 0 0 1 0

This arrangement has long been unknown, so much so that it has even been classified as an unsolved problem in "Unsolved problems in Combinatorial Games". Small applications can also be found online that can simulate games.

Score The aim of the game is to take all the cards possible until you remain the only owner. Hence the definition of leaving the other players with their shirts alone . So the score is simply given by the count of the games won."

In this document the game is designed for two players, one against the other. Please note that suits have not been translated (the script will refer to them as coppe, denari, bastoni e spade), since I am not sure of the existance of those in other countries. Nevertheless, suits do not actually matter in any stage of the game.

1.2 Translation into code

```
[26]: #!/usr/bin/env python3
      # -*- coding: utf-8 -*-
      """
      Created on Fri Apr 26 14:57:23 2019

      @author: admin
      """
```

```
[26]: '\nCreated on Fri Apr 26 14:57:23 2019\n\n@author: admin\n'
```

From a conceptual point of view the game is quite simple, but, just like any other program, making it user friendly has been a lot more challenging. Below I will explain each function and relevant choice singularly.

```
[27]: import random
```

The only library needed is random. At the time of the coding of this document, I was not practical with numpy (dealt with it during my second year of University). Randomness is obviously exploited to shuffle the cards. After that, I only manipulated the lists and dictionaries created.

1.2.1 *Camin* interface

As an approach, I decided to display a more user friendly function which interacts with the user, and in turn calls the actual game function where the decks are exchanged. To be clearer below I wrote a simple schema.

$Camin_{\text{user function}} \Rightarrow Game_{\text{main function}} \Rightarrow Secondary\ functions$

To make it machine-understandable, cards have been mapped to numbers from 1 to 40, such that each suit is ordered in a dozen (1-10,11-20,21-30,31-40). Some dictionaries will later translate these numbers into cards when needed. Please note that, for each suit, the 8th, 9th and 10th card are neither in numbers nor Jack, Queen, King. They are in fact labeled as Jack Horse and King, but this does not impact the game, since all cards different from Aces, 2s and 3s do not have any impact.

```
[28]: def camin():
          ###Players creation, interactively###
          p1=input('insert here the name of the first player: ').lower()
          while p1=='':
              print('Please, insert a name, not en empty space')
              p1=input('insert here the name of the first player: ').lower()
          p2=input('insert here the name of the second player: ').lower()
          while p2=='':
              print('Please, insert a name, not en empty space')
              p2=input('insert here the name of the first player: ').lower()
          #########################################
          ###Decks creation using randomness###
          l=random.sample(range(1,41),40)
          l1=[]
```

```python
l2=[]
for i in range(0,len(l),2):
    l1.append(l[i])
for i in range(1,len(l),2):
    l2.append(l[i])
######################################
###Game section###
##see game function to understand the returned values##
start=input('say who is starting: ').lower()
if start==p1:
    l1,l2,winner=game(l1,l2)
if start==p2:
    l2,l1,winner=game(l2,l1)
######################################
###Win check###
##checks that no one has won##
while len(l1)!=0 and len(l2)!=0:
    if winner==False:
        l1,l2,winner=game(l1,l2)
    if winner==True:
        l2,l1,winner=game(l2,l1)
###Winner declaration###
## print decks to show the final distribution##
print(printer(l1))
print(printer(l2))

if len(l1)==0:
    print(f'the winner is {p2},congratulations!')
else:
    print(f'the winner is {p1}, congratulations!')
a=input('If you want to play another game write "y" and press enter,␣
↪otherwise press any key and enter')
if a=='y':
    camin()
else:
    return
```

1.2.2 *Game* manipulation

After outlining the steps of the game, I wrote down three dictionaries, where each of them creates a link between the mapping of cards in the computer language and the mapping of cards in the human language. More specifically: **trap**: for each let's say key trap card (Ace, two or three of any suit), it stores as value the number of cards triggered to the other player. **other**: maps each useless card number to its actual name in the deck. **trapname**: maps numbers of trap cards to their actual names in the deck. This is the original reasoning I made, I could have considered optimizing it but I want to underline again the fact that this was an early project of mine.

```
[29]: trap={1:1,2:2,3:3,11:1,12:2,13:3,21:1,22:2,23:3,31:1,32:2,33:3}
      other={4:'four denari',14:'four bastoni',24:'four spade',34:'four coppe',5:
      →'five denari',15:'five bastoni',25:'five spade',35:'five coppe',6:'six␣
      →denari',16:'six bastoni',26:'six spade',36:'six coppe',7:'seven denari',17:
      →'seven bastoni',27:'seven spade',37:'seven coppe',8:'Jack denari',18:'Jack␣
      →bastoni',28:'Jack spade',38:'Jack coppe',9:'Horse denari',19:'Horse␣
      →bastoni',29:'Horse spade',39:'Horse coppe',10:'King denari',20:'King␣
      →bastoni',30:'King spade',40:'King coppe'}
      trapname={1:'ACE denari',2:'two denari',3:' three denari',11:'ACE bastoni',12:
      →'two bastoni',13:'three bastoni',21:'ACE spade',22:'two spade',23:'three␣
      →spade',31:'ACE coppe',32:'two coppe',33:'three coppe'}
```

The first secondary function introduced is *printer*. It allows for the translation just introduced in the cell above.

```
[30]: def printer(some):
          ##distinguish between a single element and a list and#
          #translate through the dictionaries from computer language to#
          #human readable language#
          if isinstance(some,int):
              if some in trap:
                  return str(trapname[some]).upper()
          #returns directly the card summoned#
              return str(other[some])
          if isinstance(some,list):
              q=[]
              for x in some:
                  if x in trap:
                      q.append(str(trapname[x]).upper())
                  else:
                      q.append(str(other[x]))
          #returns directly the cards summoned#
              return q
```

Given the above information, the main function, where most of the concrete actions are done, can be coded. It will be addressed as "game", and will accept as variables only two lists of cards, not necessarily of the same length.

```
[31]: def game(l1,l2):
          ###starting arrangements###
          cards=[] #this is were all played cards are stored#
          for i in range(min(len(l1),len(l2))):
              card1=l1[0]
              print('card extracted from player A: ',printer(card1))
              print(f'deck length:{len(l1)}') #deck length is printed to ensure that␣
      →the player is
              #aware of his/her situation#
              ###secondary function, see below###
```

```python
        request()
        ####################################
        card2=l2[0]
        ###decks manipulation###
        l1.remove(card1)
        l2.remove(card2)
        cards.append(card1)
        cards.append(card2)
        ####################################
        ###trap check###
        ## if a card is in the trap dictionary keys then a new trigger function
        ##has to be called##
        if card1 in trap:
            #restore situation where the second card was going to be played#
            cards.remove(card2)
            l2.insert(0,card2)
            ###secondary function, see below###
            cards,winner=move2(l2,l1,trap[card1],cards)
            ##########################################
            break
        #if there are no trap cards from player A then the situation is simpler#
        #going on if B has no traps other cards are extracted, otherwise, #
        #a different function is called.#
        print('card extracted from player B: ',printer(card2))
        print(f'deck length:{len(l2)}')
        ###secondary function, see below###
        request()
        ####################################
        if card2 in trap:
        ###secondary function, see below###
            cards,winner=move1(l1,l2,trap[card2],cards)
            ##############################################
            break
    ###win (of the whole game) check###
    #enough to check that one of the two has no cards#
    if len(l1)==0 or len(l2)==0:
        winner='finished'
        return l1,l2,winner
    ##########################
#if there is no game winner, at some point one will anyway win a portion#
#of the enemy's cards and have to take them from the cards list#
    ###secondary function, see below###
    l1,l2,winner=addcards(cards,winner,l1,l2)
    ##########################################
    #returns the two lists modified and the identity of the winner#
    #if winner is False then the first player holding l1 won, otherwise#
    #the second won. the one that wins starts the following hand.#
```

```
    #This can be seen when game is called in the camin function#
    return l1,l2,winner
```

1.2.3 Secondary functions: *move2, move1, request and addcards*

I coded three manipulation functions and an interactive one.

Move1 and *move2* are similar but distinct. *Move2* is involved when the first player extracts a trap card, thus maknig the second player extract a number of cards equal to the correspondent number in the former. *Move1* does the same but taking into account that the second player triggered this path. I believe that at the time I designed this workflow the reason for this distinction was that first player advantage, which could be simply seen as the fact that he/she plays cards first, makes it more difficult to inglobe the two functions in one. Basically the program should always check the first before the second, and then let the second play, thus the separation of moves.

```
[32]:  def move2(l2,l1,n,cards):
       #the first player extracted a card which makes#
       #the second extract n cards#
           for i in range(n):
               card2=l2[0]
               print('card extracted from player B: ',printer(card2))
               print(f'deck length:{len(l2)}')
               ###secondary function, see below###
               request()
               ################################
               ###decks manipulation###
               l2.remove(card2)
               cards.append(card2)
               ################################
               ###trap check###
               if card2 in trap:
                   n=trap[card2]
                   #if there is another trap card then the function is flipped#
                   move1(l1,l2,n,cards)
                   #################################################################
                   break
           #if there is no trap card the winner is obviously the first player#
           winner=False
           return cards,winner

       def move1(l1,l2,n,cards):
           for i in range(n):
               card1=l1[0]
               print('card extracted from player A: ',printer(card1))
               print(f'deck length:{len(l1)}')
               ###secondary function, see below###
               request()
               ################################
```

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```
        ###decks manipulation###
        l1.remove(card1)
        cards.append(card1)
        ##################################
        ###trap check###
        if card1 in trap:
            #if there is another trap card then the function is flipped#
            n=trap[card1]
            move2(l2,l1,n,cards)
            #############################################################
            break
    #if there is no trap card the winner is obviously the second player#
    winner=True
    return cards,winner
```

The *addcards* function does the work of moving the cards that were won to the round winning player.

```
[33]: def addcards(cards,winner,l1,l2):
      #checks winner, prints the outcome of the hand in terms of#
      #cards won, and eventually transfers them#
          if winner==True:
              print('player B wins: ',printer(cards))
              request()
              win=l2
          else:
              win=l1
              print('player A wins: ', printer(cards))
              request()
          for i in range(len(cards)):
              win.append(cards[i])
          #returns the two lists and a boolean value identifying who won#
          return l1,l2,winner
```

Request is an annoying but inevitable function. To allow for interaction with the screen and to make players aware of how the game evolves, for each action request is called, asking if the player wants to continue or exit the game, raising a simple exception which blocks the execution of the whole code.

```
[34]: def request():
          a=input('press enter or any key+enter to continue, if you want to exit␣
      ↪write "exit" and press enter: ')
          if a=='exit':
              raise Exception('The game was terminated')
          return
```

1.3 Game Example

In order to play the game, the user simply needs to write "camin()" on one cell and run it. Below I will play a game against my dog (Platone).

```
[36]: camin()
```

```
insert here the name of the first player: Simone
insert here the name of the second player: Platone
say who is starting: simone
card extracted from player A:  TWO SPADE
deck length:20
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  five bastoni
deck length:20
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  four spade
deck length:19
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins:  ['TWO SPADE', 'five bastoni', 'four spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  THREE SPADE
deck length:22
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Horse bastoni
deck length:18
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  seven spade
deck length:17
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  six spade
deck length:16
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins:  ['THREE SPADE', 'Horse bastoni', 'seven spade', 'six spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  TWO BASTONI
deck length:25
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
```

card extracted from player B: Jack spade
deck length:15
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: King coppe
deck length:14
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins: ['TWO BASTONI', 'Jack spade', 'King coppe']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: five coppe
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: Jack coppe
deck length:12
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: THREE DENARI
deck length:26
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: four bastoni
deck length:12
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: six coppe
deck length:11
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: Horse denari
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins: ['five coppe', 'Jack coppe', ' THREE DENARI', 'four bastoni',
'six coppe', 'Horse denari']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: four denari
deck length:31
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: TWO COPPE
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: seven denari

```
deck length:30
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  Jack bastoni
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins:  ['four denari', 'TWO COPPE', 'seven denari', 'Jack bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  King bastoni
deck length:12
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  five denari
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  ACE COPPE
deck length:11
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  ACE BASTONI
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  ACE DENARI
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  seven bastoni
deck length:26
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins:  ['King bastoni', 'five denari', 'ACE COPPE', 'ACE BASTONI', 'ACE
DENARI', 'seven bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  six bastoni
deck length:25
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Horse coppe
deck length:14
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  six denari
deck length:24
```

press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: TWO DENARI
deck length:13
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Horse spade
deck length:23
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: King spade
deck length:22
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['six bastoni', 'Horse coppe', 'six denari', 'TWO DENARI',
'Horse spade', 'King spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: seven coppe
deck length:19
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: four coppe
deck length:20
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: five spade
deck length:18
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: King denari
deck length:19
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Jack denari
deck length:17
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: THREE BASTONI
deck length:18
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: four denari
deck length:16
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: TWO COPPE
deck length:15

press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: THREE COPPE
deck length:18
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: seven denari
deck length:14
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Jack bastoni
deck length:13
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: King bastoni
deck length:12
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['seven coppe', 'four coppe', 'five spade', 'King denari', 'Jack
denari', 'THREE BASTONI', 'four denari', 'TWO COPPE', 'THREE COPPE', 'seven
denari', 'Jack bastoni', 'King bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: five denari
deck length:11
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: ACE SPADE
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: ACE COPPE
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: TWO SPADE
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: ACE BASTONI
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: five bastoni
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['five denari', 'ACE SPADE', 'ACE COPPE', 'TWO SPADE', 'ACE

BASTONI', 'five bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: ACE DENARI
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: four spade
deck length:32
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins: ['ACE DENARI', 'four spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: THREE SPADE
deck length:31
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: seven bastoni
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: six bastoni
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: Horse coppe
deck length:7
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins: ['THREE SPADE', 'seven bastoni', 'six bastoni', 'Horse coppe']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Horse bastoni
deck length:34
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: six denari
deck length:5
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: seven spade
deck length:33
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: TWO DENARI
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and

```
press enter:
card extracted from player A:  six spade
deck length:32
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  TWO BASTONI
deck length:31
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Horse spade
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  King spade
deck length:3
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins:  ['Horse bastoni', 'six denari', 'seven spade', 'TWO DENARI',
'six spade', 'TWO BASTONI', 'Horse spade', 'King spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  ACE DENARI
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Jack spade
deck length:30
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins:  ['ACE DENARI', 'Jack spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  King coppe
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  four spade
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  five coppe
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Horse bastoni
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
```

```
card extracted from player A:  Jack coppe
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  six denari
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:   THREE DENARI
deck length:26
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  seven spade
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  TWO DENARI
deck length:7
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  four bastoni
deck length:25
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  six coppe
deck length:24
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins:  ['King coppe', 'four spade', 'five coppe', 'Horse bastoni',
'Jack coppe', 'six denari', ' THREE DENARI', 'seven spade', 'TWO DENARI', 'four
bastoni', 'six coppe']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  Horse denari
deck length:34
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  six spade
deck length:5
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  seven coppe
deck length:33
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  TWO BASTONI
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and
```

press enter:
card extracted from player A: four coppe
deck length:32
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: five spade
deck length:31
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['Horse denari', 'six spade', 'seven coppe', 'TWO BASTONI',
'four coppe', 'five spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Horse spade
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: King denari
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: King spade
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: Jack denari
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: ACE DENARI
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: THREE BASTONI
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Jack spade
deck length:7
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Horse denari
deck length:6
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: six spade
deck length:5
press enter or any key+enter to continue, if you want to exit write "exit" and

press enter:
player A wins: ['Horse spade', 'King denari', 'King spade', 'Jack denari', 'ACE
DENARI', 'THREE BASTONI', 'Jack spade', 'Horse denari', 'six spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: four denari
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: seven coppe
deck length:12
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: TWO COPPE
deck length:26
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: TWO BASTONI
deck length:12
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: THREE COPPE
deck length:25
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: four coppe
deck length:11
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: five spade
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: Horse spade
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins: ['four denari', 'seven coppe', 'TWO COPPE', 'TWO BASTONI',
'THREE COPPE', 'four coppe', 'five spade', 'Horse spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: seven denari
deck length:32
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: King denari
deck length:7
press enter or any key+enter to continue, if you want to exit write "exit" and

```
press enter:
card extracted from player A:  Jack bastoni
deck length:31
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  King spade
deck length:6
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  King bastoni
deck length:30
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Jack denari
deck length:5
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  five denari
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  ACE DENARI
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  ACE SPADE
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  THREE BASTONI
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  ACE COPPE
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Jack spade
deck length:3
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins:  ['seven denari', 'King denari', 'Jack bastoni', 'King spade',
'King bastoni', 'Jack denari', 'five denari', 'ACE DENARI', 'ACE SPADE', 'THREE
BASTONI', 'ACE COPPE', 'Jack spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  Horse denari
deck length:14
```

press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: TWO SPADE
deck length:25
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: six spade
deck length:13
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: seven denari
deck length:12
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['Horse denari', 'TWO SPADE', 'six spade', 'seven denari']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: King denari
deck length:11
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: ACE BASTONI
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Jack bastoni
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['King denari', 'ACE BASTONI', 'Jack bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: King spade
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: five bastoni
deck length:30
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: King bastoni
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: THREE SPADE
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:

card extracted from player A: Jack denari
deck length:7
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: five denari
deck length:6
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: ACE DENARI
deck length:5
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: seven bastoni
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['King spade', 'five bastoni', 'King bastoni', 'THREE SPADE',
'Jack denari', 'five denari', 'ACE DENARI', 'seven bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: ACE SPADE
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: six bastoni
deck length:36
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins: ['ACE SPADE', 'six bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Horse coppe
deck length:35
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: THREE BASTONI
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: King coppe
deck length:34
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: four spade
deck length:33
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: five coppe

```
deck length:32
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins:  ['Horse coppe', 'THREE BASTONI', 'King coppe', 'four spade',
'five coppe']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  ACE COPPE
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Horse bastoni
deck length:31
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins:  ['ACE COPPE', 'Horse bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  Jack coppe
deck length:30
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Jack spade
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  six denari
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  ACE SPADE
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:   THREE DENARI
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  six bastoni
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Horse coppe
deck length:7
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  THREE BASTONI
deck length:6
```

press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: seven spade
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: TWO DENARI
deck length:26
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: King coppe
deck length:5
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: four spade
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['Jack coppe', 'Jack spade', 'six denari', 'ACE SPADE', ' THREE
DENARI', 'six bastoni', 'Horse coppe', 'THREE BASTONI', 'seven spade', 'TWO
DENARI', 'King coppe', 'four spade']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: five coppe
deck length:15
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: four bastoni
deck length:24
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: ACE COPPE
deck length:14
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: six coppe
deck length:24
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins: ['five coppe', 'four bastoni', 'ACE COPPE', 'six coppe']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: four denari
deck length:23
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: Horse bastoni
deck length:16

```
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  seven coppe
deck length:22
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Jack coppe
deck length:15
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  TWO COPPE
deck length:21
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Jack spade
deck length:15
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  six denari
deck length:14
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player A wins:  ['four denari', 'Horse bastoni', 'seven coppe', 'Jack coppe',
'TWO COPPE', 'Jack spade', 'six denari']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  TWO BASTONI
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  ACE SPADE
deck length:13
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  THREE COPPE
deck length:26
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:   THREE DENARI
deck length:12
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  four coppe
deck length:25
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  five spade
deck length:24
```

press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: Horse spade
deck length:23
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
player A wins: ['TWO BASTONI', 'ACE SPADE', 'THREE COPPE', ' THREE DENARI', 'four coppe', 'five spade', 'Horse spade']
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: Horse denari
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player B: six bastoni
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: TWO SPADE
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player B: Horse coppe
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player B: THREE BASTONI
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: six spade
deck length:27
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: seven denari
deck length:26
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: King denari
deck length:25
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
player A wins: ['Horse denari', 'six bastoni', 'TWO SPADE', 'Horse coppe', 'THREE BASTONI', 'six spade', 'seven denari', 'King denari']
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: ACE BASTONI
deck length:32

press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player B: seven spade
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
player A wins: ['ACE BASTONI', 'seven spade']
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: Jack bastoni
deck length:33
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player B: TWO DENARI
deck length:6
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: King spade
deck length:32
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: five bastoni
deck length:31
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
player B wins: ['Jack bastoni', 'TWO DENARI', 'King spade', 'five bastoni']
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: King coppe
deck length:10
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player B: King bastoni
deck length:29
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: four spade
deck length:9
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player B: THREE SPADE
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:
card extracted from player A: five coppe
deck length:8
press enter or any key+enter to continue, if you want to exit write "exit" and press enter:

card extracted from player A: four bastoni
deck length:7
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: ACE COPPE
deck length:6
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: Jack denari
deck length:28
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['King coppe', 'King bastoni', 'four spade', 'THREE SPADE',
'five coppe', 'four bastoni', 'ACE COPPE', 'Jack denari']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: six coppe
deck length:5
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: five denari
deck length:34
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: Jack bastoni
deck length:4
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: ACE DENARI
deck length:33
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A: TWO DENARI
deck length:3
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: seven bastoni
deck length:33
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B: four denari
deck length:32
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
player B wins: ['six coppe', 'five denari', 'Jack bastoni', 'ACE DENARI', 'TWO
DENARI', 'seven bastoni', 'four denari']
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:

```
card extracted from player A:  King spade
deck length:2
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  Horse bastoni
deck length:37
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player A:  five bastoni
deck length:1
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
card extracted from player B:  seven coppe
deck length:36
press enter or any key+enter to continue, if you want to exit write "exit" and
press enter:
['Jack coppe', 'TWO COPPE', 'Jack spade', 'six denari', 'TWO BASTONI', 'ACE
SPADE', 'THREE COPPE', ' THREE DENARI', 'four coppe', 'five spade', 'Horse
spade', 'Horse denari', 'six bastoni', 'TWO SPADE', 'Horse coppe', 'THREE
BASTONI', 'six spade', 'seven denari', 'King denari', 'ACE BASTONI', 'seven
spade', 'King coppe', 'King bastoni', 'four spade', 'THREE SPADE', 'five coppe',
'four bastoni', 'ACE COPPE', 'Jack denari', 'six coppe', 'five denari', 'Jack
bastoni', 'ACE DENARI', 'TWO DENARI', 'seven bastoni', 'four denari']
[]
the winner is simone, congratulations!
If you want to play another game write "y" and press enter, otherwise press any
key and enter
```

Differently from real life games, I noticed that the computer version lasts a lot more, probably due to better randomness features than human hands.