

## CENG 113 – Programming Basics

### Homework 05

#### Card Game

For this homework, you are expected to complete the given Python script in which a two-player cooperative card game is implemented. A single player plays the game with the computer. The **deck** is composed of 16 cards:

- 3 black 1's, 2 black 2's, 2 black 3's and 1 black 4
- 3 white 1's, 2 white 2's, 2 white 3's and 1 white 4

The aim is to stack the cards one by one in a sorted order in the **stack** (blacks from 1 to 4 and whites from 1 to 4).

#### Game Rules:

##### Starting the game:

- The **deck** is shuffled and three cards are dealt to each player.
- Players can only see their partner's hand. They can not see their own hands.
- At the beginning, players have total number of 3 **tips**.
- At the beginning, players have total number of 2 **lives**.
- The **stack** is empty.
- The **trash** is empty.

##### Playing the game:

- Game is played in turns. In each turn, a player selects one of the following moves:
  - Give tip: Player spends a tip (if there is any) and gives some information to his/her partner about his/her cards:
    - The tip can only be about the **color** or the **value** of the cards. For example, you can not say a card is a black 2. You can either say it is black or it is 2.
    - The tip has to include the **location** of **all cards** which have the same value or the same color. For example, if your partner's hand is "black 1, white 1, white 3", you can not say the first card is 1 or the second card is white. You have to say the first and second cards are 1 or second and third cards are white.
  - Stack card: Player picks one of his/her own cards to place in the **stack** and draws a new card from the deck (if there is any).
    - If the card can be stacked, it is added in the **stack**.
    - Otherwise, the card is added to the **trash** and a **life** is lost.
  - Discard card: Player picks one of his/her own cards to place in the **trash** and draws a new card from the deck (if there is any). One **tip** is earned.



#### The game ends when:

- no lives left (zero), or
- no cards left to play, or
- the stack has all 8 cards
- The final score is the total number of cards in the stack. Obviously, the maximum possible score is 8.
- You can examine the sample game scenario from the simulation file given to you.

#### **Code Rules:**

- Use descriptor **comments** in your code.
- Write a readable code e.g. choose proper names for variables.
- We share base code with you. Rename and modify this file. The parts that you have to fill in are marked with "pass" and commented as "TODO". You have to replace all "pass"es with your code. For each "pass", there are detailed explanations in the comments. **Do not edit** other parts of the code.
- Warning: The **location** of the cards in a hand starts from 1, not 0. So, the possible locations are 1, 2 or 3.
- You just use the **random module** to implement this game, do not need any other module, just use the features you learned in the lessons and labs.
- If you don't follow the code rules, you will **lose** some points.

#### **SUBMISSION RULES:**

Students who do **NOT FOLLOW THESE RULES WILL BE GRADED AS 0.**

- You should submit your codes through Microsoft Teams until the deadline, **22.01.2021 23:59.**
- Your homework should be named as **ceng113\_hw5\_studentID.py.**
- Write your **student ID** as a comment **at the beginning of your code.**
- Cheating is prohibited, you will be penalized if any cheating is detected
- Instead of sending private messages to assistants, ask your questions from the assistant section.