CENG 211

PROGRAMMING FUNDAMENTALS

HOMEWORK- 4

Due Date: 11 December 2016, 23:55

You are required to write a Java program for simulating card game and draw UML diagram for this application.

***** Each card has the following properties:

- number(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, J(11), Q(12), K(13)),

- type(SPADES, HEARTS, DIAMONDS, CLUBS),

- score.

    → Score for each card is calculated as follows:

    SPADES → score = number * 5

    HEARTS → score = number * 7

    DIAMONDS → score = number * 9

    CLUBS → score = number * 11

***** Each desk has 52 cards composed of 13 cards per type. Desk should create cards and shuffle them with its **init()** method.

The game turns between the HumanPlayer and the ComputerPlayer.

***** Each player has the following properties:

- name,

- score.

***** At the end of the game, final score should be saved as "humanPlayerName_computerPlayerName.txt" as in the following format:

humanPlayerName:humanPlayerScore

computerPlayerName:computerPlayerScore

***** The game should be simulated as follows:

1. As a first, you should ask name to the human player and give name randomly to the computer player(e.g. computerPlayer#1).

2. The simulation should distribute cards equally between both players. Each player should have 26 cards.

3. The simulation should determine the player who will start to the game by randomly.

4. Each player picks a single card:

   → If computerPlayer starts first then it chooses the card randomly otherwise it should give decision according to humanPlayer's choosen card.

   → humanPlayer chooses the card according to his/her hand that is shown on the console. The card can be chosen by giving the index of the desired card in the card list.

5. Determines the winner of the hand:

   → Player wins whose card number is higher than the other. Then, the score of the winner card is added to the winner player.

6. Loser of the previous hand starts the next hand.

7. Game ends after both players consume their cards.

IMPORTANT NOTES:

- For domain package, you should have at least following classes: Player.java, HumanPlayer.-java, ComputerPlayer.java, Simulation.java, Menu.java, DataAccessLayer.java, and GameApplication.java.

- You should use **POLYMORPHISM** approach for player behaviour.

- At least **setName()** and **getNextCard()** methods of players should be implemented differently in HumanPlayer.java and ComputerPlayer.java.

- All of the user interactions should be implemented in Menu class.

SUBMISSION RULES:

- You should create your Java project as **ID1_ID2_HW4** and export as **ID1_ID2_HW4.zip**
- You should upload your zip file **ID1_ID2_HW4.zip** to the CMS which should contain your Java project and UML diagram(**ID1_ID2_HW4_UML.(pdf, jpg, png)**).
- One of the group members is sufficient to upload homework to the CMS.
- You should add an author comment to the top of each class that you implement.