

Lab 19

Advanced Rock Paper Scissors Game

Objective:

Write one interface and three classes which will make a rock paper scissors game. First download the [driver](#).

The interface named **RPSPlayerInterface** will have the following methods

- public int getPoints()
- public String getGesture()
- public void setPoints(int aPoints)
- public void setGesture(String aGesture)
- public void chooseGesture()

The next class **RPSPlayer** implements this interface

- It has an instance variable **gesture** which is a string that corresponds to "rock", "paper", or "scissors"
- It has another instance variable **points** that keeps track of how many times the player has won
- Create only a default constructor that sets the gesture to "none" and points to 0
- Create the accessors and mutators for the instance variables
 - The mutator for setGesture should make sure it is either "rock", "paper", or "scissors". If it is not then tell the user that was a wrong choice and set gesture to "none"
- Write the chooseGesture method
 - In this case just set the instance variable gesture to "none"

Next write the class **RPSHumanPlayer** which inherits from **RPSPlayer**

- It has an instance variable **keyboard** which is of type **Scanner**
 - Make sure to import java.util.Scanner
- Create a default constructor
 - Calls the parent's default constructor
 - Sets up the keyboard to System.in
- Override the method chooseGesture
 - Call the parent's setGesture method and pass the string gotten from the Scanner keyboard.
 - You do not have to prompt the user.

Next write the class **RPSComputerPlayer** which also inherits from **RPSPlayer**

- It has an instance variable **rand** which is of type **Random**
 - Make sure to import java.util.Random
- Create a default constructor
 - Calls the parent's default constructor
 - Constructs the rand variable
- Override the method chooseGesture
 - Using the random variable it should randomly select a number
 - Correspond the number to a string which will either rock, paper, or scissors
 - For instance if rand equals 0 then it is a rock, else if 1 then paper, else if 2 then scissors
 - Use the parent's setGesture to then assign the randomly picked gesture

Lab Report

1. Draw the UML Class diagram for this project
2. Is it possible to implement more than one interface?

Example Dialog:

```
Welcome to the rock paper scissors game!
Enter either "rock", "paper", or "scissors" to compete
rock
You picked rock
The computer picked paper
You lose!
You have 0 points
The computer has 1 points
Press enter to continue or enter "quit" to quit
```

```
Enter either "rock", "paper", or "scissors" to compete
paper
You picked paper
The computer picked scissors
```

You lose!
You have 0 points
The computer has 2 points
Press enter to continue or enter "quit" to quit

Enter either "rock", "paper", or "scissors" to compete
scissors
You picked scissors
The computer picked paper
You win!
You have 1 points
The computer has 2 points
Press enter to continue or enter "quit" to quit

Enter either "rock", "paper", or "scissors" to compete
dynamite
Incorrect choice
You picked none
The computer picked paper
You lose!
You have 1 points
The computer has 3 points
Press enter to continue or enter "quit" to quit
quit
Good bye

Finally:

Upload all the files to the dropbox