Homework-1 / October 31, 2022

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1. **The Deadline for this homework is Sunday 6th of November 23:59:00.**
2. **Late submissions are not accepted.**
3. **Homework should be completed individually, copying the work of others is not permitted.**
4. **The penalty for teamwork or copying source code from others is -100.**

QUESTION – 1 (50 points) **:**

(Display pyramid) Write a program that prompts the user to enter an integer from 1 to 9 and displays a pyramid, as shown in the following sample run:

```
Enter the number of lines([1-9]:
9
1 : 98765432123456789
2 :  876543212345678
3 :   7654321234567
4 :    65432123456
5 :     543212345
6 :      4321234
7 :       32123
8 :        212
9 :         1
```

```
Enter the number of lines([1-9]:
4
1 : 4321234
2 :  32123
3 :   212
4 :    1
```

```
Enter the number of lines([1-9]:
14
You must enter a number between 1 and 9 !!
```

```
Enter the number of lines([1-9]:
-9
You must enter a number between 1 and 9 !!
```

QUESTION – 2 (50 points) **:**

(Game: rock, paper, scissors)

Write a program that plays the popular rock–paper- scissor game. (Scissors can cut paper, a rock can break scissors, and a paper can wrap a rock.) The program randomly generates a number 0, 1, or 2 representing scissors, rock, and paper. The program prompts the user to enter a number 0, 1, or 2 and displays a message indicating whether the user or the computer wins, loses, or draws.

If the user enters a number other than 0,1, and 2, the program should display an error message and continue prompting the user for a new number (see sample output below).

You must allow the user to play continuously. When one of these rules is true, the game should end

1. If either the user or the computer wins three games in a row (three sequential games), the game should end.
2. If the number of games in a session equals 15, the game should end.

Sample Execution 1:

```
Game (1):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses SCISSORS. You choose ROCK. You win

Game (2):Enter your choice (scissors:0, rock:1, paper:2) ?0
The computer chooses PAPER. You choose SCISSORS. You win

Game (3):Enter your choice (scissors:0, rock:1, paper:2) ?2
The computer chooses ROCK. You choose PAPER. You win
* * * Game over. User won 3 times * * *
```

Sample Execution 2:

```
Game (1):Enter your choice (scissors:0, rock:1, paper:2) ?0
The computer chooses PAPER. You choose SCISSORS. You win

Game (2):Enter your choice (scissors:0, rock:1, paper:2) ?0
The computer chooses ROCK. You choose SCISSORS. Computer wins

Game (3):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses SCISSORS. You choose ROCK. You win

Game (4):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses PAPER. You choose ROCK. Computer wins

Game (5):Enter your choice (scissors:0, rock:1, paper:2) ?2
The computer chooses SCISSORS. You choose PAPER. Computer wins

Game (6):Enter your choice (scissors:0, rock:1, paper:2) ?2
The computer chooses SCISSORS. You choose PAPER. Computer wins
* * * Game over. Computer won 3 times * * *
```

Sample Execution 3:

```
Game (1):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses ROCK. You choose ROCK. It is a draw

Game (2):Enter your choice (scissors:0, rock:1, paper:2) ?2
The computer chooses ROCK. You choose PAPER. You win

Game (3):Enter your choice (scissors:0, rock:1, paper:2) ?2
The computer chooses SCISSORS. You choose PAPER. Computer wins

Game (4):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses SCISSORS. You choose ROCK. You win

Game (5):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses PAPER. You choose ROCK. Computer wins

Game (6):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses ROCK. You choose ROCK. It is a draw

Game (7):Enter your choice (scissors:0, rock:1, paper:2) ?2
The computer chooses PAPER. You choose PAPER. It is a draw
```

```
Game (8):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses SCISSORS. You choose ROCK. You win

Game (9):Enter your choice (scissors:0, rock:1, paper:2) ?2
The computer chooses SCISSORS. You choose PAPER. Computer wins

Game (10):Enter your choice (scissors:0, rock:1, paper:2) ?0
The computer chooses PAPER. You choose SCISSORS. You win

Game (11):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses PAPER. You choose ROCK. Computer wins

Game (12):Enter your choice (scissors:0, rock:1, paper:2) ?1
The computer chooses PAPER. You choose ROCK. Computer wins

Game (13):Enter your choice (scissors:0, rock:1, paper:2) ?0
The computer chooses SCISSORS. You choose SCISSORS. It is a draw

Game (14):Enter your choice (scissors:0, rock:1, paper:2) ?0
The computer chooses SCISSORS. You choose SCISSORS. It is a draw

Game (15):Enter your choice (scissors:0, rock:1, paper:2) ?2
The computer chooses ROCK. You choose PAPER. You win

* * * GAME OVER. NO WINNER * * *
```

Sample Execution 4:

```
Game (1):Enter your choice (scissors:0, rock:1, paper:2) ?-2
Enter a valid choice (0,1,2) !

Game (1):Enter your choice (scissors:0, rock:1, paper:2) ?9
Enter a valid choice (0,1,2) !

Game (1):Enter your choice (scissors:0, rock:1, paper:2) ?0
You choose SCISSORS. The computer chooses SCISSORS. It is a draw

Game (2):Enter your choice (scissors:0, rock:1, paper:2) ?
```