GIT CSE102 HW01

Fall 2014

Due Date

25.09.2014, 23:59

Implement the programs described below.

1. Write a program that computes and prints the following equation for *n* = *k* (1 <= *k* <= 3);

$$\sum_{n=1}^{\infty} \frac{1}{n^4(n+1)}$$

   Your program should get *k* from the user via console.

   Sample Run:

```
Enter k value
2
Result is:
0.52
```

2. Guessing Game: Write a guessing game in which the user tries to guess a specific integer value *g* determined by your program. *g* must be between 1 and 100. User have a maximum of 3 tries to win the game. Your program should give feedback to the user after each guess.

   Sample Run:

```
Welcome to Guessing Game. You have three turns to be
successful. Pick a number between 1 and 100.
50
Too high..
30
Too low..
40
Congratulations!
```

   (or in case of failure: `You lose!`)

3. Weight Analyzer: Write a program that computes Body mass index of the user. Your program should get weight, height information from the user. Computed BMI using the following formula;

$$\text{BMI} = \frac{\text{mass(kg)}}{(\text{height(m)})^2}$$

Finally, determine the category of the user based on the following table;

Underweight	less than 18.5
Healthy	from 18.5 to 25
Overweight	Over 25

Sample Run:

```
Welcome to Weight Analyzer. Please enter your weight and
height:
80 1.8
You are healthy.
```

4. Write a program that asks the user for 4 (2D) points and determines whether the points can construct a line, a triangle or a quadrilateral.

Sample Run 1:

```
Please enter 4 2D points:
1.0 1.0
2.0 1.0
3.0 1.0
5.5 5.0

Your points can construct:
A triangle
```

Sample Run 2:

```
Please enter 4 2D points:
1.0 1.0
2.0 1.0
```

```
3.0 1.0
5.5 1.0

Your points can construct:
A line
```

Sample Run 3:

```
Please enter 4 2D points:
1.0 1.0
2.0 1.0
3.0 6.0
5.5 5.0

Your points can construct:
A quadrilateral
```

5. GIT Student Level Test: Write a program that that asks several questions to the user to determine the GIT student level of the user. Your program should ask the following questions to the user;
   a. How many times have you stayed awake till morning at GIT? (possible answers: 0, 1 , 2 ,3)
   b. How many different species of animals have you seen at GIT? (possible answers: 0, 1 , 2 ,3)
   c. How long have you been at GIT? (possible answers: 1 , 2 ,3)

   Your program should choose the following categories based on the input from the user.

Category	Total Score
Pro	7-9
Whizz-kid	4-6
Noob	0-3

Sample Run:

```
How many times have you stayed awake till morning at GIT?
(possible answers: 1 , 2 ,3)
1
How many different species of animals have you seen at GIT?
(possible answers: 1 , 2 ,3)
1
How long have you been at GIT? (possible answers: 1 , 2 ,3)
```

```
1

Your GIT student level is:

Noob
```

Notes:

- Upload soft copy of your homework to Moodle course web page
- Submit hard copy of your assignment to Teaching Assistant within 24 hours after the soft copy submission deadline.
- Obey good programming practices (Indentation, Documenting, Well Commenting etc.)