Python Bootcamp {2019}

Kirirom Institute of Technology

MINI PROJECTS WEEK 1

PROJECT 01 : Dice Roller

Description :

You will write a program that generate dices results.
One dice contain 6 values **[1 / 2 / 3 / 4 / 5 / 6]**

The program will first show: **"Welcome to the dices game!"**
Then it will ask you to enter a number of dices you want to roll.
"Enter the number of dices you want to roll: "

If nothing is passed you must write the following message:
"USAGE: The number must be between 1 and 8"
and then the program will ask you again:
"Enter the number of dices you want to roll: "

(The number must be always between 1 and 8 else you will display the usage message above)

If you enter 1, you must generate one random number and give the following output: **"RESULT: 4"** If you enter a number between 2 and 8, you must generate the following output:

```
Dice 1: 4
Dice 2: 3
Dice 3: 1
Dice 4: 6
==========
RESULT: 14
==========
```

(Result is the total of all the dice numbers value. 4+3+1+6=14)

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Make sure that you display exactly "==========" before and after the result (10 times '=' symbol). Or you will lose your points. :-)

Requirements :

- Program must be named : **01_dice.py** and saved into **week01/projects**
- **You are forbidden to use array for this project.**
- Use variables to make your code CLEAN (example you can create a constant like that : INTRO_MESSAGE = "Welcome to the dices games"

Hint :

- ❖ print function
- ❖ random function
- ❖ loop
- ❖ read the description, the requirements AGAIN
- ❖ make sure that your output is EXACTLY like the output below.

Output :

```
$ python 01_dice.py
Welcome to the dices game!
Enter the number of dices you want to roll: hello
USAGE: The number must be between 1 and 8
Enter the number of dices you want to roll: 1
RESULT: 4
```

```
$ python 01_dice.py
Welcome to the dices game!
Enter the number of dices you want to roll: 3
Dice 1 : 3
Dice 2 : 5
Dice 3 : 1
==========
RESULT: 9
==========
```

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PROJECT 02 : Magic Number Game

Description :

You will write a small game called “Guess the number”: The computer will ‘think’ of a random number from 1 to 100. Then we will ask you to guess it, for each of your answer there are 3 possibilities:

- **“Too high, try again!”**
- **“Too low, try again!”**
- **“It took you <COUNT> turns to guess my number which was <N>!”**

At the beginning the program will start with the following message :
“Hello, what is your name?”

Then will wait for your input.
After that a second message will appear:
“Well <NAME>, try to guess the number I have in mind!”

Until you not find the correct number, the program will display one of the three message above.

If you win, the computer will ask you:
“Do you want to play again? [Y/N]”

If you write “Y” the game start again.
If you write “N” the program will write:
“Ok, bye <NAME>! See you later!”. Then the program will stop,

If you write anything else the program will display:
“Sorry, I did not understand. Let me repeat:”
“Do you want to play again? [Y/N]”

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Requirements :

- Program must be named : **02_magic.py** and saved into **week01/projects**
- If the player find the answer in one time: write **"You won in 1 turn only, that's amazing!"** else **"It took you <COUNT> turns to guess my number which was <N>!"**
- **make sure you have no misspelling characters or you will lose points!**

Hint :

- ❖ print function
- ❖ random function
- ❖ input function
- ❖ loop

Output :

```
$ python 02_magic.py
Hello, what is your name?
>> Kevin
Well Kevin, try to guess the number I have in mind!
>> 50
Too high, try again!
>> 40
Too low, try again!
>> 44
It took you 3 turns to guess my number which was 44!
Do you want to play again? [Y/N]
>> I don't know
Sorry, I did not understand. Let me repeat:
Do you want to play again? [Y/N]
>> N
Ok, bye Kevin! See you later!
```

⚠ **Warning** ⚠ Make sure that you read all the description and don't forget any case. ALL sentences must be written as mentioned in the description and respect the case. **You should take a piece of paper and write down the program flow before you start writing the code.**

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PROJECT 03 : Tax Calculator

Description :

You will write a program that calculate tax from given amount and rate.
For example, 14% of 10000$ equal 1400$

At launch the program display:
"Please enter your amount: "

You must enter a **positive number** else the program will display:
"Number is incorrect, try again."

Once a valid number is enter, the program will display:
"Please enter tax rate:"

You must enter a **value between 1 and 99** else the program will display:
"Rate is incorrect, try again."

Once done, the program will display :

```
===== ===== ===== ===== =====
AMOUNT: <AMOUNT_ENTERED>$
RATE: <TAX_RATE>%
===== ===== ===== ===== =====
TAX: <TAX_AMOUNT>$
NET: <AMOUNT_ENTERED - TAX_AMOUNT>$
===== ===== ===== ===== =====
```

Requirements :

- Program must be named : **03_tax.py** and saved into **week01/projects** folder
- **Make sure that all the output correspond to the description.**

Hint :

- print function
- input
- basic maths

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- ❖ string format

Output :

```
$ python 03_tax.py
Please enter your amount:
>> Abc
Number is incorrect, try again.
Please enter your amount:
>> 11111
Please enter tax rate:
>> 999
Rate is incorrect, try again.
Please enter tax rate:
>> 14

===== ===== ===== ===== =====
AMOUNT: 11111$
RATE: 14%
===== ===== ===== ===== =====
TAX: 1555.54$
NET: 9555.46$
===== ===== ===== ===== =====
```

You must convert your output to get only two numbers after the '.' :
INCORRECT: 793.6428571428571
CORRECT 793.64

To do so, you can use this piece of code:

```
amount = 793.6428571428571
'{:.2f}'.format(amount)
print(amount)
```

OUTPUT:
>> 793.64

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⚠ Warning ⚠

MAKE SURE THAT ALL YOUR PROJECTS AND EXERCISES ARE WELL TESTED AND YOU DID NOT FORGET EVEN A SINGLE CHARACTER. MAKE SURE THAT YOUR FILENAMES ARE CORRECT. MAKE SURE THAT YOUR PROJECTS AND EXERCISES RESPECTS ALL THE REQUIREMENTS.

YOU MUST SUBMIT YOUR PROJECTS AND EXERCISES BEFORE FRIDAY 24.05.2019 11:42:00 PM (kevin.sabbe@kit.edu.kh)