

Roll_Dice: Console-Based Dice Rolling Simulator

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Introduction

This project builds on [Northwestern's Knightlab](#) requirements for a simple dice rolling simulator, and then adds functionality, organization, and user interface design. The basic requirements are: use a function to generate a random number (given a minimum and a user-specified maximum), print the number, and ask the user if they want to roll again.

Roll_Dice adds another layer of complexity by allowing the user to choose the the number of dice to roll as well as the number of dice sides. Rather than a single required function, Roll_Dice uses multiple functions to (1) request the number of dice, (2) request the number of sides, (3) get the random integer representing the die roll, and (4) ask the user if they want to roll again. As a result, the main block of code is cleanly divided into sections for getting user input, rolling the dice, printing the results, and asking the user if they want to roll again. Furthermore, Roll_Dice adds basic data entry error checking and provides additional console output that reacts to user input and provides results in an easy-to-read format.

Purpose

The purpose of this project is to learn how to program in Python.

In developing this project I learned:

- How to use functions with arguments that return values (with and without default values);
- How to use a random number generator (and import a library);
- How to request user input from the console;
- How to print results to the console;
- How to use *while* and *for* loops;
- How to add error checking with *while...try...except*;
- About variable naming nomenclature; and
- About additional online resources ([ActiveStateCode Recipes](#)).

What Roll_Dice Does

Given user input for the number of sides and quantity of dice to roll, the project generates random integer(s) representing the roll of the specified dice.

- First, the project requests (1) the number of dice to roll, and (2) the number of sides for each dice.
 - All dice will have the same number of sides.
 - Only integers between 1 and 10 are allowed for the number of dice, and only integers between 1 and 1,000,000 are allowed for the number of sides.

- Roll_Dice summarizes the user's input in a natural language format.
- Next, the project generates a random integer between the minimum and maximum possible values (between one and the number of sides) and prints the results of the dice roll.
- Finally, the project asks the user if they want to roll again and starts over or quits, depending on the user's response. This function is based on the [StackOverflow query_yes_no](#) function and [Recipe 577058](#).

System Requirements

Currently, this project resides in the roll_dice.py file and can be run in the console of an IDE, such as Eclipse.

It has been designed using Python 3.0.

Installation

There is no installation required at this time.

How to Use

Open the roll_dice.py file in the window of a console program, such as Windows PowerShell, by typing:

```
.\roll_dice.py
```

It can also be run by opening in an IDE (such as [Eclipse/PyDev](#) and clicking Run).

Once you see the Roll_Dice welcome message, follow the prompts:

- Enter the number of dice to roll (between 1 and 10).
- Enter the number of sides for the dice (between 1 and 1000000). NOTE: All dice have the same number of sides.

Roll_Dice will summarize the input and "roll" the specified number of dice, listing each value on a separate line.

- Answer yes or no (Y or N, y or n) to the prompt asking if you want to roll again.

Sample Output

```
Are you ready to roll?
Just hit enter for the default settings: 2 dice with 6 sides each.
-----
Please enter the number of dice to roll (between 1 and 10): 77
*** You must enter a whole number between 1 and 10 ***
Please enter the number of dice to roll (between 1 and 10): 7
Wow! You chose 7 dice. That's a lot of dice!
-----
Please enter the number of sides to each die (between 1 and 100000): four
```

```
*** You must enter a whole number between 1 and 1000000 ***
Please enter the number of sides to each die (between 1 and 100000): 400
Yay! You choose 400 sides. That's a big number!
-----
Rolling 7 dice, each with 400 sides.
-----
Die 1 rolled 303
Die 2 rolled 223
Die 3 rolled 23
Die 4 rolled 163
Die 5 rolled 33
Die 6 rolled 52
Die 7 rolled 227
-----
-----
Would you like to roll again? [Y/n] y
-----
-----
Please enter the number of dice to roll (between 1 and 10): 1
Thank you. You chose 1 die. You can choose more!
-----
Please enter the number of sides to each die (between 1 and 100000): 999999
Woo-hoo! You chose 999999 sides! We're going to get some big numbers.
-----
Rolling 1 die with 999999 sides.
-----
Die 1 rolled 334081
-----
-----
Would you like to roll again? [Y/n] n
-----
Thank you for playing!
=====
=====
```

Future Plans

- Compile? Make the project stand-alone?