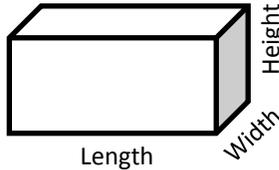


Computer Programming

Python #4 – Check Mail

Background:

The U.S. Post Office has rules about mailing packages. A package cannot be mailed first class if the sum of its length and girth is greater than 108 inches, or if the package weighs more than 70 pounds. The length is defined as the longest of the three dimensions (length, width, height) and the girth is the perimeter around the width and height.



As an example, suppose the 3 dimensions of a box were 15", 12.5" and 20". In this case, the length is 20. The girth is the perimeter around the width and height, so it is $12.5 + 15 + 12.5 + 15$ which is 55. The length + girth is $20 + 55$ which is 75. This makes the package within acceptable parameters.

As long as the weight is less than or equal to 70 pounds, the package can be mailed.

Assignment:

1. In your Computer Programming folder, create a folder titled *first_last_python_4*. Start IDLE. Create a new file. Save it in your *first_last_python_4* folder as *check_mail.py*.

2. Declare and initialize these variables:

```
dim1 = 15
dim2 = 12.5
dim3 = 20
weight = 50
```

```
length = 0
girth = 0
```

3. You are to determine which of *dim1*, *dim2*, and *dim3* is the largest and set *length* to that value. You are then to calculate the *girth* based on the other values.

4. At this point, you should output the values that you calculated for *length* and *girth* in the format:

```
Length = 20; Girth = 55
```

5. Now, determine if the package with the given dimensions can be mailed or not. There are 4 possibilities:

- The package is too big and too heavy.
- The package is too big.
- The package is too heavy.
- The package is acceptable.

The package is too big if $length + girth > 108$. The package is too heavy if $weight > 70$.

After outputting the values for length and girth, you will print the message that applies to the package.

6. Test your code using the following values for *dim1*, *dim2*, *dim3* and *weight*. Make sure you get the expected output for **each set of values**:

dim1	dim2	dim3	weight	Expected Output
50.0	10.0	15.0	70.0	Length = 50.0; Girth = 50.0 The package is acceptable.
19.2	29.7	15.8	70.5	Length = 29.7; Girth = 70.0 The package is too heavy

dim1	dim2	dim3	weight	Expected Output
28.2	52.0	29.4	1.4	Length = 52.0; Girth = 115.19999999999999 The package is too big.
35.8	39.6	40.2	79.8	Length = 40.2; Girth = 150.8 The package is too big and too heavy.

7. Once all of your output is correct, create a text document called *output.txt* in your *first_last_python_4* folder. Run your code for the following 8 sets of values. After each run, copy the output from your Python shell window and paste it into the *output.txt* file.

Run #	dim1	dim2	dim3	weight
1	45.2	15.6	12	15.2
2	11.6	18.1	7.0	80.5
3	10.8	18.0	56.2	55.3
4	10.0	12.0	10.0	65.2
5	18.2	20.1	36.0	76.3
6	25.6	20.8	24.6	22.2
7	16.1	15.2	20.8	79.7
8	36.1	15.2	20.8	70.1

Before you turn this assignment in, make sure that your *first_last_python_4* folder has 2 files:

1. *output.txt*
2. *check_mail.py*

Zip your *first_last_python_4* folder and turn it in in the usual manner.