GEOG-6050 [SPRING2017]

ASSIGNMENT 02 – [30 Points]

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1 Working with Python number object [10 points]

This is the formula of the vertical position of an object in vertical fall:

$$Y_t = v_0 t - \frac{1}{2} g t^2 \tag{1}$$

In this equation:

- Y_t is the vertical position at time t
- v_0 is the initial velocity at $t = 0$
- g is the acceleration of gravity

Given v_0, g, and t, please write a PYTHON computer program to calculate Y. Your program should have the following characteristics:

- Each parameter in the formula should be a variable in your PYTHON code. (3 points)
- Please use $g = 9.81$ and use two scenarios:(4 points)
  - $t = 0.6$ and v_0 5 meters
  - $t = 0.55$ and v_0 10 meters
- Make sure your program prints all the input and output parameters.(3 points)

2 Working with Python string object [8 points]

Assume you were given the strings listed below and answer the following questions:

```
UN = 'Middle Tennessee State University'
PT = 'C:\temp\new'
```

1. What is the length of each of these strings?(1 point)
2. Please list what are the character values of UN[5], UN[15], and UN[0]? (1 point)
3. What range would you use to print *Tennessee* using the slicing technique?(1 point)
4. How would you print the last character of the variable UN?(1 point)
5. How would you change the characters in UN to upper case?(1 point)
6. What is the outcome when you write *print PT*? Why? How would you change it to print the correct directory path? (1+1+1 points)

3 Working with Python list object

[7 points]

Assume you were given the PYTHON list below, answer the following questions:

```
1 myList = ['blue','yellow','green','white','black','magenta']
```

1. What is the length of this list? How would you write code to get the length? (1 point)
2. Please list what are the items stored in the positions 0 and 3? (1 point)
3. How would you print the last item in this list? (1 point)
4. Now you need to add a new color to your list. How would you do it? (1+1 points)
5. What if you wanted to sort alphabetically your list? How would you do it? (1+1 points)

4 Working with Python dictionary object [5 points]

Please provide PYTHON source code to generate two dictionaries as described below: (1 point)

1. The first dictionary should contain five U.S. States with their names and two letter abbreviations. Please make sure to use the two letters abbreviations as the key for your dictionary.
2. The second dictionary should contain five states represented only by the two letter abbreviation and for each state a list with tree cities. Similarly, the two letter abbreviation should be the key of your dictionary.

Also, answer the following questions:

1. How would you fetch a state from the first dictionary? (2 points)
2. How would you fetch a list of cities from the second dictionary? (2 points)

Notes

For each item/question please make sure to provide the PYTHON code you used to answer the question or you were asked to generate. You are welcome to include everything into a single file with comments. This will facilitate my grading efforts tremendously.

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