Navrachana University
School of Engineering and Technology

BCA

Course: CMP404 Introduction to Data Science Programming

Assignment-1

Date : 8thJan, 2024

Instructions

- Implement the given Questions using Object Oriented concepts in Python programming language.
- Use meaningful and descriptive variable/identifier names:
  Good variable names (camelCase): rollNo, studentName, empSalary, salesPrice, taxRate, Every Program should have header and footer having following information in multi-line comments
  '''

  @author: RollNo Firstname Lastname
  @description: Program No. - write short purpose/ description
  here '''
- Every Program should be with output of the Program in multi-line comment after the code of respective program.

- Programs submitted by a student should be the result of individual work based on his/her own efforts. Full or part of the code should not be copied from internet or from peer students or other sources. A student should not share/circulate the code/programs developed by them (for individual assignments) with their peers in any form. Violation of above will be considered as academic dishonesty and any such case will be strictly dealt with and liable to get zero in the evaluation.

1. What is 7 to the power of 4?
2. Split this string:

   s = "Hi there Sam!"

   into a list.
3. Given the variables:

   planet = "Earth"

   diameter = 12742

   Use .format() to print the following string:

The diameter of Earth is 12742 kilometers.

4. Given this nested list, use indexing to grab the word "hello"

   lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]

5. Given this nested dictionary grab the word "hello".

   d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}

6. What is the main difference between a tuple and a list?

7. Create a function that grabs the email website domain from a string in the form: **

   user@domain.com

   So for example, passing "user@domain.com" would return: domain.com

8. Create a basic function that returns True if the word 'dog' is contained in the input string. Don't worry about edge cases like a punctuation being attached to the word dog, but do account for capitalization. :

   findDog('Is there a dog here?')

9. Use lambda expressions and the filter() function to filter out words from a list that don't start with the letter 's'. For example:**

   seq = ['soup','dog','salad','cat','great']

   should be filtered down to:

   ['soup','salad']

10. You are driving a little too fast, and a police officer stops you. Write a function to return one of 3 possible results: "No ticket", "Small ticket", or "Big Ticket". If your speed is 60 or less, the result is "No Ticket". If speed is between 61 and 80 inclusive, the result is "Small Ticket". If speed is 81 or more, the result is "Big Ticket". Unless it is your birthday (encoded as a boolean value in the parameters of the function) -- on your birthday, your speed can be 5 higher in all cases.

11. Write a program to input roll no, student name, marks of physics, chemistry and maths out of 100. (0-100). Calculate total, percentage, calculate STATUS (pass, fail) if students scores above 40 in all the 3 subjects the STATUS should be pass otherwise fail. Calculate GRADE if STATUS is pass.
    Grade must be based on percentage value
    if percentage is above 70, then grade must be DISTINCTION if
    percentage is above 60, then grade must be FIRST CLASS
    if percentage is above 50, then grade must be SECOND CLASS if
    percentage is above 40, then grade must be PASS CLASS