2018 Spring: COMP-SCI 5590/490 - Special Topics

Python Programming

Lab Assignment 2

Assignment Overview

The following assignment focus on to make one familiar with python programming.

One should be able to use sets and dictionaries in any environment.

One should be able to use classes to build any of the management system. This can be used as back end for any web application created in Python. Also we will learn about numpy package and will see how this can be implemented.

Lab Assignment

1. Consider a shop UMKC with dictionary of all book items with their prices. Write a program to find the books from the dictionary in the range given by user.

   Sample Input:
   {"python":50,"web":30,"c":20,"java":40}

   For range 30 to 40
   Sample Output:
   You can purchase books (web, java)

2. With any given number n,
   In any mobile , there is contact list. Create a list of contacts and then prompt the user to do the following:
   a) Display contact by name
   b) Display contact by number
   c) Edit contact by name
   d) Exit

   Based on the above scenario, write a single program to perform the above the operations.Each time an operation is performed on the list, the contact list should be displayed
   Sample input:
   Contact_list=[{"name":"Rashmi","number":"8797989821","email":"rr@gmail.com"},{ "name":"S aria","number":"9897989821","email":"ss@gmail.com"}]

   Suppose user select to edit contact "Rashmi"
   Edit the number to 999999999 as given by user

   Sample output:
   Contact_list=[{"name":"Rashmi","number":"9999999999","email":"rr@gmail.com"},{ "name":"S aria","number":"9897989821","email":"ss@gmail.com"}]

3. Write a python program to create any one of the following management systems. You can also pick one of your own.
   a. Library Management System (should have classes for Person, Student, Librarian, Book etc.)
   b. Airline Booking Reservation System (classes for Flight,Person,Employee,Passenger etc.)
   c. Hotel Reservation System (classes for Room,Occupants,Employee etc.)
   d. Student Enrollment System (classes for Student,System,Grades etc.)
   e. Expense Tracker System (classes for Expense, Transaction Category etc.)

   Prerequisites:

   Your code should have atleast five classes.
   Your code should have _init_ constructor in all the classes
   Your code should show inheritance atleast once
   Your code should have one super call
   Use of self is required
   Use at least one private data member in your code.
   Use multiple Inheritance atleast once
   Create instances of all classes and show the relationship between them.
   Your submission code should point out where all these things are present.

4. Using Numpy create random vector of size 15 having only Integers in the range 0 -20. Write a program to find the most frequent item/value in the vector list.

   Sample input:
   [1,2,16,14,6,5,9,9,20,19,18]

   Sample output:
   Most frequent item in the list is 9

Submission Guidelines:

- Submit your code at Github and properly document it. Submit your screenshots as well.
- Properly document your code
- Submit only the code portion in text file to UMKC blackboard assignment.
- Remember code similarity to be less than 45%
- Use following link to submit your assignment:

   https://goo.gl/forms/cxvY8Kg1pvNNzrpw1