Assignment:

1. Write a program in python implement a class student. The class student has name, roll_no, name of the program, total marks and no. of subjects. write the following function —

(i) Initializing members.

(ii) computing avg marks of a student.

(iii) Displaying student information.

Create 3 student obj and print the avg marks obtained by this 3 students.

(iv) Display the name of the student who got the highest score.

2. Implement a class named 'Date' in python. write member function to initialize the Date class in following ways —

(i) Day, Month & year are initialize to 1, 1, 1970.

(ii) Day is initialized to user specified value but month & year are initialize to 1, 1970.

(iii) Day & Month are initialized to user specified value but year is initialized to 1970.

(iv) Day, Month & year are initialized to user specified values. write the following additional member function —

(a) Get in the previous day.

(b) Getting the next day.

(c) printing a day

(d) Create a date object & then display the next & previous day.

3. Write a class complex number with a constructors as well as with the following operators to be overloaded : __add__ , __sub__ , __eq__

4.) Write a recursive function to compute factorial of an integer n.

5.) Create a class in python named Room which will hold the height, width and breath of the room three variables. This class also has a function to calculate the volume of this room. Create three instances of Room class and display the volume of each room.

6.) Write a python program to read a sentence as well as word. Display the no. of occurances of the word in the sentence also read another word and use this word to replace the previous word in the input sentence.

7.) Write a python program to read a sentence and display each word of the sentence taking the separation as space and punctuation marks. (comma)

8.) Write a recursive function to find a factorial of a number.

9.) Create a class "BankAccount" in python which will hold the Account Holder's name, Account Number, Account Type ('s' for savings account and 'c' for current account) and Balance amount in four fields. Write the methods to do the following —

(i) Initialize fields (ii) Deposit money (iii) withdrawal of money keeping minimum balance of Rs 1000/- and (iv) to display all fields from an account.

10) Consider a list (samplelist = [ ]). Read 10 integer elements and store them in samplelist. Write a Python program to find the second largest integer in the samplelist.

11) Implement a 'point' class in python. The class "point" contains two integers to represent the x-coordinate and y-coordinate of a point. Write a suitable constructor. Also write appropriate methods to overload the following operators —

(i) "+" operator for adding point objects.

(ii) "==" operator for equality comparison i.e, two point objects are equal or not.

12) Create a class "Employee" in python which will hold the employee's name, employee ID, employee's designation ('D' for Director, 'M' for Manager, 'L' for Leader and 'P' for programmer) and monthly salary in four fields. Write the methods to do the following —

(i) Initialize fields (ii) salary hike of employee, (iii) promotion of employee by both salary hike and changing designation from the current designation (iv) To display all fields from an employee.

13.) Consider a list (wordList = []). Read 10 words and store in wordList. Write a python program to print the words stored in odd index number in the wordList.

14.) Implement a "ComplexNumbers" class in python. The class "ComplexNumbers" contains two integers to represent the real and imaginary part of a complex number. Write a suitable Constructor. Also write appropriate methods to overload the following operators ——

(i) "—" operators

(ii) ">" operator; a complex number "a+ib" is greater than "c+id" if "a^2+b^2" is greater than "c^2+d^2".

15.) Load "sample.csv" file into a pandas DataFrame and do the following — (i) check the duplicate rows and delete those rows in the original DataFrame.

(ii) Replace NULL values with median from the column having integer data (column 5)

(iii) print the first 5 rows and last 5 rows of the DataFrame.

16.) (a) Write a Lambda function to calculate the square of a given number and return the result.

(b) Convert 1D array with 8 integer elements to 3D array with 2×2 elements.

17.) ~~Admitted~~ Admitted students of two PG (Engg) programmes of the school of Education Technology for the year 2008, 2009, 2010 and 2011 are given below:

2008: MCWE (16) MMD (22)

2009: MCWE (18) MMD (24)

2010: MCWE (18) MMD (16)

2011: MCWE (13) MMD (24)

create a bar chart to display the above data with two different colors (red, green) for the bars, Also display appropriate label for x-axis (year), y-axis (No. of students) legend and title for the bar chart.

HCI

(1) Brief History of HCI → Nothing

(2) Analysis of Emperical Data → ANOVA.

Introduction