SSN College of Engineering
Department of IT
A Section

Assignment Date : 21.11.2022
Submission Deadline: 29.11.2022
Assignment Topic :Polymorphism

Question 1

1.Define a vector inheriting from standard list. Let the vector is restricted to having only integer number in the list. Overload appropriate function and operator so that when any other type of element is inserted the program raises an error.

2. Overload the operators '+' & '–' to add and subtract two vectors respectively. Ex. V1 =[2,3,4], V2 = [1], V+V2 =[3,3,4] V1-V2 = [1,3,4] {Odd Register numbered Students}

3. Overload the operators '+' & '–' operator to result with the following definitions. Ex. V1 =[2,3,4], V2 = [1,2], V+V2 =[1,2,3,4] – To merge two lists in ascending order without any duplicates. V-V2 = [1,2,3] , where the new vector has items which are different in both the vectors. {Even Register numbered Students}

4.Write a function called GetRatios(Vec1, Vec2) which reads the value of both the vectors in appropriate index and generates the ratio vector Ratio[]. The Ratio[i] is calculated by Vec1[i]/Vec2[i].

Write the code for handling exceptions using try, except and raise in the following conditions:
(i) When there is a value 'Zero' at some index 'x' of Vec2, place 'NaN' in Ratio[x]
(ii) When the sizes of both the vectors are different
(iii) Create an user-defined exception object when the length of both the vectors are zero.
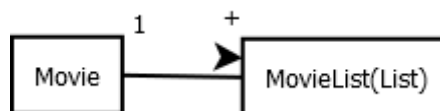
Question 2

Mention the significance of class and instance members.
Create a class 'Employee'. The constructor must assign the first name and last name of an employee. Define a function called from_string() which gets a single string from the user, splits and assigns to the first and last name. For example, if the string is 'Seetha Raman', the function should assign first name as Seetha and second name as Raman and the function returns the object. Can you design from_string() as a class or instance function? Justify your response.
Demonstrate object creation by passing two strings as well as one string.

Question 3

Explain the concept of Overriding and Operator Overloading concepts with the following example:

Implement the classes Movie() and MovieList() as described in the above figure. Override the appropriate functions so that the MovieList is generated based on the genre assigned in the instance variable when first object is created. For example, if the genre is defined as thriller, the list accepts only thriller movies.

When two lists are given as input, the list with more number of movies are returned.