

Military Institute of Science and Technology (MIST)

Department of Computer Science & Engineering (CSE)

CSE 205: Object Oriented Programming Language, CT-2, Date: 17/06/21

Time: 30 min

Marks: 20

Instructions:

1. Making choices in life is pretty hard, fortunately, you don't have to make any in this exam. Answer all the questions provided below.
2. Numbers on the right side of each question signify individual question marks.

Take a look at the following inheritance scenario, then answer questions 1 and 2.

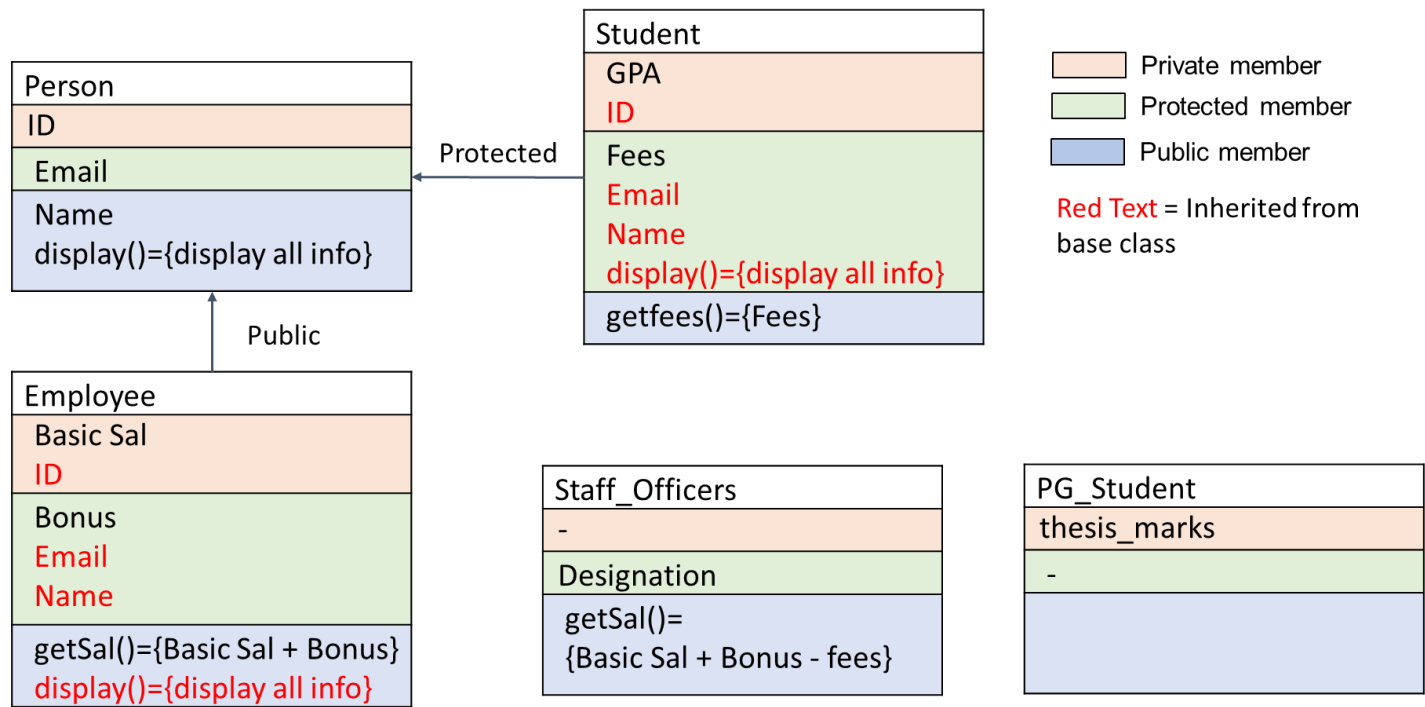


Figure 1

The above figure demonstrates 5 classes. The inheritance relation for the first 3 classes (Person, Student and Employee) has been **already done for you**. Note that-

- i. Specific colors of boxes and text have meaning, they are given in the upper right corner of Figure 1.
- ii. The label on top of the arrow between two classes denote how it was derived. For example, in figure 1-
Student is a Person (Protected Inheritance)
Employee is a Person (Public Inheritance)

1. Finish figure 1 for classes Staff_Officers and PG_Student if, 6
 - PG_Student is a Student (Private Inheritance)
 - Staff_officer is a Student and is an Employee (both Public Inheritance)

Drawing the detailed boxes for these two classes and their relation with other classes is enough.

2. Will there be any problem in overriding the display() function in the class PG_student? If so how can we overcome it? Write short code snippet. 6

The job of display function is to display all member variables (both inherited and own) of the PG_student.
3. What is object slicing and how can “Late Binding” be helpful in overcoming the problems introduced by object slicing? Write a short code snippet as an example to demonstrate. 8