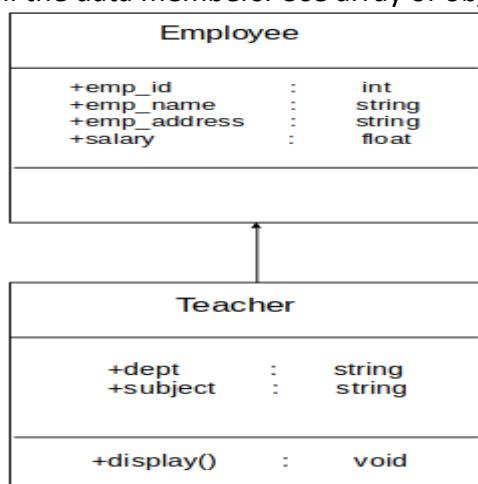# LAB CYCLE 2

10. Write a Program which accepts the marks of a student into a 1D array from the keyboard. Calculate and display total marks & percentage obtained by the student.

11. Program to sort strings.

12. Program to sort characters from a string.

13. Search an element in an array.

14. Perform string manipulation (using Built-in methods of String Class and StringBuffer Class)

15. Program to create a class for Employee having attributes eNo, eName,Salary. Read n employee information and search for an employee given eNo using the concept of array of objects.
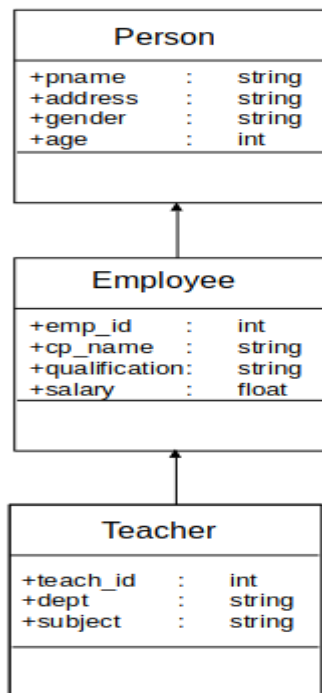
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LAB CYCLE 3

16. Using the concept of method overloading find the area of different shapes rectangle, circle and square.

17. Create a class 'Employee' with data members Empid, Name, Salary, Address and constructors to initialize the data members. Create another class 'Teacher' that inherit the properties of class employee and contain its own data members department, Subjects taught and constructors to initialize these data members and also include display function to display all the data members. Use array of objects to display details of N teachers.

```
                    Employee

        +emp_id        :        int
        +emp_name      :        string
        +emp_address   :        string
        +salary        :        float



                        △
                        │
                    Teacher

        +dept          :        string
        +subject       :        string


        +display()     :        void
```
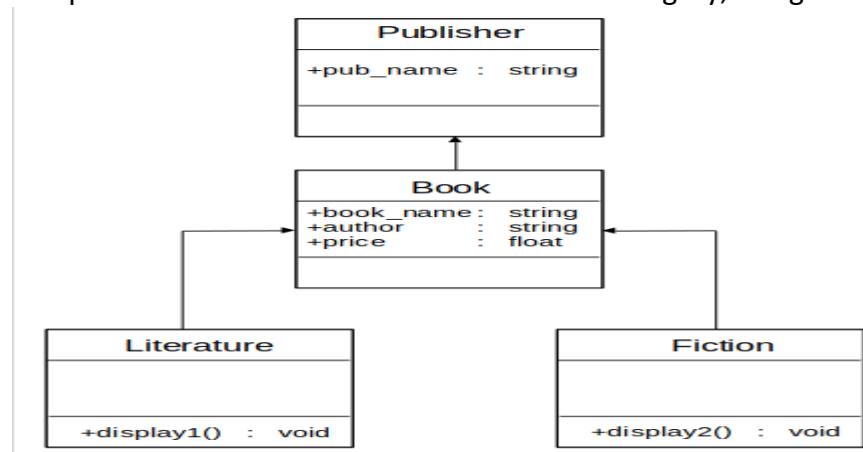
18. Create a class 'Person' with data members Name, Gender, Address, Age and a constructor to initialize the data members and another class 'Employee' that inherits the properties of class Person and also contains its own data members like Empid, Company name, Qualification, Salary and its own constructor.

19. Create another class 'Teacher' that inherits the properties of class Employee and contains its own data members like Subject, Department, Teacher id and also contain constructors and methods to display the data members. Use array of objects to display details of N teachers

```
                    ┌─────────────────────────┐
                    │         Person          │
                    ├─────────────────────────┤
                    │ +pname      :    string  │
                    │ +address    :    string  │
                    │ +gender     :    string  │
                    │ +age        :    int     │
                    ├─────────────────────────┤
                    │                         │
                    └─────────────────────────┘
                                 △
                    ┌─────────────────────────┐
                    │        Employee         │
                    ├─────────────────────────┤
                    │ +emp_id       :   int    │
                    │ +cp_name      :   string │
                    │ +qualification:   string │
                    │ +salary       :   float  │
                    ├─────────────────────────┤
                    │                         │
                    └─────────────────────────┘
                                 △
                    ┌─────────────────────────┐
                    │        Teacher          │
                    ├─────────────────────────┤
                    │ +teach_id    :    int    │
                    │ +dept        :    string │
                    │ +subject     :    string │
                    ├─────────────────────────┤
                    │                         │
                    └─────────────────────────┘
```

19. Write a program has class Publisher, Book, Literature and Fiction. Read the information and print the details of books from either the category, using inheritance.

```
                    ┌─────────────────────────┐
                    │        Publisher        │
                    ├─────────────────────────┤
                    │ +pub_name  :   string   │
                    ├─────────────────────────┤
                    │                         │
                    └─────────────────────────┘
                                 △
                    ┌─────────────────────────┐
                    │          Book           │
                    ├─────────────────────────┤
                    │ +book_name:   string    │
                    │ +author    :   string   │
                    │ +price     :   float    │
                    ├─────────────────────────┤
                    │                         │
                    └─────────────────────────┘
        ┌───────────────────────┐   ┌───────────────────────┐
        │      Literature       │   │        Fiction        │
        ├───────────────────────┤   ├───────────────────────┤
        │                       │   │                       │
        ├───────────────────────┤   ├───────────────────────┤
        │ +display1()  :  void  │   │ +display2()  :  void  │
        └───────────────────────┘   └───────────────────────┘
```

20. Create classes Student and Sports. Create another class Result inherited from Student and Sports. Display the academic and sports score of a student.

21. Create an interface having prototypes of functions area() and perimeter(). Create two classes Circle and Rectangle which implements the above interface. Create a menu driven program to find area and perimeter of objects.

22. Prepare bill with the given format using calculate method from interface.

```
Order No.
Date :
Product Id Name Quantity unit price Total
101          A     2      25      50
102          B     1      100     100

                 Net. Amount    150
```

23. Using the concept of method overriding, find the area of shapes Rectangle, Circle and Square.

24. Create an Abstract Class 'Shape' with an abstract method find Area to find the area of different shapes. Create subclasses Rectangle, Circle and Square from Shape. Calculate and display area of Rectangle, Circle and Square.

****