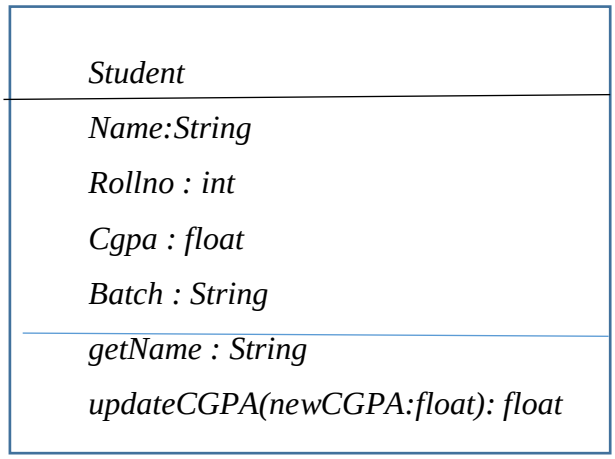
LAB MANUAL
WEEK-3

1. Follow the Class Notes (Classes and Object) and complete the lab exercises(I to V) mentioned in the tutorial (Box Class Exercises).
2. Create a class **Person** with private member variable **name** of type *String*. Use getter and setter methods *public String getName( )* and *public setName(String name)*. Use a demo class with main ( ) to create an object of Person and using setName( ) and getName( ) to assign name to the member variable and print the value.
3. Create a program that defines a student class as given in the diagram



   Write a program which allows the user to create 'N' objects of 'Student' class and initialize all the details (N can be read from the user)
   a. Modify the program such that the user should be able to print the name of the student for the given the roll number (Roll number can be read from the user)
   b. Add the following feature also to the program where the user should be able to update the CGPA of a student with the given roll number. Print all the details of the student after updating CGPA
4. The two cats (A & B) and a mouse(C) are at various positions on a line. Read their starting positions. Your task is to determine which cat will reach the mouse first, assuming the mouse doesn't move and the cats travel at equal speed. If the cats arrive at the same time, the mouse will be allowed to move and it will escape while they fight.

Create a class **animal** with the member variables **cat_A**, **cat_B** and **mouse** (of type int). Implement a method **catAndMouse**( ).

The variables **cat_A**, **cat_B** and **mouse** represent the positions of the two cats and mouse respectively. The **catAndMouse**( ) return the appropriate answer to each query, which will be printed on a new line.

- If cat A catches the mouse first, *print Cat A*.
- If cat B catches the mouse first, *print Cat B*.
- If both cats reach the mouse at the same time, *print Mouse C* as the two cats fight and mouse escapes.

Use **catMouseDemo** class with main function to implement the above scenario in main function by creating the object of class Animal.

For example, cat A is at position 2 and cat B is at 5. If mouse C is at position 4, it is 2 units from cat A and 1 unit from cat B. Cat B will catch the mouse.

Input the three positions and print output of catAndMouse( ).