

## OOAD

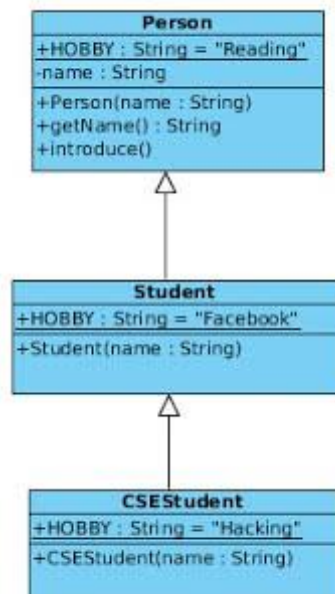
### Lab exercise

Q1. Suppose MNIT Jaipur awards some grace marks to students who participate in the Inter NIT games. Therefore, total marks awarded = Exam\_Marks +Sports\_Grace\_Marks. If total marks scored are greater than maximum marks, then the final marks awarded will be equal to the maximum marks.

An Object Oriented based implementation will contain a class called Results, which extends a class called Exam, which itself extends a class called Student. It will also contain an interface called Sports, which is implemented by the Results class.

The Results class will be responsible for computing the final marks scored by the students. Write a Java program along with an interactive driver class.

Q2. **Who Am I?** : Construct the following inheritance hierarchy.



A typical way to introduce by anyone is "Hello, my name is xxx and my hobby is yyy".  
(Hint: use a combination of the getName() method and the HOBBY String constant)

Varun is a CSE Student at MNIT, who secretly moonlights as a hacker. Have Varun introduce himself

- (1) at a get-together for student leaders of various colleges in Jaipur
- (2) at a closed-door Hacker Society meeting
- (3) at his cousin's birthday party where he meets a beautiful girl who is a Tagore fan.

(Hint: Instantiate Varun as a CSEStudent, then use a switch case for his different behaviour e.g. choice #2 implies varun is at the Hacker Society Meeting.)

(Hint: Use the super keyword; you may also introduce additional methods)

Q3. Create a JAVA package *fact\_recursion* in which the corresponding class of this package should contain a recursive method that calculates a factorial of a non-negative number. Create another package called *fact\_final* and using fully qualified name, create an object in the corresponding class of this package. This object should invoke the recursive factorial method of a package *fact\_recursion* by passing a nonnegative integer.