North South University

Department of Electrical and Computer Engineering

CSE 215L: Programming Language II Lab

Lab Manual - 9

Lab Instructor: Taif Al Musabe

Objective:

- To understand inheritance and its usage
- To understand method overriding and its usage
- To to utilize inheritance to ensure reusability of existing code

Inheritance has two purposes - reuse existing code, reduce code duplication.
When common traits are found among two classes, define one as general/base/parent class and the other as specific/child class. Child class inherits the properties of parent class and adds its own properties.

```
class A{
    private String name;
public A(String name){....}
public String getName(){....}
}
```

```
class B extends A{
private int value;
    public B(String name, int value){
      super(name);
      this.value = value;
    }
    public int getValue(){....}
}
```

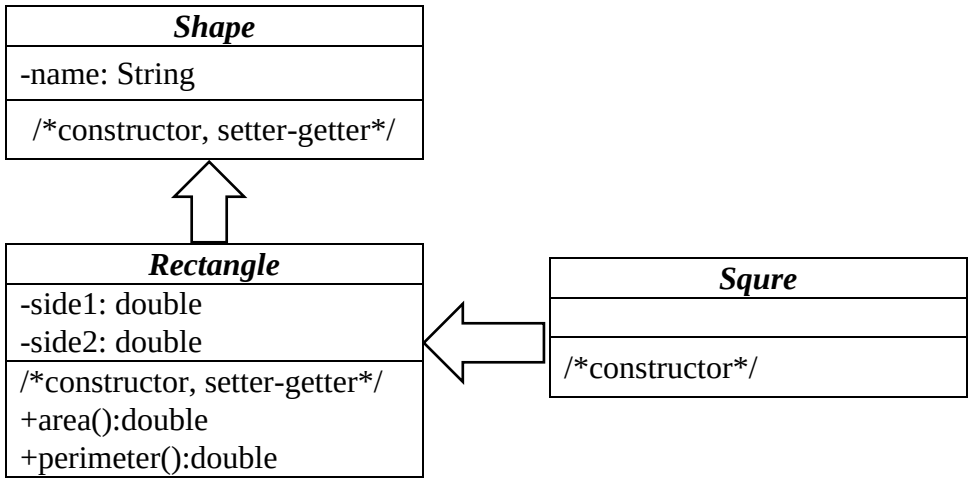
```
class Main{
    public static void main (String [] args){
      B b = new B("Thomas", 100);
      System.out.print(b.getName());
    } }
```

super( ) is used to call parent constructor to pass the attributes of parent class.
super keyword itself indicates parent object.

Java doesn't support multiple inheritance.It supports multi level inheritance.

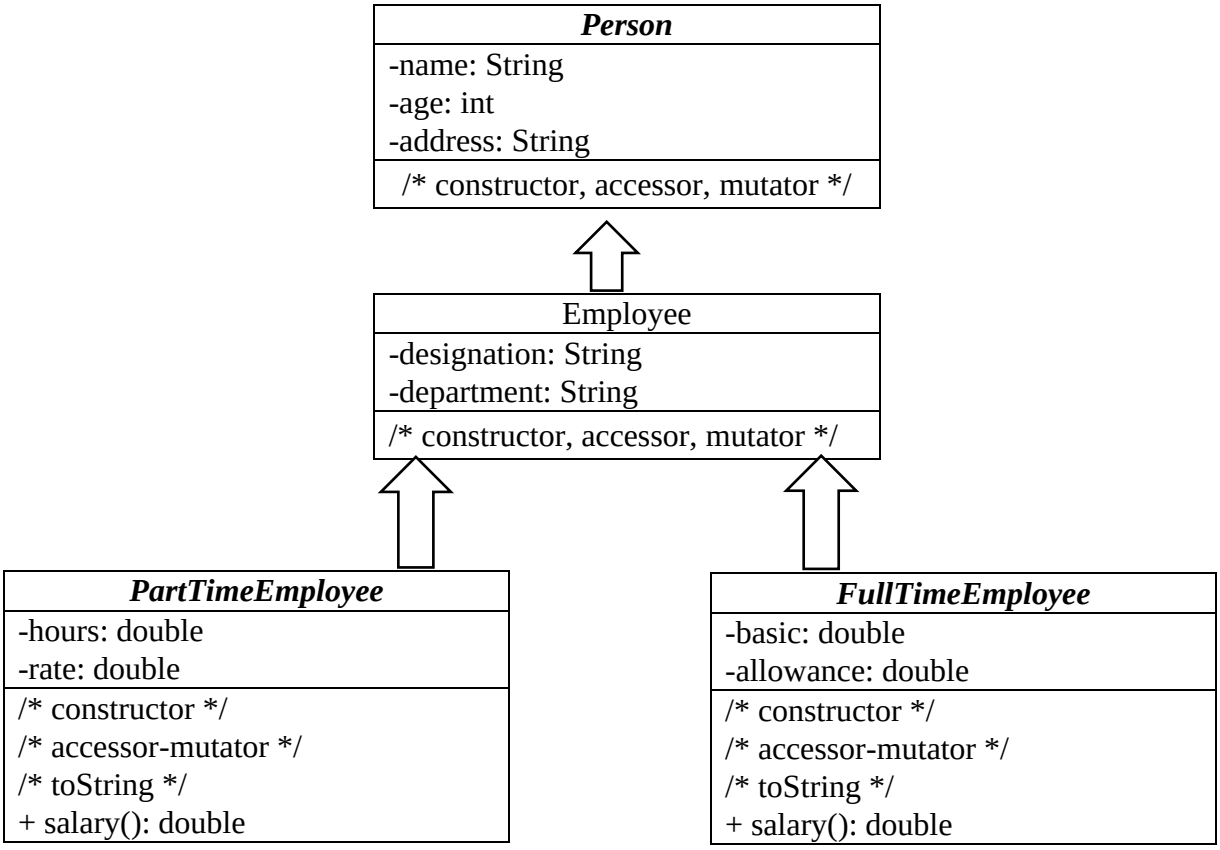
When child redefines a method from parent class, it's called method overriding. Ex: toString( )

Task – 1 Implement the following classes. Then create a Square object and print its area and perimeter.



Task – 2

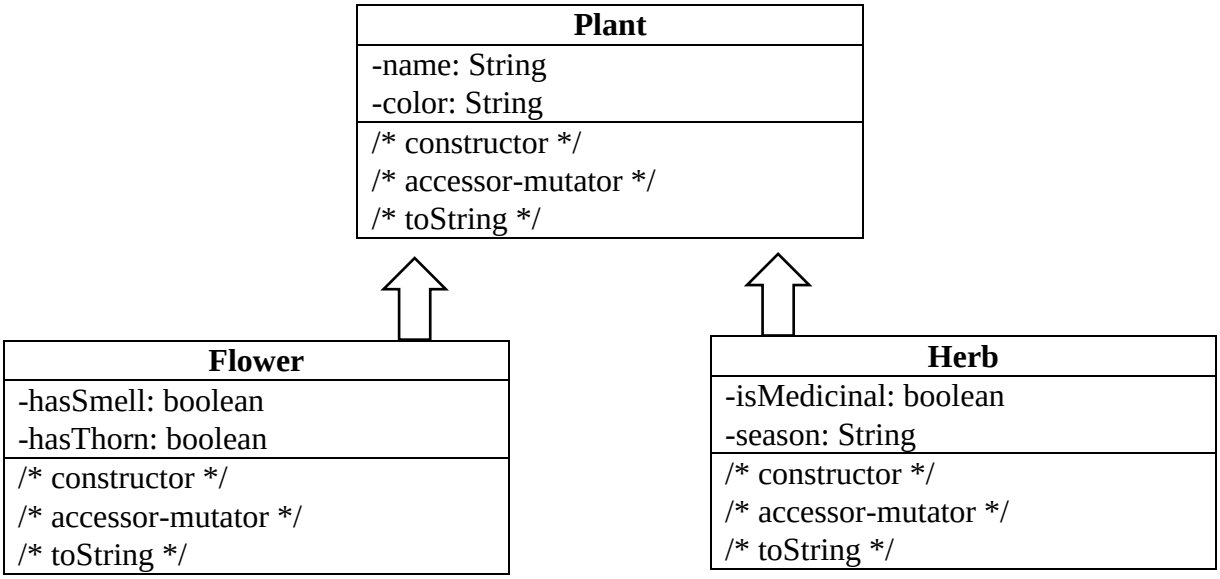
Implement the following classes



Create two objects of Employee. One will store the instance of PartTimeEmployee while other will FullTimeEmployee. Now print their salary.

(*Hint*: For FullTimeEmployee, basic is the base salary, i.e. 15000.
Allowance is usually provided as percentage, i.e. 25%.
So the total salary of a full time employee = 15000 + 25% of 15000 = 18750)

Homework



In main method, create an array of Plant objects and implement these methods:
static void add(Plant [] plants, Plant p) // to add new plant object into the array
static void remove(Plant [] plants, String n) // remove a plant given by its name
static Plant search(Plant [] plants, String n) // search for a plant given its name
static void display(Plant [] plants) // display all Plant objects