Assignment - 16
(Encapsulation)

1. What is Encapsulation? Why it is called Data Hiding?

Ans: Binding of data and corresponding methods into a single unit is called “Encapsulation”. If any java class follows data hiding and data abstraction then such classes are called Encapsulated class.
It is called Data hiding because, to the outside world the data are not exposed directly.

2. What are the important features of Encapsulation?

Ans: a).To the outside world, the data is not exposed directly, so the environment gets secure.
b). In order to provide the controlled access over data, concept of encapsulation is used.
c). Data Abstraction can be achieved by using Encapsulation.

3. What are Getter and Setter methods in java explain with example?

Ans: Setter: Setter methods are use to set the values to the instance variables of the class.
Getter: Getter methods are used to get the values from instances variables of the class.
Ex:

```
class Students{
    private int age;
    private String name;
    public void setAge(int age){
        this.age = age;
    }
    public int getAge(){
        return age;
    }
    public void setName(String name){
        this.name = name;
    }
    public String getName(){
        return name;
    }
    public void show(){
        System.out.println(name+ " " +age);
    }
}
public class Test2 {
    public static void main(String [] args){
        Students obj = new Students();
        Students obj2 = new Students();

        obj.setAge(18);
        obj2.setAge(22);
        int age = obj2.getAge();
        System.out.println(age);
        obj.setName("Yash");
        obj2.setName("Anurag");
        obj.show();
        obj2.show();
    }
}
```

4. What is the use of “this”Keyword explain with example?

Ans: To avoid shadowing problem “this” keyword is used as it refers to the current class instance variables.
Ex:

```
class Student{
    private int age;
```

```
    private String name;
    public void setData1(int age){
        this.age = age;
    }
    public void setData2(String name){
        this.name = "Anurag";
    }
    public void show(){
        System.out.println(name+ " " +age);
    }
}
public class Test1 {
    public static void main(String [] args){
        Student obj = new Student();
        obj.setData1(18);
        obj.setData2("Anurag");
        obj.show();
    }
}
```

5. What is the advantage of Encapsulation?

Ans: a). Data hiding prevents the user from the complex implementations in the code.
b).The variables of the class can be read-only or write-only as per the programmer's requirement.
c). The class will maintain its data members and methods as read-only.
d). Users will have no idea how classes are being implemented or stored.

6. How to achieve Encapsulation in java explain with example?

Ans: Encapsulation in Java can be achieved by:
a). Declaring the variables of a class as private.
b). Providing public setter and getter methods to modify and view the variables values.