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Assignment – 4

1. Write a Java Program to implement inheritance and demonstrate use of method overriding.

Program:

```
class Grandpa {
    public void show() {
        System.out.println("Inside show() method of Grandpa class");
    }
}

class Dad extends Grandpa {
    public void show() {
        System.out.println("Inside show() method of Dad class");
    }
}

class Me extends Dad {
    public void show() {
        System.out.println("Inside show() method of Me class");
    }
}

public class Main{
    public static void main(String[] args) {
        Grandpa grandpa = new Grandpa();
        Grandpa dad = new Dad();
        Grandpa me = new Me();

        grandpa.show();
        dad.show();
        me.show();
    }
}
```

Output:

```
Inside show() method of Grandpa class  
Inside show() method of Dad class  
Inside show() method of Me class
```

2. Write a Java Program to implement multilevel inheritance by applying various access controls to its data members and methods.

Program:

```
class Person {  
    String name;  
    int age;  
  
    Person() {  
        System.out.println("Person constructor");  
    }  
  
    void nationality() {  
        System.out.println("Indian");  
    }  
  
    public place() {  
        System.out.println("Mumbai");  
    }  
}  
  
class Emp extends Person {  
    protected double salary; // Protected access  
  
    Emp() {  
        System.out.println("Emp constructor");  
    }  
  
    void organization() {  
        System.out.println("IBM");  
    }  
}
```

```

        void place() {
            System.out.println("New York");
        }
    }

    class Manager extends Emp {
        private int teamSize; // Private access

        Manager() {
            System.out.println("Manager constructor");
        }

        void subordinates() {
            System.out.println(12);
        }

        protected place() {
            System.out.println("London");
        }
    }

    public class Main{
        public static void main(String[] args) {
            Manager m = new Manager();
            m.nationality();
            m.organization();
            m.subordinates();
            m.place();
        }
    }
}

```

Output:

```

Person constructor
Emp constructor
Manager constructor
Indian
IBM
12
New York

```

3. Write a Java program to demonstrate use of implementing

interfaces.

Program:

```
interface Language {  
    void getName(String name);  
}  
  
interface Framework {  
    void getUsage(String usage);  
}  
  
class JavaTech implements Language, Framework {  
    public void getName(String name) {  
        System.out.println("Language: " + name);  
    }  
    public void getUsage(String usage) {  
        System.out.println("Framework usage: " + usage);  
    }  
}  
  
public class Main {  
    public static void main(String[] args) {  
        JavaTech javaTech = new JavaTech();  
        javaTech.getName("Java");  
        javaTech.getUsage("Web development");  
    }  
}
```

Output:

```
Language: Java  
Framework usage: Web development
```