ASSIGNMENT 05

1) Write a Java program to implement Single Inheritance.

```java
class Base{
    void show(){
        System.out.println("Base class");
    }
}
class Derived extends Base{
    void display(){
        System.out.println("Derived class");
    }
}
class SingleInheritance{
    public static void main(String args[]){
        Derived ob = new Derived();
        ob.show();
        ob.display();
    }
}
```

OUTPUT:
```
Base class
Derived class
```

2) Write a Java program to implement Multi-Level Inheritanc.

```java
class Base{
    void show(){
        System.out.println("Base class");
    }
}
class Derived1 extends Base{
    void display(){
        System.out.println("Derived1 class");
    }
}
class Derived2 extends Derived1{
    void print(){
        System.out.println("Derived2 class");
    }
}
class MultiLevelInheritance{
    public static void main(String args[]){
        Derived2 ob = new Derived2();
        ob.show();
        ob.display();
        ob.print();
    }
}
```

OUTPUT:
```
Base class
Derived1 class
Derived2 class
```

3) Write a Java program to implement Hierarchical Inheritance.

```java
class Base{
    void show(){
        System.out.println("Base class");
    }
}
class Derived1 extends Base{
    void display(){
        System.out.println("Derived1 class");
    }
}
class Derived2 extends Base{
    void print(){
        System.out.println("Derived2 class");
    }
}
class HierarchicalInheritance{
    public static void main(String args[]){
        Derived1 ob1 = new Derived1();
        Derived2 ob2 = new Derived2();
        ob1.show();
        ob1.display();
        ob2.show();
        ob2.print();
    }
}
```

OUTPUT:
```
Base class
Derived1 class
Base class
Derived2 class
```

4) Write a Java program to find the largest number between two numbers using Single Inheritance.

```java
class Base{
    int no1;
}
class Derived extends  Base{
    int no2;
    Derived(int n1, int n2){
        no1 = n1;
        no2 = n2;
    }
    void compare(){
        if(no1>no2){
```

```java
            System.out.println(no1+" is the larger");
        }
        else if(no2>no1){
            System.out.println(no2+" is the larger");
        }
    }
}
public class SIEx {
    public static void main(String[] args) {
        Derived ob = new Derived(2, 3);
        ob.compare();
    }
}
```

OUTPUT:
```
3 is the larger
```

5) Write a Java program to find the smallest number between three numbers using Multi Level Inheritance.

```java
import java.util.*;
class Base{
    int no1;
}
class Derived1 extends Base{
    int no2;
}
class Derived2 extends Derived1{
    int no3, c, s;
    void input(){
        Scanner in = new Scanner(System.in);
        System.out.println("Enter the first num");
        no1 = in.nextInt();
        System.out.println("Enter the 2nd num");
        no2 = in.nextInt();
        System.out.println("Enter the 3rd num");
        no3 = in.nextInt();
    }
    void findSmall(){
        if(no1<no2){
            c = no1;
        }
        else if(no1>no2){
            c = no2;
        }
        if(c<no3){
            s = c;
        }
        else if(c>no3){
            s = no3;
        }
    }
    void display(){
```

```java
            System.out.println(s+" is the smallest");
    }
}
class MultiLevelInheritanceEx{
    public static void main(String args[]){
        Derived2 ob = new Derived2();
        ob.input();
        ob.findSmall();
        ob.display();
    }
}
```

OUTPUT:
Enter the first num
2
Enter the 2nd num
7
Enter the 3rd num
9
2 is the smallest

6) Write a Java program to achieve Multiple Inheritance in Java through Interface.

```java
interface Backend {
    public void connectServer();
}
class Frontend {
    public void responsive(String str) {
        System.out.println(str + " can also be used as frontend.");
    }
}
class Language extends Frontend implements Backend {
    String language = "Java";
    public void connectServer() {
        System.out.println(language + " can be used as backend language.");
    }
    public static void main(String[] args) {
        Language java = new Language();
        java.connectServer();
        java.responsive(java.language);
    }
}
```

OUTPUT:
Java can be used as backend language.
Java can also be used as frontend.

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