Dt : 30/8/2023

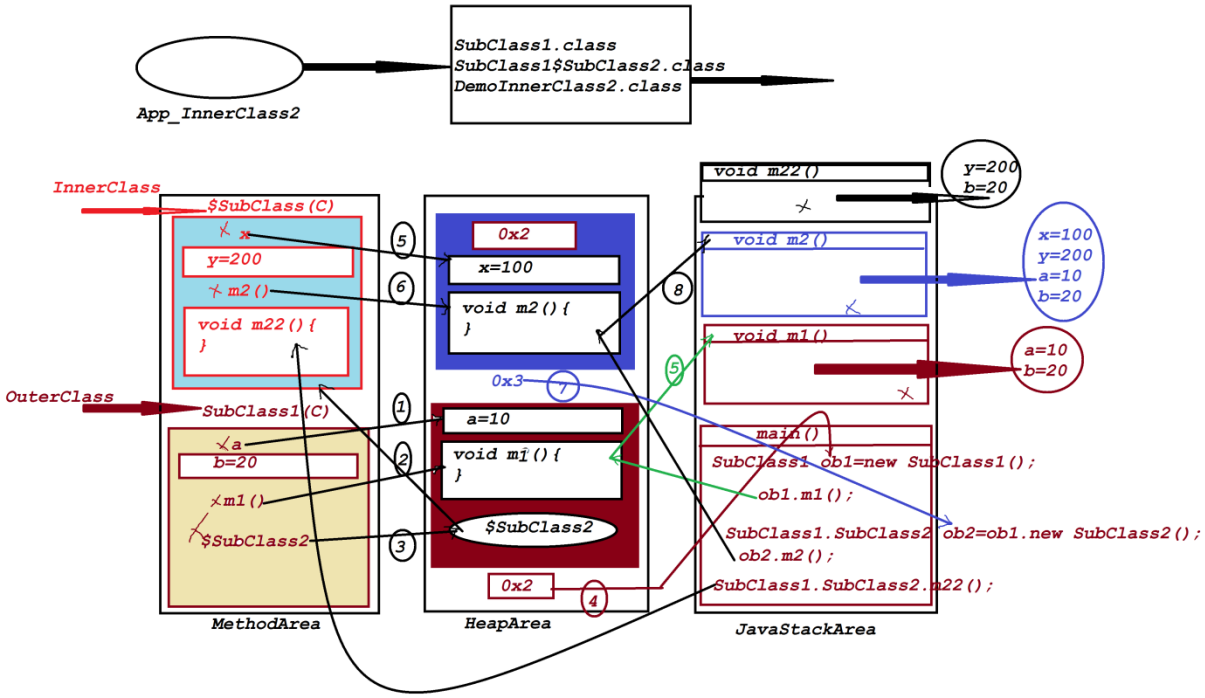
Execution Flow of above program:(Demonstrating Instance member InnerClass)

ClassFiles:

SubClass1.class

SubClass1$SubClass2.class

DemoInnerClass2.class(MainClass)



==========

Note:

=>In Instance member InnerClasses,the InnerClass object will hold the reference of OuterClass object and the members of InnerClass object can access all the members of OuterClass Object.

==========

*imp

(ii)Local member InnerClasses:

=>The NonStatic member InnerClasses which are declared inside the methods are known as Local member InnerClasses or Method member InnerClasses.

Coding Rules:

(i)Local member InnerClasses can be declared in both static and NonStatic methods.

(ii)Local InnerClasses in Instance methods will have features like Instance member InnerClasses

(iii)Local InnerClasses in Static methods will have features like Static member InnerClasses.

(iv)Local InnerClass objects are created inside the methods where they are declared

ProjectName : App_InnerClass3

packages,

p1 : SubClass1.java

```
package p1;
```

```
public class SubClass1 {
      public void m1()
      {
      class SubClass2
      {
          public void m2(int x)
          {
                System.out.println("====SubClass2
m2(x)====");
                System.out.println("The value x:"+x);
          }
      }//Local InnerClass
      SubClass2 ob2 = new SubClass2();
      ob2.m2(12);
      }//OuterClass Instance method
      public static void m11()
      {
      class SubClass22
      {
          public void m22(int y)
                {
                      System.out.println("====SubClass22
m22(y)====");
                      System.out.println("The value y:"+y);
                }
      }//Local InnerClass
      SubClass22 ob22 = new SubClass22();
      ob22.m22(13);
      }//OuterClass Static method
}//OuterClass
```

p2 : DemoInnerClass3.java(MainClass)

```
package p2;
import p1.*;
public class DemoInnerClass3 {
     public static void main(String[] args) {
        SubClass1 ob1 = new SubClass1();//OuterClass
Object
        ob1.m1();//OuterClass Instance method call
```

```
        SubClass1.m11();//OuterClass Static method call
    }
}
```

o/p:

====SubClass2 m2(x)====

The value x:12

====SubClass22 m22(y)====

The value y:13

==========

ClassFiles generated from above application:

SubClass1.class

SubClass1$1SubClass2.class

SubClass1$1SubClass22.class

DemoInnerClass3.class(MainClass)

==========

faq:

define static classes?

=>The classes which are declared with static keyword are known as static classes.

=>Static classes can be declared as only InnerClasses,which means

OuterClasses cannot be static.

==========

Assignment:(Solution)

Update App_InnerClass1,initializing variables using Constructor.

ProjectName : App_InnerClass1(Modified)

packages,

p1 : SubClass1.java

```
package p1;
public class SubClass1
{
    public int a;
    public static int b;
    public SubClass1(int a,int b)
    {
         this.a=a;
         this.b=b;
    }
    public void m1()
    {
        System.out.println("****OuterClass-m1()****");
        System.out.println("The value a:"+a);
        System.out.println("The value b:"+b);
    }//OuterClass method
    public static class SubClass2
    {
         public int x;
         public static int y;
         public SubClass2(int x,int y)
         {
              this.x=x;
              this.y=y;
         }
```

```
        public void m2()
        {
            System.out.println("****InnerClass Instance
m2()****");
            System.out.println("The value x:"+x);
            System.out.println("The value y:"+y);
            //System.out.println("The value a:"+a);
            System.out.println("The value b:"+b);
        }
        public static void m22()
        {
             System.out.println("****InnerClass static
m22()****");
             //System.out.println("The value x:"+x);
             System.out.println("The value y:"+y);
             //System.out.println("The value a:"+a);
             System.out.println("The value b:"+b);
        }
    }//Static member InnerClass
}//OuterClass
```

p2 : DemoInnerClass1.java(MainClass)

```
package p2;

import p1.*;

import java.util.*;

public class DemoInnerClass1 {

        public static void main(String[] args) {

          Scanner s = new Scanner(System.in);
```

```
        System.out.println("Enter the value a:");
        int a = s.nextInt();
        System.out.println("Enter the value b:");
        int b = s.nextInt();
        System.out.println("Enter the value x:");
        int x = s.nextInt();
        System.out.println("Enter the value y:");
        int y = s.nextInt();

    SubClass1 ob1 = new SubClass1(a,b);//OuterClass Object
    ob1.m1();//OuterClass method call
    SubClass1.SubClass2 ob2 =
                new SubClass1.SubClass2(x,y);
              //Static member InnerClass Object
    ob2.m2();//InnerClass Instance method call
    SubClass1.SubClass2.m22();
    //InnerClass Static method call
    s.close();
       }
}
```

o/p:

```
Enter the value a:
```

112

Enter the value b:

113

Enter the value x:

114

Enter the value y:

115

*****OuterClass-m1()*****

The value a:112

The value b:113

*****InnerClass Instance m2()*****

The value x:114

The value y:115

The value b:113

*****InnerClass static m22()*****

The value y:115

The value b:113

***==========
==***