



KIET Group of Institutions, Ghaziabad

Department of Computer Applications

(An ISO – 9001: 2015 Certified & 'A' Grade accredited Institution by NAAC)

Object Oriented Programming Lab

KCA 251 : Session 2020-21

Program: Program to implementation of object cloning.

```
Code: class example_cloning implements Cloneable{
    int num1;
int num2;
    example_cloning(int x,int y){
        this.num1=x;
this.num2=y;
    }
    void multiple(){
        System.out.println("multiply....."+ (num1*num2));
    }
    public Object clone() throws CloneNotSupportedException{
return super.clone();
    }
}

public class ObjectCloning {
    public static void main(String[] args) throws
CloneNotSupportedException{
        example_cloning obj1 = new example_cloning(10,20);
        example_cloning obj2= obj1;
obj1.multiple();        obj2.multiple();
        example_cloning obj3 =(example_cloning) obj1.clone();
        obj3.num1 =100;
        obj3.multiple();
    }
}
```

Output:

```
multiply.....200
multiply.....200
multiply.....2000
```



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Program: Program to implementation of inner class

1. Private inner class

```
Code: class OuterClass{
    void display1(){
        System.out.println("hello you are in Outerclass");
        InnerClass n=new InnerClass();        n.display2();
    }

    private class InnerClass{
void display2(){
        System.out.println("hello you are in InnerClass");
    }
}
}
public class PrivateInnerClass{        public
static void main(String[] args){
    OuterClass O= new OuterClass();
    O.display1();
}
}
```

Output:

```
hello you are in Outerclass
hello you are in InnerClass
```

2. Static inner class

```
Code: class OuterClass{
    static class InnerClass{
int sum(int x,int y){
return (x+y);
}
}
```



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```
}  
public class StaticInnerClass{  
    public static void main(String[] args){  
        OuterClass.InnerClass I = new OuterClass.InnerClass();  
        int c=I.sum(10,24);  
        System.out.println(c);  
    }  
}
```

3. Local method inner class

```
Code: class Outer{  
    void outerdisplay(){  
        System.out.println("hello,you are in outer class");  
    }  
    public void innerClass(int x,int y){  
        class InnerClass{  
            int  
            Mul =x*y;  
            void  
            displayInner(){  
                System.out.println("hello,you are in Local  
Method Inner Class class");  
                System.out.println(Mul);  
            }  
        }  
        InnerClass N = new InnerClass();  
        N.displayInner();  
    }  
}  
  
public class LocalMethodInnerClass{    public  
static void main(String[] args){  
    Outer O = new Outer();  
    O.outerdisplay();  
    O.innerClass(10,20);  
    //O.Multiply();  
}  
}
```



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4. Anonymous inner class **Code:**

```
abstract class Inner{  
    public abstract void method(); }
```



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```
public class AnonymousInnerClass {    public
static void main(String[] args) {
Inner I = new Inner() {                public
void method() {
                                System.out.println("you are in anonymous
inner class");
                                }
                                };
                                I.method();
}
}
```