OOPS CONCEPT

OOPS CONCEPT:- *It is real world programming technique, user's Requirement which is use to class, object, data binding, data hiding, Encapsulation, polymorphism, message passing, Inheritance abstraction etc.*

Class:-

1. *It is a collection of similar data type of object.*
2. *It contains data member and member functions.*
3. *It contains again private, public, protected and default access modifiers.*
4. *It is also known as user define data typ.*

Example 1:-Write a program to put any two number and find sum.

Solution:-

```
class Ajay
{
private int  a,b,c;
public void add()
{
java.util.Scanner x=new java.util.Scanner(System.in);
System.out.print("\nEnter two number");
a=x.nextInt();
```

```
b=x.nextInt();
c=a+b;
System.out.print("Sum is "+c);
}
}
class muclass
{
public static void main(String arg[])
{
Ajay a=new Ajay();     //a is object of class Ajay.
Ajay b=new Ajay();    //b is also object of class Ajay.
a.add();                    //first time  function call
a.add();                   //second time function call
b.add();                   //third time function call
}
}
```

Output:- Enter two number 4 //first time function call and run

5

Sum is 9

Enter two number 6 //second time function call and run

1

Sum is 7

Enter two number 4 *//third time function call and run*

15

Sum is 19

Function:-*It is the smallest individual sub program which is use to perform specific task.*

There are two types of function.

1. *User define function*
2. *Build in function.*

They have also four types.

i. *No argument no return type.*
ii. *Argument and no return type.*
iii. *No argument but return type.*
iv. *Argument but return type.*

i.No argument no return type:-

Example:-Write a program to put any two number and find sum with using function.

Solution:-

```
class mymath
{
private int a,b,c;
```

```
public void add()                    //create function with no argument
        {
                System.out.print("Enter two number");
java.util.Scanner x=new java.util.Scanner(System.in);
a=x.nextInt();
b=x.nextInt();
c=a+b;
System.out.print("Sum is "+c);
}
}
class muclass
{
        public static void main(String arg[])
        {
                mymath m=new mymath();
                m.add(); //function call with no argument
        }
}
```

Output:- Enter two number 3 //first time run

Sum is 4

Enter two number 13 //Second time run

4

Sum is 17

ii. Argument and no return type function:-

Example:-Write a program to put any two number and find sum using function.

Solution:-

```
class mymath
{
private int c;
public void add( int a ,int b)
{
c=a+b;
System.out.print("Sum is "+c);
}
}
class myclass
{
        public static void main(String arg[])
        {
        mymath m=new mymath();
```

```
        int a,b;
        System.out.print("Enter two number");
        java.util.Scanner x=new java.util.Scanner(System.in);
        a=x.nextInt();
        b=x.nextInt();
        m.add(a,b);
        }
}
```

Output:- *Enter two number 13 //first time run*

4

Sum is 17

Enter two number 13 //Second time run

14

Sum is 27

iii. No argument but return type:-

Example:-Write a program to put any two number and find sum with using function.

Solution:-

```
class mymath
{
private int a,b,c;
```

```
public int add()
{
System.out.print("Enter two number");
java.util.Scanner x=new java.util.Scanner(System.in);
a=x.nextInt();
b=x.nextInt();
c=a+b;
return(c);
}
}
class myclass
{
        public static void main(String arg[])
        {
                mymath m=new mymath();
                int r=m.add();
                System.out.println("sum is "+r);
        }
}
```

Output:- Enter two number 3 //first time run

```
                                    4

        Sum is 4

        Enter two number 13  //Second time run

                                    4

        Sum is 17
```

iv Argument but return type:-

Example:-Write a program to put any two number and find sum with using function.

Solution:-

```
class mymath
{
private int c;
public int add(int a,int b)
{
c=a+b;
return(c);
}
}
class myclass
{
    public static void main(String arg[])
    {
```

```
        int a,b;
        mymath m=new mymath();
        System.out.print("Enter two number");
        java.util.Scanner x=new java.util.Scanner(System.in);
        a=x.nextInt();
        b=x.nextInt();
        int r=m.add(a,b);
        System.out.println("Sum is "+r);
    }
}
```

Output:- *Enter two number 3 //first time run*

4

Sum is 4

Enter two number 13 //Second time run

4

Sum is 17

Multiple function:-

Example:-Write a program to put any two number and find sum, div, multi, sub and etc.

Solution:-

```
class mymath
{
```

```
        private int a,b,c;
        public void get()
        {
System.out.print("Enter two number");
java.util.Scanner x=new java.util.Scanner(System.in);
      a=x.nextInt();
      b=x.nextInt();
}
public void put()
{
        System.out.print("a= "+a);
        System.out.print("\nb= "+b);
}
public void puta()
{
        c=a+b;
        System.out.print("\n Addition is "+c);
        c=a*b;
        System.out.print("\n Multiplication is "+c);
        c=a-b;
        System.out.print("\n Subtraction is "+c);
        c=a/b;
```

```
        System.out.print("\n Division is "+c);
    }
    }
    class muclass
    {
        public static void main(String arg[])
        {
            mymath m=new mymath();
            m.get();
            m.put();
            m.puta();
        }
    }
```

Output:- **Enter two number 6 //first time run**

2

Sum is 8

Multiplication is 12

Subtraction is 4

Division is 3

Note:- **String is a class. It means name is reference variable. It contain 4 bytes memory and treated as reference variable.**

Object as an array:-

Example:-

```
class ajay
{
        private int id,salory;
        private String name;
        public void get()
        {
                java.util.Scanner x=new java.util.Scanner(System.in);
                System.out.print("Enter employee id ");
                id=x.nextInt();
                System.out.print("Enter employee Salary ");
                salory=x.nextInt();
                System.out.print("Enter employee Name ");
                name=x.next();
        }
        public void put()
        {
                System.out.println("ID="+id);
        System.out.println("Salary="+salory);
        System.out.println("Name="+name);
        }
        public void grade()
```

```
        {
                if(salory>=50000)
                System.out.println("your First grade");
        else if(salory>=35000 && salory<=49999)
                System.out.println("your second grade");
else if(salory>=10000 && salory<=34999)
                System.out.println("your Third grade");
                else
                System.out.println("Your wrong number");
        }
}
class mainclass
{
        public static void main(String arg[])
        {
                java.util.Scanner p=new java.util.Scanner(System.in);
                System.out.print("Enter array size");
                int size=p.nextInt();
                ajay s[]=new ajay[size];
                for(int i=0;i<s.length;i++)
                {
                        s[i]=new ajay();
```

```
                    s[i].get();
                    s[i].put();
                    s[i].grade();
                }
        }
        }
```

Output:-

```
Enter array size 2
Enter employee id 1234
Enter employee Salary 54600
Enter employee Name ajay
ID=1234
Salary=54600
Name=ajay
your First grade
Enter employee id 12345
Enter employee Salary 15400
Enter employee Name vijay
ID=1234
Salary=54600
Name=ajay
your First grade
```

This keyword:- **It is use to convert local variable's convert into class variable.**

Example:-

```
public class MyClass {
  int x;
  public MyClass(int x) {
    this.x = x;
  }
  public static void main(String[] args)
  {
        System.out.println("Enter one number");
        java.util.Scanner X= new
java.util.Scanner(System.in);
        int m;
        m=X.nextInt();
    MyClass myObj = new MyClass(m);
    System.out.println("Your value x= " + myObj.x);
  }
}
```

Output:-

```
Enter one number 6

Your value x= 6
```

Created by Ajay Kumar Verma