Todays Topic

- Function Arguments part-2

functions

```
returntype function_name (datatype args1 , . . . )
        {
        Statements
        ----------
        ----------
        ----------
        return value ;
       }
```

Functions returning value

- ex: Z = 100 + fact (5) ;
- If function is returning a value then it can be any datatype indicating the type of value the function is going to return such as **int, long, float, double, char, boolean** etc.
- Such functions are used in expression.

Functions not returning value

- ex: graphics.drawLine (10 , 20 , 50 , 80);
- If function is not returning any value then return type must be **void**.
- Such functions cannot be used in expression.

Function Arguments

- While calling a function we can pass some data (actual parameters) .
  - For ex: star(25); → Actual Parameters
  - Syntax: **value/variable/exp**
- This data is passed on to function as arguments (formal parameters).
  - Syntax: **datatype argname**
- According to argument value received the function can perform different task
- Note:
  - actual and formal parameters must be same in
    - No. of arguments
    - Data types of arguments
    - Sequence of arguments

Formal Parameters

```
returntype function_name (datatype argsl ,...)
        {
        Statements
        --------------
        --------------
        --------------
        return value ;
        }
```

```
class demo
{
public static void main(String args[])
            {
            interest( 5000, 10.25, 3 );
            System.out.println( );
            interest( 20000, 9.75, 1 );
            }

static    void interest (int P, double R, int N  )
            {
            double si = P * R * N / 100.0;
            System.out.println("Simple Interest is " +si);
            }
}
```

Design a function interest which will calculate and print simple interest from 3 arguments P R and N.

Output :

Simple Interest is 1537.50

Simple Interest is 1950.00

```
returntype function_name (datatype args1  , . . . )
  {
   Statements
    ----------
   return value ;
  }
```

```
class demo
{
public static void main(String args[])
        {
        volume( 5.6, 4.3, 3.1 );
        System.out.println( );
        volume( 2, 5, 3 );
        System.out.println( );
        volume( 2.5, 7.5f, 3 );
        }

static   void volume (double L, double B, double H  )
        {
        double v = L * B * H ;
        System.out.println("volume of box is " + v );
        }
}
```

Note: if we want to pass actual argument of different types (i.e. int, float, double etc) then formal argument must be of higher type (i.e. double).

Design a function volume which will calculate and print volume of box from 3 arguments L B and H.

Output :

volume of box is 74.64
volume of box is 30.0
volume of box is 56.25

```
returntype function_name (datatype args1  , . . . )
  {
   Statements
    --------------
   return value ;
  }
```

```
class demo
{
public static void main(String args[])
            {
            volume( 5.6 );
            System.out.println( );
            volume( 2.2f );
            System.out.println( );
            volume( 4 );
            }

 static   void volume (double R  )
            {
            double v = 4/3.0 * 3.14 * R * R *R ;
            System.out.println("volume of sphere is " + v );
            }
}
```

Design a function volume which will calculate and print volume of sphere from specified radius which is passed as argument.

Output :

volume of sphere is 733.40
volume of sphere is 44.56
volume of sphere is 267.87

```
returntype function_name (datatype args1  , . . . )
  {
   Statements
    ---------------
   return value ;
  }
```

```
import java.util.Scanner;
class demo
{
public static void main(String args[])
        {
        Scanner stdin=new Scanner(System.in);
        System.out.println( “Enter Radius :” );
        double n = stdin.nextDouble( );
        volume( n );
        }

static   void volume (double R  )
        {
        double v = 4/3.0 * 3.14 * R * R *R ;
        System.out.println(“volume of sphere is “ + v );
        }
}
```

Note: whenever a primitive type of variable is passed as argument , then actually the value of variable is passed to function.

Design a function volume which will calculate and print volume of sphere from specified radius which is passed as argument.

Output :

Enter Radius : 4

volume of sphere is 267.87

```
returntype function_name (datatype args1  , . . . )
  {
   Statements
    ---------------
   return value ;
  }
```

```
import java.util.Scanner;
class demo
{
public static void main(String args[])
        {
        Scanner stdin=new Scanner(System.in);
        System.out.println( “Enter Radius :” );
        double n = stdin.nextDouble( );
        area( n );
        circumference( n );
        }
static   void area (double R  )
        {
        double a = 3.14 * R * R  ;
        System.out.println(“area of circle is “ + a );
        }
static   void circumference (double R  )
        {
        double c = 2 * 3.14 * R  ;
        System.out.println(“circumference of circle is “ + c );
        }
}
```


Design 2 functions area and circumference which will calculate and print area and circumference of circle from specified radius which is passed as argument.

Output :

Enter Radius : 5

area of circle is 78.5

circumference of circle is 31.4

```
returntype function_name (datatype args1  , . . . )
  {
   Statements
    --------------
   return value ;
  }
```

```
class demo
{
public static void main(String args[])
            {
            sum( 10  );
            System.out.println( );
            sum( 5 );
            }

 static   void sum (    int n  )
            {
            int s = 0 ;
            for( int i=1 ; i<=n ; i++ )
                        s = s + i ;
            System.out.println(" Sum is "+ s );
            }
}
```

Design a function sum which will display sum of all numbers from 1 to specified number.

Output :

```
Sum is 55
Sum is 15
```

```
returntype function_name (datatype args1  , . . . )
  {
   Statements
    ---------------
   return value ;
  }
```

```
class demo
{
public static void main(String args[])
        {
        fact( 5  );
        System.out.println( );
        fact( 7 );
        }

static   void fact (    int n  )
        {
        int s = 1 ;
        for( int i=1 ; i<=n ; i++ )
                s = s * i ;
        System.out.println(" Factorial is "+ s );
        }
}
```

Design a function fact which will display factorial of specified number which is passed as argument.

Output :

```
Factorial is 120
Factorial is 5040
```

```
returntype function_name (datatype args1  , . . . )
  {
   Statements
    --------------
   return value ;
  }
```

Todays Topic End