Training On Java

Lecture – 3
Loop Controls In Java

Loop Controls In Java

If you have a block of code which you want to execute repeatedly then you can use a loop control. In java there are four types of loop controls in java:-

1. while
2. for
3. do – while
4. for each

While Loop

While is a keyword which works as a loop control. While is an entry control. The syntax of while loop is given below:-

Initialization of loop counter;

while(Condition)

{

//Body of Loop

Updation of loop counter;

}

Example Application -1

```
// Develop a program in java to generate series of even numbers from 1- 100
class Test {
public static void main(String [] args) {
int i=1;
while(i<=100)
{
if(i%2==0) {
    System.out.print(i+” ”);
}
i++;
}
}
}
```

Example Application -2

```
//Develop a program to find sum of digits of given number
import java.util.Scanner;
class Test {
public static void main(String [] args) {
int n;                  //The variable which store the number
int sum=0;              //The variable which stores the result (Sum of digits)
int r;                  //The variable which stores the result
Scanner sc=new Scanner(System.in);
System.out.print("Enter the number to find sum of digits : ");
n=sc.nextInt();
while(n>0) {
r=n%10;
sum=sum+r;
n=n/10;
}
System.out.println("Sum of digits = "+sum);
}}
```

Example Application -3

```
//Develop a program to find factorial of given number
import java.util.Scanner;
class Test {
public static void main(String [] args) {
int n;
int f=1;
Scanner sc=new Scanner(System.in);
System.out.print(“Enter the number to find factorial : ”);
n=sc.nextInt();
while(n>0) {
f=f*n;
n--;
}
System.out.println(“Factorial = ”+f);
}}
```

O/P:- Enter the number to find factorial : 5
Factorial = 120

For Loop

For is a keyword which works as loop control. The for is also entry control. The working of for loop is same as while loop. But syntax is different.

Syntax of for loop:-

```
for (initialization ;condition  ;increment/decrement )
{
//Body of loop
}
```

Example Application - 4

```
//Develop a program in java to generate Fibonacci sequence
import java.util.Scanner;
class Test {
public static void main(String [] args) {
int n1=0,n2=1,n3,n,i;
Scanner sc=new Scanner(System.in);
System.out.print(“How many terms ? ”);
n=sc.nextInt();
System.out.println(“Fibonacci Sequence”);
System.out.println(n1);
System.out.println(n2);
for(i=1;i<=n-2;i++) {
n3=n1+n2;
System.out.println(n3);
n1=n2;
n2=n3;
}
}
}
```

Nested For - Loop

If you use a for loop inside another for loop then it is called as nested for loop.

Syntax of Nested for – loop:-

```
for(initialization;condition;updation)
{
//Code
for(initialization;condition;updation)
{
//Code
}
//Code
}
```

Example Application - 5

```
//Develop a program in java to print prime numbers from 1-100
import java.util.Scanner;
class  Prime {
public static void main(String [] args) {
int i,j,c=0;
System.out.println("Series of prime numbers from 1 to 100");
for(i=1;i<=100;i++) {
c=0;
for(j=1;j<=i;j++) {
if(i%j==0) {
c++;
}
}
if(c==2)
System.out.print(i+" ");
}
}}
```

Do – While Loop

Do-while is a loop control, which works as exit control. In do-while loop the condition is tested at exit point i.e. after execution of code. We use do-while when we need to execute the code at least one time either condition is true or false.

Syntax of do-while loop:-

```
Initialization of loop counter;
do
{
//Code
Updation of loop counter;
}
while (Condition);
```

Example Application - 6

```
class Test
{
public static void main(String[] args)
{
 int i=0;
do
{
System.out.println("Softpro");
i++;
}
while (i<10);
}
}
```