Training On Java

Lecture – 2
Decision Controls In Java

Decision Control (If)

Decision Controls are used for decision making. The decision controls in java are given below:-

1. If statement
2. If – else statement
3. Ladder if – else statement
4. Switch

if Statement:- if is a keyword which works like decision control. We attach a condition with if statement.

If given condition is true then code will executed and if given condition is false then it do nothing.

Syntax:-

```
if(Condition)
{
//Code
}
```

Example Application -1

```
import java.util.Scanner;
class DecisionControlDemo1 {
public static void main(String [] args) {
int num;
Scanner sc=new Scanner(System.in);
System.out.print(“Enter a number : ”);
num=sc.nextInt();
if(num==1) {
System.out.println(“Hi……”);
}
System.out.println(“Outside of if statement”);
}
}
```

Decision Control (If- Else)

if-else is the variation of if statement. We attach a condition with if statement. If given condition is true then if block code will executed and if given condition is false then else block code will executed.

Syntax of if –else:-

```
if(Condition)
{
//if block code
}
else
{
//else block code
}
```

Example Application -2

```
//Develop a program in java to find greatest no. in two numbers

import java.util.Scanner;

class DecisionControlDemo2 {

public static void main(String [] args) {
    int a,b;

Scanner sc=new Scanner(System.in);

System.out.print("Enter two numbers : ");

a=sc.nextInt();

b=sc.nextInt();

if(a>b) {

System.out.println("Greatest No.="+a);

}

else {

System.out.println("Greatest No.="+b);

}

} }
```

Example Application -3

```
//Develop a program in java to find roots of quadratic equation
import java.util.Scanner;
import java.util.Math;
class Quad {
public static void main(String [] args) {
double a,b,c;
Scanner sc=new Scanner(System.in);
System.out.print(“Enter the value of a : ”);
a=sc.nextDouble();
System.out.print(“Enter the value of b : ”);
b=sc.nextDouble();
System.out.print(“Enter the value of c : ”);
c=sc.nextDouble();
double dis=Math.pow(b,2)-4*a*c;
if(dis<0) {
System.out.println(“Roots are imaginary”);
}
else {
double root1=(-b+Math.sqrt(dis))/(2*a);
double root2=(-b-Math.sqrt(dis))/(2*a);
System.out.println(“Root 1=”+root1);
System.out.println(“Root 2=”+root2);
}}}
```

Output

O/P 1:-

Enter the value of a : 1

Enter the value of b : 2

Enter the value of c : 3

Roots are imaginary

O/P 2:-

Enter the value of a : 1

Enter the value of b : -2

Enter the value of c : 1

Root 1=1.0

Root 2=1.0

Decision Control (Ladder If - Else)

If you have multiple conditions and you want to execute the code based on those conditions then you can use ladder if – else .

The syntax of if – else ladder is given below:-

```
if(condition1)
{
//code 1
}
else if(condition2)
{
//code 2
}
else if(condition3)
{
//code 3
}
else
{
//code 4
}
```

Example Application - 4

Develop a program in java to calculate electricity bill. Take number of units consumed by user and based on units calculate the bill. The parameters are given below:-

Unit range	**Charge per unit**
1-150	2.40 Rs./Unit
For next 151-300	3.00 Rs./Unit
For next more than 300	3.20Rs./Unit

```
import java.util.Scanner;
class ElectricityBill
{
public static void main(String [] args)
{
int unit;
double bill=0.0;
Scanner sc=new Scanner(System.in);
System.out.print(“Enter the no. of units consumed : ”);
unit=sc.nextInt();
```

Example Application – 4 (cont..)

```
if(unit<=150)
{
bill=unit*2.40;
}
else if(unit>150 && unit<=300)
{
bill=(150*2.40)+(unit-150)*3.00;
}
else
{
bill=(150*2.40)+(150*3.00)+(unit-300)*3.20;
}
System.out.println("Your bill="+bill);
}
}
```

O/P:-

Enter the no. of units consumed : 200

Your bill=510.00

Decision Control (switch)

Switch is a keyword in java which works as case control. It is used to make menu based program.

1) Switch statement is used to declare multiple selections.

2) Inside the switch It is possible to declare any number of cases but is possible to declare only one default.

3) Switch is taking the argument the allowed arguments are **a. byte b. short c. int d.char e.String (allowed in 1.7 version)**

4) Float and double and long is not allowed for a switch argument because these are having more number of possibilities (float and double is having infinity number of possibilities) hence inside the switch statement it is not possible to provide float and double as a argument.

5) Based on the provided argument the matched case will be executed if the cases are not matched default will be executed.

Syntax Of Switch

```
switch(argument)
{
case    label1 :
sop(“ “);break;
case   label2  :
sop(“ “);break;
|
|
default :  sop(“  “); break;
}
```

Example Application - 5

```
//Develop a program in java to make a temperature convertor
import java.util.Scanner;
class TempConv
{
public static void main(String [] args {
double c,f;
int ch;
Scanner sc=new Scanner(System.in);
System.out.println(“Enter 1 for c to f”);
System.out.println(“Enter 2 for f to c”);
ch=sc.nextInt();
switch(ch)
{
case 1:
System.out.print(“Enter temperature in c : ”);
c=sc.nextDouble();
f=(9*c)/5+32;
System.out.println(“Temperature in f=”+f);
break;
```

Example Application – 5 (cont..)

```
case 2:
System.out.print(“Enter temperature in f : ”);
f=sc.nextDouble();
c=(f-32)*5/9;
System.out.println(“Temperature in c=”+c);
break;
default:
System.out.println(“Invalid choice”);
break;
}
}
}
```

O/P:-

```
Enter 1 for c to f
Enter 2 for f to c
1
Enter temperature in c : 12
Temperature in f=53.6
```