**Java Conditional and Loop Statements**  
   
Java Flow Control  
    i) Java Conditional Statements  
    2) Java Loop Statements  
--------------------------------------------------------------  
**i) Java Conditional Statements**  
> Conditional Statements are used to insert verification points and error handling.  
  
a) Two types of Conditional statements in Java  
1) if statement  
  
2) switch Statement  
------------------------  
b) Types of Conditions  
1) Single Condition (Positive and Negative Conditions)  
  
Ex:  
  
if (a > b) {  
-----  
----  
}  
---------------  
if (!(a < b)){  
------  
----------  
}  
--------------------  
2) Compound Condition  
  
Ex:  
  
if ((a > b) && (a < C)){  
--------  
--------  
}  
  
if ((a > b) || (a < C)){  
--------  
--------  
}  
------------------------------  
3) Nested Condition  
  
if (a>b){  
 if (a>c){  
  if (a>d){  
}  
}  
}  
----------------------------------  
c) Usage of Conditional Statements  
**1) Execute a block of statements when condition is True.**  
Syntax:  
  
if (Condition){  
Statements  
--------  
---------  
------  
}  
  
Example:  
  
public class Flow Control {  
    public static void main (String []args){  
  
    int a, b;  
    a=50; b=200;  
          
    if (a > b){  
    System.out.println("A is a Big Number");  
    }  
}  
}  
------------------------------  
**2) Execute a block of statements when a compound Condition is True.**  
Syntax:  
  
if ((Condition1) && or || (Condition2)) {  
Statements  
---------  
---------  
}  
  
Example:  
  
public class FlowControl {  
    public static void main (String []args){  
  
    int a, b, c;  
    a=50; b=40; c=30;  
          
    if ((a > b) && (a > c)) {

    System.out.println("A is a Big Number");  
    }  
}  
}  
----------------------------  
**3) Execute a block of statements when condition is True, otherwise execute another block of statements.**  
Syntax:  
  
if (Condition) {  
Statements  
---------  
---------  
}  
else   
{  
Statements  
---------  
---------  
}  
  
Example:  
  
public class FlowControl {  
    public static void main (String []args){  
    int a, b;  
    a=50; b=50;  
          
    if (a > b){  
    System.out.println("A is a Big Number");  
    }  
    else  
    {  
    System.out.println("B is a Big Number");      
    }  
}  
}  
------------------------------  
**4) Decide among several alternates (else if structure)**  
Syntax:  
  
if (Condition1){  
Statements  
-----------  
}  
else if (Condition2) {  
Statements  
-----------  
}  
else if (Condition3) {  
Statements  
-----------  
}  
else if (Condition4) {  
Statements  
-----------  
}  
else  
{  
Statements  
-----------  
}  
  
Example:  
  
Initialize a integer variable, and Verify the Number.

A=56 // number is a Small Number.

A=950 // number is a Medium Number

A= 6500 // Big No

A > 110000 // HIGH No

If all above cond are falsethen 0 or negative no  
  
if the number is in between 1 and 100 then display number is a Small Number.  
  
if the number is in between 101 and 1000 then display number is a Medium Number.  
  
if the number is in between 1001 and 10000 then display number is a Big Number.  
  
if the number is more than 10000 then display number is High Number.  
  
Otherwise display Number is either Zero or Negative number.  
------------------------------------------------------  
public class FlowControl {  
    public static void main (String []args){  
    int a =-100;  
      
    if ((a >= 1) && (a <= 100)){  
        System.out.println("A is a Small Number");  
    }  
    else if ((a > 100) && (a <= 1000)){  
    System.out.println("A is a Medium Number");  
    }  
      
    else if ((a > 1000) && (a <= 10000)){  
        System.out.println("A is a Big Number");  
        }  
    else if (a > 10000) {  
        System.out.println("A is High Number");  
        }  
    else  
    {  
        System.out.println("A is either Zero or Negative Number");  
    }  
}  
}  
------------------------------------------  
**5) Execute a block of statements when more than one condition is True.**  
Syntax:  
  
if(Condition1){ TRUE  
 if(Condition2){ TRUE   
  if(Condition3){ FALSE  
  Statements  
  --------  
  --------  
}  
  
}  
  
}

{ \_ IF CONd 1

{ - 2nd IF

{3rd IF

Statemnets 3

} – ELSE 1

------

} 2nd ELSE

------

} -3rd ELSE  
---------------------------------  
Examples:  
----------------------------  
i) Else part for 1st condition only  
  
public class FlowControl {  
    public static void main (String []args){  
    int a =90, b=80, c=777, d=2;  
      
    if (a> b){ FASLE  
    if (a>c){  
    if (a>d){  
    System.out.println("A is a Big Number");  
    }  
    }  
    }  
    else   
    {  
    System.out.println("A is Not a Big Number");  
    }  
}  
}  
----------------------------------  
ii) Else part for 2nd condition only  
  
if (a> b){ TRUE  
if (a>c){ FALSE  
if (a>d){  
System.out.println("A is a Big Number");  
}  
}  
else   
{  
System.out.println("A is Not a Big Number");  
}  
}  
---------------------              
iii) Else part for 3rd condition only  
              
if (a> b){ TRUE  
if (a>c){ TRUE  
if (a>d){ FALSE  
System.out.println("A is a Big Number");  
}  
else   
{  
System.out.println("A is Not a Big Number");  
}  
}  
}  
-

{

{

{

}

3rd cond else {

}

2nd else {

}

1st else {

}

-------------------------  
iv) Else parts for all conditions  
  
public class FlowControl {  
public static void main (String []args){  
int a =10, b=8, c=7, d=2;  
      
if (a> b){  
if (a>c){  
if (a>d){  
System.out.println("A is a Big Number");  
}  
else // for 3rd condition (A<D)  
{  
System.out.println("A is Not a Big Number");  
}  
}  
else  //for 2nd condition (A<C)  
{  
System.out.println("A is Not a Big Number");  
}  
}  
else  // for 1st Cond (A<B)  
{  
System.out.println("A is Not a Big Number");  
}  
}  
}  
--------------------------------------              
**Get Biggest number out of Four Numbers (else if and compound conditions)**  
public class FlowControl {  
public static void main (String []args){  
int a =10, b=8, c=7, d=2;  
      
if ((a>b) && (a>c) && (a>d)){  
System.out.println("A is a Big Number");  
}  
else if (((b>a) && (b>c) && (b>d))) {  
System.out.println("B is a Big Number");      
}  
else if (((c>a) && (c>b) && (c>d))) {  
System.out.println("C is a Big Number");      
}  
else{  
System.out.println("D is a Big Number");  
}  
}  
}  
-----------------------------  
**6) Decide among several alternates (using Switch case structure)**  
Syntax:  
  
switch (expression) {  
case value:  
Statements  
-------  
-------  
break;  
case value:  
Statements  
-------  
-------  
break;  
case value:  
Statements  
-------  
-------  
break;  
  
default  
Statements  
---------  
---------  
----------  
}  
---------------------------------  
Example:  
  
public class FlowControl {  
public static void main (String []args){  
char grade= 'X';  
          
switch (grade){  
      
case 'A': //case –Java Keyword Grade= A  
System.out.println("Excellent");  
break;  
  
case 'B':  
System.out.println("Well Done");  
break;  
  
case 'C':  
System.out.println("Better");  
break;  
              
default:  
System.out.println("Invalid Grade");  
}  
}  
}  
--------------------------------------------------------------  
**ii) Java Loop Statements**  
Loop statements for repetitive execution.  
  
a) for loop  
  
b) while loop  
  
c) do while loop  
  
d) Enhanced for loop  
-----------------------------------------  
a) for loop  
Description: It repeats a block of statements for a specified number of times.  
  
Syntax:  
  
for (starttValue; endValue; increment/decrement){  
Statements  
-------  
-------  
}  
  
Example1:  
//Print 1 to 10 Numbers

Start value = 1

Endvalue =10  
  
for(int i=1; i<=10; i++){ //11

System.out.println(i); //1,2,3,---------------------------10

}  
-----------------------------  
Example2:  
//Print 10 to 1 Numbers  
  
for(int i=10; i>=1; i--){ i=10 ,TRUE , 10 , counter=9

I=9, TRUE , 9 , counter=8

I=1, TRUE, 1, counter=0  
System.out.println(i);  
}  
----------------------------------  
Example3:  
//Print 1 to 10 Numbers except 7  
  
for(int i=1; i<=10; i++){  
if (i != 7){  
System.out.println(i);  
}  
-----------------------------------------  
Example4:  
//Print 1 to 10 Numbers except 4th number and 7th Number  
  
for(int i=1; i<=10; i++){  
if ((i != 4) && (i != 7)){  
System.out.println(i);  
}  
}  
----------------------------------------------  
b) while loop  
Description: It repeats a block of statements while condition is true.  
  
Syntax:  
  
Initialization  
while (Condition){  
statements  
--------  
-------  
increment/decrement  
}  
  
Example1:  
//Print 1 to 10 Numbers  
  
int i = 1;  
while (i <= 10){  
System.out.println(i);  
i++;  
}  
----------------------------------  
Example2:  
//Print 10 to 11 Numbers  
  
int i = 10;  
while (i >= 1){  
System.out.println(i);  
i--;  
}  
}  
-------------------------------  
Example3:  
//Print 1 to 10 Numbers except 7  
  
int i = 1;  
while (i <= 10){  
if (i != 7){  
System.out.println(i);  
}  
i++;  
}  
-----------------------------------------  
c) do while loop  
Description: It repeats a block of statements while condition is true.  
It executes a block of statements at least once irrespective of the condition.  
  
Syntax:  
  
Initialization  
do  
{  
Statements  
---------  
---------  
increment/decrement  
} while (Condition);  
  
Example:  
  
int i = 1;  
do  
{  
System.out.println(i);  
i++;  
} while (i<=10);  
-----------------------------------  
int i = 20;  
do  
{  
System.out.println(i);  
i++;  
} while (i<=10);  
-------------------------------------------  
d) Enhanced for loop  
It Executes all elements in an Array.  
  
Syntax:  
  
Array Declaration  
  
for (declaration: Expression/Array){  
Statements  
------  
}  
  
Examples:  
  
String [] languages ={"C", "COBOL", "Java"};  
          
for (String lang: languages){  
System.out.println(lang);  
}  
----------------------------------  
String [] languages = new String[3];  
languages[0] ="C";  
languages[1] ="COBOL";  
languages[2] ="Java";  
      
for (String lang: languages){  
System.out.println(lang);  
}  
---------------------------------------  
int [] mathOperations = new int[3];  
int a=10, b=20;  
          
mathOperations[0]= a+b;  
mathOperations[1]= a-b;  
mathOperations[2]= a\*b;  
                  
for (int operation: mathOperations){  
System.out.println(operation);  
}  
---------------------------------------------  
double [] mathOperations = new double[4];  
double a=10, b=20;  
          
mathOperations[0]= a+b;  
mathOperations[1]= a-b;  
mathOperations[2]= a\*b;  
mathOperations[3]= a/b;  
          
for (double operation: mathOperations){  
System.out.println(operation);  
}  
--------------------------