

# DMS

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\* DMS

Decision Making Statement

→ It is a type of statement which we used to make a Decision to execute some set of statements based on condition or values.

\* In Java we have few types of DMS.

- 1) Simple if
- 2) if else
- 3) if else if ladder
- 4) Nested DMS
- 5) switch.

1) Simple if

→ It is a type of DMS which we used to make a Decision to execute some set of statements based on single condition.

\* Syntax of Simple if →

if

T/F

Syntax → if ( condition / boolean var )



{ } II statement

2) if else

syntax →

```
if ( condition / boolean var )
```

```
{           // statement 1;
```

```
}
```

```
else
```

```
{           // statement 2;
```

```
}
```

3) if else if ladder

syntax →

```
if ( condition 1 )
```

```
{           // statement 1;
```

```
}
```

```
else if ( condition 2 )
```

```
{           // statement 2;
```

```
}
```

```
else if ( condition N )
```

```
{           // statement N;
```

```
}
```

→ we can write n No. of else if conditions.

→ It is also called ladder if condition. Math the statement will be execute.

## ii) Nested DMS

→ One DMS is Present inside another DMS.

DMS  
{}

DMS  
{}

{

}

## 5) switch

→ It is a type of DMS which we use to make a Decision to execute some set of statement based on variable or value.

Syntax: →

```
switch( Var | Value )  
{
```

Case option1 : task1 ;  
break;

Case option2 : task2 ;  
break;

Case optionN : taskN ;  
break;

default : default task ;

}

**Rules.**

- 1) In switch break is not mandatory, but we will not use break then will not get the desired o/p.
- 2) Default is not mandatory, but for invalid input no actions will be perform.
- 3) We cannot use input as float, double, boolean, long.
- 4) In switch we cannot have duplicate case label.
- 5) In switch the input or case label can be of different datatype, but it should be convertable.

**Ex. 3) if else if ladder (Execution)**

1) `if ( condition1 ) {  
 // statement1;  
}`

`else if ( Condition2 ) {  
 // statement2;  
}`

`else {  
 // statement3;  
}`

2) `if ( Condition1 ) {  
 // statement1;  
}`

`else if ( Condition2 ) {  
 // statement2;  
}`

`else {  
 // statement3;  
}`

3) ~~`if ( Condition1 ) {  
 // statement1;  
}`~~

`else if ( Condition2 ) {  
 // statement2;  
}`

`else {  
 // statement3;  
}`

4) ~~`if ( Condition1 ) {  
 // statement1;  
}`~~

`else if ( Condition2 ) {  
 // statement2;  
}`

`else {  
 // statement3;  
}`

## # Programs! →

ii) class P1

```
public static void main (String [] args)
```

```
    int age = 19;
```

```
    if ( age > 18 )
```

```
        System.out.println ("Adult");
```

```
    } else
```

```
        System.out.println ("Not Adult");
```

```
}
```

```
{
```

Output → Adult.

Ex: → int age = 17; // Not Adult

int age = 18; // Not Adult

2) class P2

```
public static void main (String [] args)
```

```
int n = 6;
```

```
if (n % 2 == 0)
```

```
System.out.println ("Even No");
```

```
else
```

```
System.out.println ("Odd No");
```

```
}
```

O/P → Even No

2) Eg → int n = 7; // Odd No

int n = 1; // odd No

int n = 0; // Even No

3] package Pre\_Programming;  
import java.util.Scanner;  
public class P3  
{  
 public static void main (String [] args)

Scanner sc = new Scanner (System.in);  
int a = sc.nextInt();  
int b = sc.nextInt();

if ( a == b )

{ system.out.println ("Equal");

else

{ if ( a > b )

{ system.out.println ("A is Greater");

else

{ system.out.println ("A is Lesser");

}

}

}

O/P → 1] 10

2] 20

3] 10

20

10

10

A is Lesser

A is Greater

Equal

## AH-Method.

(4) 3.1)

```

package Pre_Programming;
import java.util.Scanner;
public class P4 {
    public static void main (String [] args) {
        Scanner sc = new Scanner (System.in);
        int a = sc.nextInt();
        int b = sc.nextInt();

        if (a == b) {
            System.out.println ("Equal");
        } else if (a > b) {
            System.out.println ("A is Greater");
        } else {
            System.out.println ("A is Lesser");
        }
    }
}

```

O/P: → 11 10

20

21 20

10

31 10

10

A is Lesser

A is Greater

Equal

class P5 {

public static void main (String [] args) {  
char ch = 'a';

if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u') {  
System.out.println ("Vowel:" + ch);  
} else {

System.out.println ("Consonant:" + ch);

}

{

Output: Vowel: a

Vowel: e

Consonant: b

Consonant: z

Consonant: A

```

1) class P6 {
    public static void main (String [] args) {
        int n = 7;

        if (n > 0) {
            System.out.println ("+ve integer");
        } else if (n < 0) {
            System.out.println ("-ve integer");
        } else {
            System.out.println ("0");
        }
    }
}

```

O/P. → 1)  $n=7$       2)  $n=-7$       3)  $n=0$   
       + ve integer      -ve integer      0

```
#1 class P7 {  
    public static void main ( String [] args ) {  
        int a = 12, b = 55, c = 18;  
  
        if ( a > b && a > c ) {  
            System.out.println ("Large No: " + a );  
        } else if ( b > a && b > c ) {  
            System.out.println ("Large No: " + b );  
        } else {  
            System.out.println ("Large No: " + c );  
        }  
    }  
}
```

Output:

Large No : 55

Q.8)

II Result

Marks	Grade
90 - 100	A
80 - 90	B +
70 - 80	B
60 - 70	C
50 - 60	D
40 - 50	D -
Marks	Fail
40	

Ans.

```

Eg → class P8 {
    public static void main ( String [ ] args ) {
        int score = 95 ;
        String grade ;

        if ( score >= 90 && score <= 100 )
            grade = "A" ;
        else if ( score >= 80 && score < 90 )
            grade = "B+" ;
        else if ( score >= 70 && score < 80 )
            grade = "B" ;
        else if ( score >= 60 && score < 70 )
            grade = "C" ;
        else if ( score >= 50 && score < 60 )
            grade = "D" ;
        else if ( score >= 40 && score < 50 )
    }
}
  
```

```
{  
    grade = "D-";  
} else if ( score < < 40 )  
}  
    grade = "Fail";  
}  
    grade = "Invalid Input";  
}  
System.out.println ("Your grade is : " + grade);  
}  
}
```

Output → Your grade is : A

## Nested DMS Q.

Q) WAP to check if given input is lower case vowel or lower case consonants or upper case vowel or upper case consonant or a number or special character using nested DMS.

Ans.

```

class PQ {
    public static void main (String [] args) {
        char ch = 'A'; // Input
        if (ch >= 'a' && ch <= 'z') // Lower range case
        {
            if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u')
                System.out.println ("Lower Case Vowel : " + ch);
            else
                System.out.println ("Lower Case Consonant : " + ch);
        }
        if (ch >= 'A' && ch <= 'Z') // Upper range case
        {
            if (ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U')
                System.out.println ("Upper Case Vowel : " + ch);
            else
                System.out.println ("Upper Case Consonant : " + ch);
        }
        else if (ch >= '0' && ch <= '9') // Check digit
        {
            System.out.println ("It is a number : " + ch);
        }
    }
}

```

else  
{

}

{

System.out.println ("It is a special character!" + ch);

O/P. →

Upper Case Vowel: A

switch

```

10] class P10 {
    public static void main (String [] args) {
        int a = 3;
        switch (a)
        {
            Case 1 : System.out.println ("English Language");
            break;

            Case 2 : System.out.println ("Hindi Language");
            break;

            Case 3 : System.out.println ("Marathi Language");
            break;

            default : System.out.println ("Invalid input");
        }
    }
}

```

O/P: Marathi language

## Method-0

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```
1) class PII {  
public static void main(String[] args) {  
    char ch = 'a';  
    switch(ch)  
    {
```

Case 'a' : System.out.println("Vowel a");  
break;

Case 'e' : System.out.println("Vowel e");  
break;

Case 'i' : System.out.println("Vowel i");  
break;

Case 'o' : System.out.println("Vowel o");  
break;

Case 'u' : System.out.println("Vowel u");  
break;

default : System.out.println("Consonant");

}

}

O/P: Vowel a

## Method-02

```

12] class P12 {
    public static void main ( String [] args ) {
        String ch = "G1";
        switch ( ch ) {
            case "a" : ;
            case "e" : ;
            case "i" : ;
            case "o" : ;
            case "u" : System.out.println ("vowel");
            break;
            default : System.out.println ("Consonant");
        }
    }
}
  
```

O/P:→ Consonant