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Subject # Object oriented
programming

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Q No 1 How many variables are being supported by java justify your answer with the help of java coded example for each variable?

Ans

There are three types of variables in java.

→ Local variable

→ Instance variable

→ Static variable.

→ Local variable:

(1)

A variable declared

(2)
inside the body of the method
is called local variable. Following
the java coded example.

```
public class Dog
{
    public void putAge ()
    {
        int age = 0; // local variable
        age = age + 4;
        System.out.println ("Dog age is: "
            + age);
    }
    public static void main (String args[])
    {
        Dog d = new Dog ();
        d.putAge ();
    }
}
```

output

Dog age is: 4

(2) Instance variable!

(3)

A variable declare inside the class but outside the body of methods is called instance variable.

Following java coded Example:

```
public class Instanceex {  
    double speed;  
    int horsepower;  
    public double get speed () {  
        return speed;  
    }  
    public void set speed (double  
speed) {  
        this . speed = speed;  
    }  
    public int get hp () {  
        return horsepower;  
    }  
    public void set gear (int horsepower) {  
        this . horsepower = horsepower;  
    }  
}
```

(4)

(3)

Static Variable :-

A variable which is declared as static is called static variable. It cannot be local. You can create a single copy of static variable and share among all the instances of the class. Following java coded example:

Class Variable Demo

```
{
    static int count = 20;
    public void increment ()
    {
        count ++;
    }
    public static void main (String args[])
    {
        Variable Demo obj 1 = new Variable Demo ();
        Variable Demo obj 2 = new Variable Demo ();
        obj 1 . increment ();
        obj 2 . increment ();
    }
}
```

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```
System.out.println ("Obj1: count is = " + obj1.Count);  
System.out.println ("Obj2: count is = " + obj2.Count);  
}  
}
```

Output

Obj1: Count is = 2

Obj2: Count is = 2

Q No 2 Why if is used in java justify your answer with the help of java coded example and explain in detail?

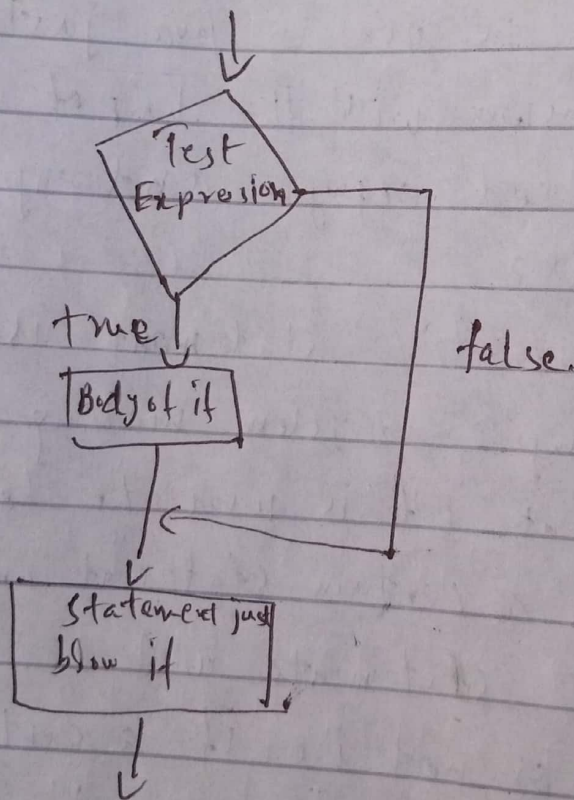
Ans The java 'if' statement is most simple decision-making statement. It is used to decide whether a certain statement or block of statements will be executed or not i.e if a certain condition is true then a block of statement is executed otherwise not.

(6)

General Syntax :-

```
if (condition)
{
    // Statement to execute if
    // Condition is true.
}
```

Flowchart :-



Coded program of if statement in java:

(7)

```
class { Demo }  
public static void main (String args[])  
{  
    int i = 10;  
    if (i < 15)  
    {  
        System.out.println ("10 is less  
                                than 15");  
        System.out.println ("outside if-  
                                block");  
    }  
}
```

Output :-

10 is less than 15.

Explanation

- (1) Program is start in java.
- (2) i is initialized to 10
- (3) if condition is checked
- (4) And the output is "10 less than 15" because the condition is true.

(8)

Q No 3

Why "if else if" is used in java
justify your answer with the help
of java coded example and explain
in details

Ans

In java, we have an if else if
ladder, that can be used to
execute one block of code among
multiple other blocks.

General Syntan.

```
if (expression1) {  
    // codes  
}  
else if (expression2) {  
    // codes  
}  
else {  
    // codes  
}
```


(9)

Example in java coding:

```
class Ladder {  
    public static void main (String args[])  
    {  
        int number = 0;  
        if (number > 0) {  
            System.out.println ("The number  
                is positive");  
        }  
        else if (number < 0) {  
            System.out.println ("The number  
                is negative");  
        }  
        else {  
            System.out.println ("The number  
                is 0");  
        }  
    }  
}
```

Output:

The number is 0

Explanation:

(10)

- (1) In the above example we have to create a class Jadder
- (2) then start the program on 'if-else-if'
- (3) We have take three conditions.
- (4) And the output of the program is "The number is 0" because this condition remains true. Then the system display this condition.

QNo 4 What are loops, why they are used in java justify your and how many types of loops are being supported by java explain in detail?

Ans In java, loops are used to the execution of a set of instruction/ functions repeatedly while some condition evaluates to true.

Java provides three types of looping following its detail:

(1) While loop:-

A while loop is a control flow statement that allows

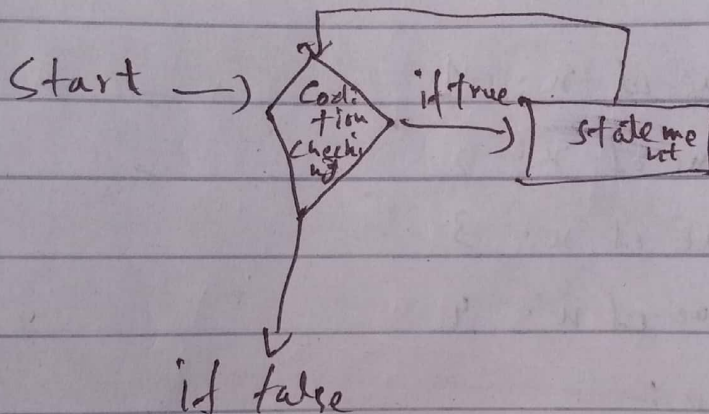
(11)

Code to be executed repeatedly based on a given boolean condition.

General syntax:

```
While (boolean condition)
{
    Loop statement
}
```

Flowchart:



Example

```
Class while loop Demo
{
    public static void main (String
                                args [])
    {
        int n = 1;
        while (n <= 4)
```

(12)
{ System.out.println ("Value of n = "
+ n);

n++;

// increment the value of n

// for next iteration

}

}

}

Output :-

Value of n: 1

Value of n: 2

Value of n: 3

Value of n: 4

(2) for loop :-

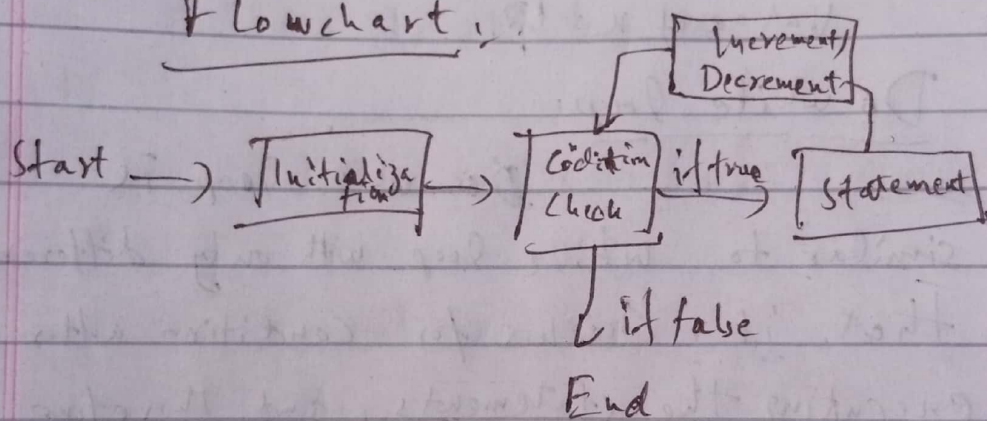
for loop provide a concise way of writing the loop structure. Unlike a while loop, a for loop statement consume the initialization, condition and increment / Decrement in one line thereby providing the shorter, easy to debug structure of looping.

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General Syntax

```
for (initialization condition; testing  
    condition; increment/decrement)  
{  
    Statement(s)  
}
```

Flowchart



Example :-

Class for loop Demo

```
{  
    public static void main (String args[])  
    {  
        for (int n=2; n<=4; n++)  
        {  
            System.out.println ("value of n: "  
                + n);  
        }  
    }  
}
```

```
}
}
}
```

Output

Value of n: 2
Value of n: 3
Value of n: 4.

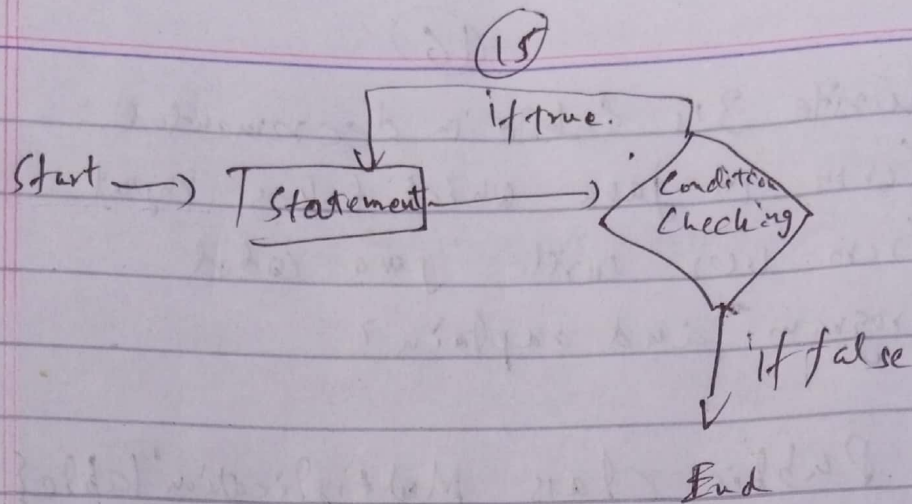
Do while loop:

Do while loop is similar to while loop with only difference that it checks for condition after executing the statements, and therefore is an example of exit control loop

General syntax:

```
do
{
  statements
}
while (condition);
```

Flowchart:



Coded example :-

Class do while loop Demo

```

{
    public static void main (String args[])
    {
        int x = 21;
        do
        {
            System.out.println ("value of x: " + x);
            x++;
        }
        while (x < 20);
    }
}
  
```

Output

value of x: 21

(16)

Q Nos Write 3's table in decremented form in java which takes input from user write java coded program and explain?

Ans

```
public class MultiplicationTable {
    public static void main (String args[])
    {
        int num = 3;
        for (int i = 10; i >= 1; i--)
        {
            System.out.printf (" %d x %d = %d \n",
                num, i, num * i);
        }
    }
}
```

Output:

3 x 10 = 30	3 x 3 = 9
3 x 9 = 27	3 x 2 = 6
3 x 8 = 24	3 x 1 = 3
3 x 7 = 21	
3 x 6 = 18	
3 x 5 = 15	
3 x 4 = 12	

(17)

Explanation 2

- (1) We have to start program in for loop.
- (2) Then executing the integer number
- (3) And then start for loop initialization condition and increment.
- (4) And then show our formality in the printing function.
- (5) And then showing the output on screen.