

**Q1. Explain Keywords in java programming?**

**Ans:** Keywords are reserved words that have a special meaning to the compiler

int void char float double long  
return if else switch case default  
break continue while do for class  
private public protected final  
static interface import instance of  
package extends super this  
synchronized true false null

1. Keywords always written in lower case
  2. Use space after keywords
  3. Identifier name should not be keyword.
- 

Q2. Explain Identifier in java Programming?

Ans: Identifier is a name given by the programmer. It may name of the variable, name of the object, name of the class, name of the methods

int num;

Rule 1: Identifier name may be combination of alphabet and digits but first character must be an alphabet.

Example:

```
int num123;//valid  
int 123num;//invalid  
int NUM123;//valid  
int num@123; //invalid  
int num 123;//Invalid
```

Rule 2: In java programming \_ and \$ symbol also count as an alphabet. It means we can use anywhere in the identifier name

Example:

int num 123;//invalid

int num\_123;//valid

int \_123;//valid

int \_;//valid

int \$123;//valid

Rule 3: In java Identifier name  
should not be keyword

int IF;//valid

Int if;//Invalid

Rule 4: In java Programming we  
can create identifier name with  
class Name or interface name but  
this is not recommended for good  
programming

Example:

```
int String;
```

```
String=10;
```

Rule 5: In java programming  
upper case and lower case both  
are different

```
int NUM;//valid
```

```
int num;//valid
```

```
int num; //invalid
```

```
int Num;//Valid
```

```
int nUm;//Valid
```

---

**Q3. Explain Some convention-of java programming?**

**Ans:**

**Class:**

1. Class Name should be written in Proper Case / Pascal Case

Example:

**String, System,**

**ArithmeticException,**

**ArrayIndexOutOfBoundsException**

2. Class name should be name

Example: Person, Category,

Product, Employee, Student

**Method :**

1. Method name should be start-with **Verb**

Example:

nextInt()

nextFloat()

2. Method Name should be written in camelCase

Example:

nextInt()

nextFloat()

Final Variable:

Should be written in UPPER CASE

final float PI=3.14f;

---

## Q2. How to set Path?

Ans:

Step 1: Will goto C Driver

Step 2: Program files

Step3: Click On Java

Step4: Click on Jdk 1.8

Step 5: Click on bin

Step 6: Copy the path from  
address bar

C:\Program

Files\Java\jdk1.8.0\_60\bin

Step 7: Will goto this PC and Right  
Click and Click on Properties

Step 8: Click On Advanced System  
Setting

**Step 9: Click on Envirement Variable**

**Step 10: In System Variables search a path and select and click on edit and Click on New and Paste the copied**

---

**Q4. How to check our java path is SET or not?**

**Ans:**

**Will goto command prompt and type javac and press Enter**

```
Microsoft Windows [Version 10.0.19045.4894]
(c) Microsoft Corporation. All rights reserved.

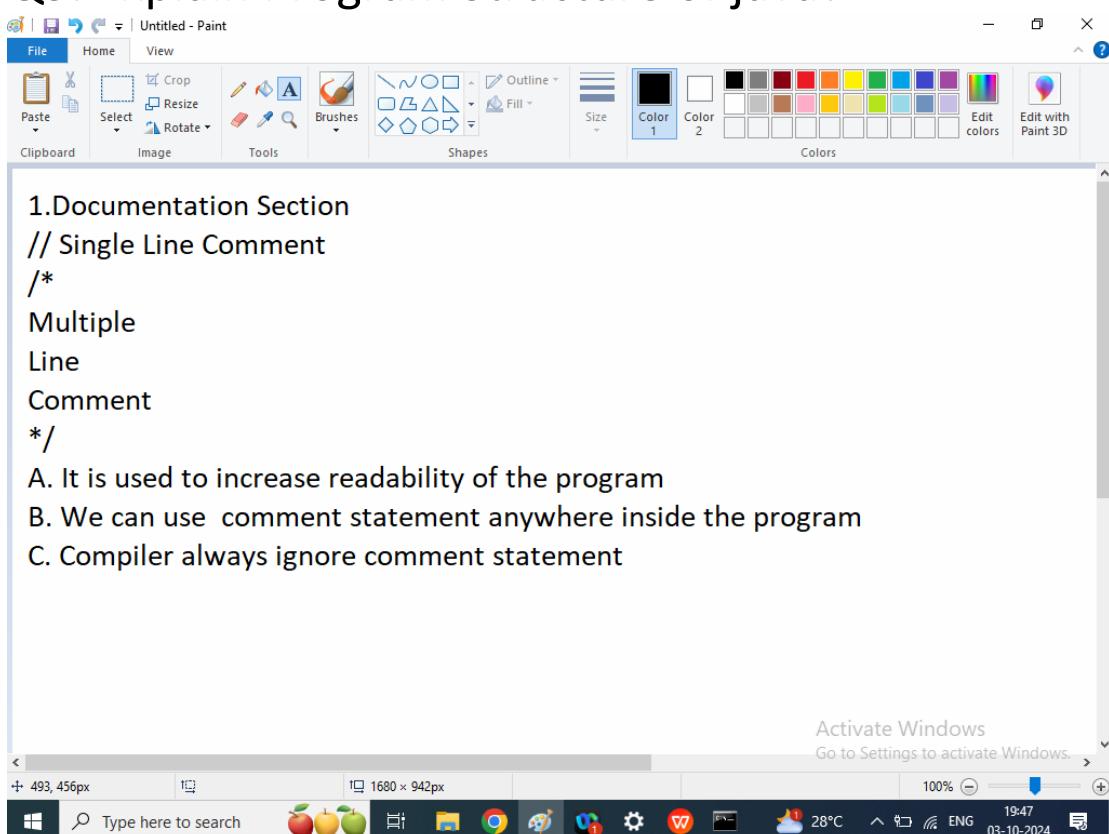
C:\Users\Admin>javac
Usage: javac <options> <source files>
where possible options include:
  -g                         Generate all debugging info
  -g:none                     Generate no debugging info
  -g:{lines,vars,source}       Generate only some debugging
info
  -nowarn                     Generate no warnings
  -verbose                    Output messages about what th
e compiler is doing
  -deprecation                Output source locations where
deprecated APIs are used
  -classpath <path>           Specify where to find user cl
ass files and annotation processors
  -cp <path>                  Specify where to find user cl
ass files and annotation processors
```

## Q5. Explain Program Structure of java?

1. Documentation Section

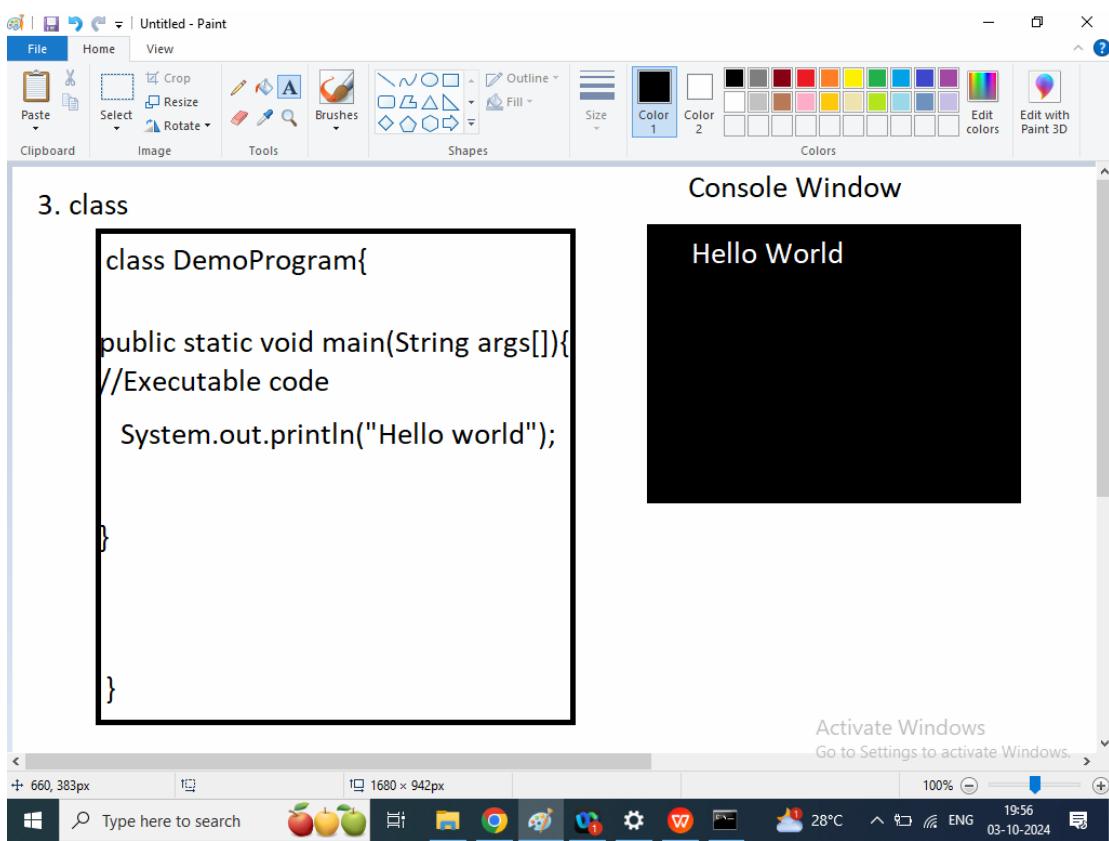
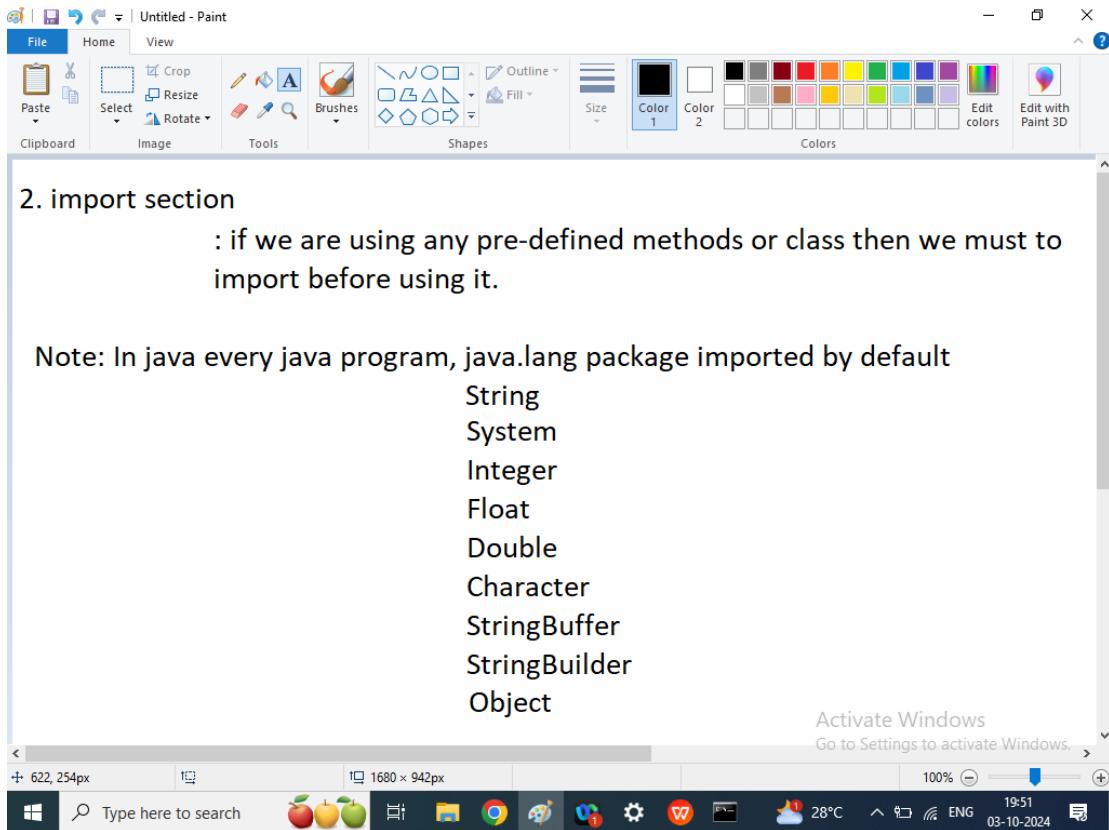
```
// Single Line Comment
/*
Multiple
Line
Comment
*/
```

A. It is used to increase readability of the program  
B. We can use comment statement anywhere inside the program  
C. Compiler always ignore comment statement



Activate Windows  
Go to Settings to activate Windows.

493,456px 1680 x 942px 100% 19:47 28°C ENG 03-10-2024





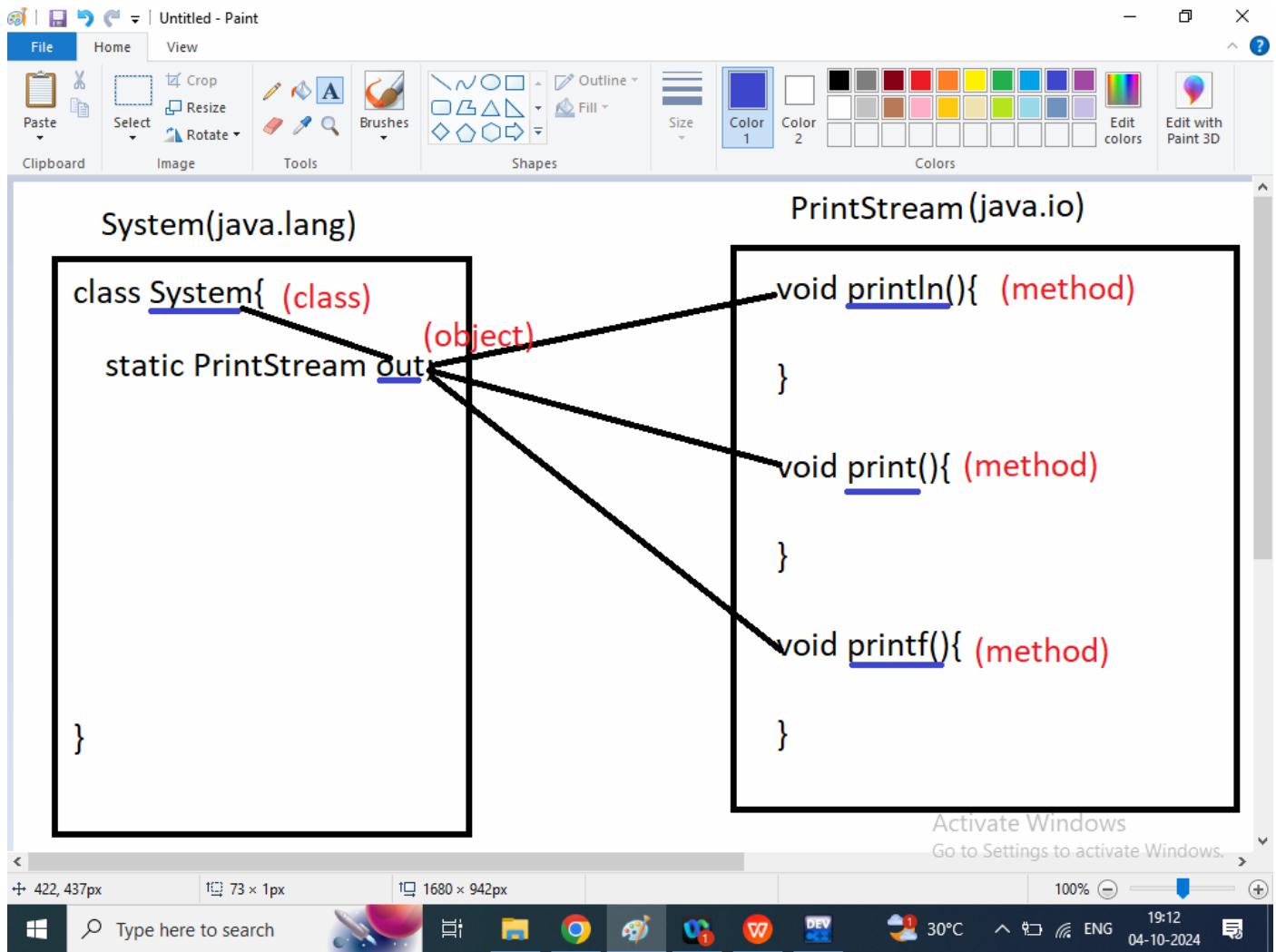
# Q1.Explain output functions in java programming?

Ans:

If we want to display some output on console window then we should go for output function

We discuss following output function in java programming

1. System.out.println()
2. System.out.print()
3. System.out.printf()



## Q2. Write a java program to print Hello World on the Screen



Write a program(Notepad)	Desktop(java task)	Compile and Run(CMD)
// This is my first program  class DemoProgram{ public static void main(String args[]){ System.out.println("Hello World"); System.out.println("Hello Java "); } }	Save  1. Class Name and File Name should be same  2. Extension Must be .java  DemoProgram.java	open command prompt  cd desktop cd java task  Syntax:(Compile) javac FileName.java Example: javac DemoProgram.java  Syntax: (Run) java ClassName java DemoProgram Hello World Hello Java

A screenshot of a Windows desktop environment. At the top, there is a taskbar with several pinned icons. Below the taskbar, the Start button is visible. The main area of the screen shows two windows: a Notepad window titled "DemoProgram - Notepad" containing Java code, and a Command Prompt window showing the execution and output of that code.

DemoProgram - Notepad

File Edit Format View Help

```
// This is my first program

class DemoProgram{
    public static void main(String args[]){
        System.out.println("Hello World");
        System.out.println("Hello Java ");
    }
}
```

Command Prompt

```
C:\Users\Admin>cd Desktop

C:\Users\Admin\Desktop>cd "Java Task"

C:\Users\Admin\Desktop\Java Task>javac DemoProgram.java

C:\Users\Admin\Desktop\Java Task>java DemoProgram
Hello World
Hello Java

C:\Users\Admin\Desktop\Java Task>
```

Activate Windows  
Go to Settings to activate Windows.

DemoProgram - Notepad

File Edit Format View Help

```
// This is my first program

class DemoProgram{
    public static void main(String args[]){
        System.out.print("Hello World");
        System.out.print("Hello Java ");
    }
}
```

Activate Windows  
Go to Settings to activate Windows.

Ln 6, Col 19 | 90% | Windows (CRLF) | UTF-8

Windows Start | Type here to search | File Explorer | Edge | Chrome | Paint | OneDrive | Word | Excel | Powerpoint | Mail | 30°C | 19:40 | ENG | 04-10-2024 |

A screenshot of a Windows desktop environment. At the top, there is a taskbar with several pinned icons: File Explorer, Microsoft Edge, Paint, File Explorer, Task View, File Explorer, and File Explorer. To the right of the taskbar is a system tray showing the date (04-10-2024), time (19:41), battery level (30°C), and language (ENG).  
  
The main area of the desktop contains two windows:  
  
1. A Notepad window titled "DemoProgram - Notepad" with the following content:

```
// This is my first program

class DemoProgram{
    public static void main(String args[]){
        System.out.print("Hello World");
        System.out.print("\nHello Java ");
    }
}
```

2. A Command Prompt window titled "Command Prompt" with the following output:

```
C:\Users\Admin\Desktop\Java Task>java DemoProgram
Hello World
Hello Java
C:\Users\Admin\Desktop\Java Task>
```

A screenshot of a Windows desktop environment. At the top, there is a taskbar with several pinned icons: File Explorer, Microsoft Edge, Paint, File Explorer, Task View, File Explorer, and File Explorer. To the right of the taskbar is a system tray showing the date (04-10-2024), time (19:42), battery level (30°C), and language (ENG).  
  
The main area of the desktop contains two windows:  
  
1. A Notepad window titled "DemoProgram - Notepad" containing the following Java code:

```
// This is my first program

class DemoProgram{
    public static void main(String args[]){
        System.out.printf("Hello World");
        System.out.printf("Hello Java ");
    }
}
```

2. A Command Prompt window titled "Command Prompt" showing the output of running the Java program:

```
Hello Java
C:\Users\Admin\Desktop\Java Task>javac DemoProgram.java

C:\Users\Admin\Desktop\Java Task>java DemoProgram
Hello WorldHello Java
C:\Users\Admin\Desktop\Java Task>
```

Below the windows, a message from Windows prompts activation:

Activate Windows  
Go to Settings to activate Windows.

The screenshot shows a Windows desktop environment. In the top-left corner, there is a Notepad window titled "DemoProgram - Notepad" containing Java code. Below it is a Command Prompt window titled "Command Prompt" showing the output of running the program. The taskbar at the bottom includes the Start button, a search bar, and various pinned icons. A system tray icon indicates the temperature is 30°C.

```
// This is my first program

class DemoProgram{
    public static void main(String args[]){
        System.out.printf("Hello World\n");
        System.out.printf("Hello Java ");
    }
}
```

```
C:\Users\Admin\Desktop\Java Task>java DemoProgram
Hello World
Hello Java
C:\Users\Admin\Desktop\Java Task>
```

## Q2. Explain Data type in java programming?

Ans: Data type can specify what type data can be stored and how many bytes memory could be allocated.

## Types of Data Type

### 1. Primitive Type/ Pre-defined Data type/ Built in Data type / Fundamental data type

A. **int** : if we want to store whole number then we should go for int data type

Purpose: Roll Number, Age, SNO, Century

Size: 4 byte

Format Specifier : %d

B. **float**: if we want to store a real number upto 6 decimal places then we should go for float.

Purpose: percentage, average, strike rate

Size : 4 byte

Format Specifier : %f

C. **double**: if we want to store a real number upto 15 decimal places then we should go for double data type.

Purpose: amount,

Size : 8 byte

## Format Specifier : %lf

D. char : if we want to store an single character  
then we should go for char data type

Size: 2 byte

E. boolean: It can store true and false type value

## 2. Non Primitive Data Type

A. String

B. StringBuffer

C. StringBuilder

D. Integer

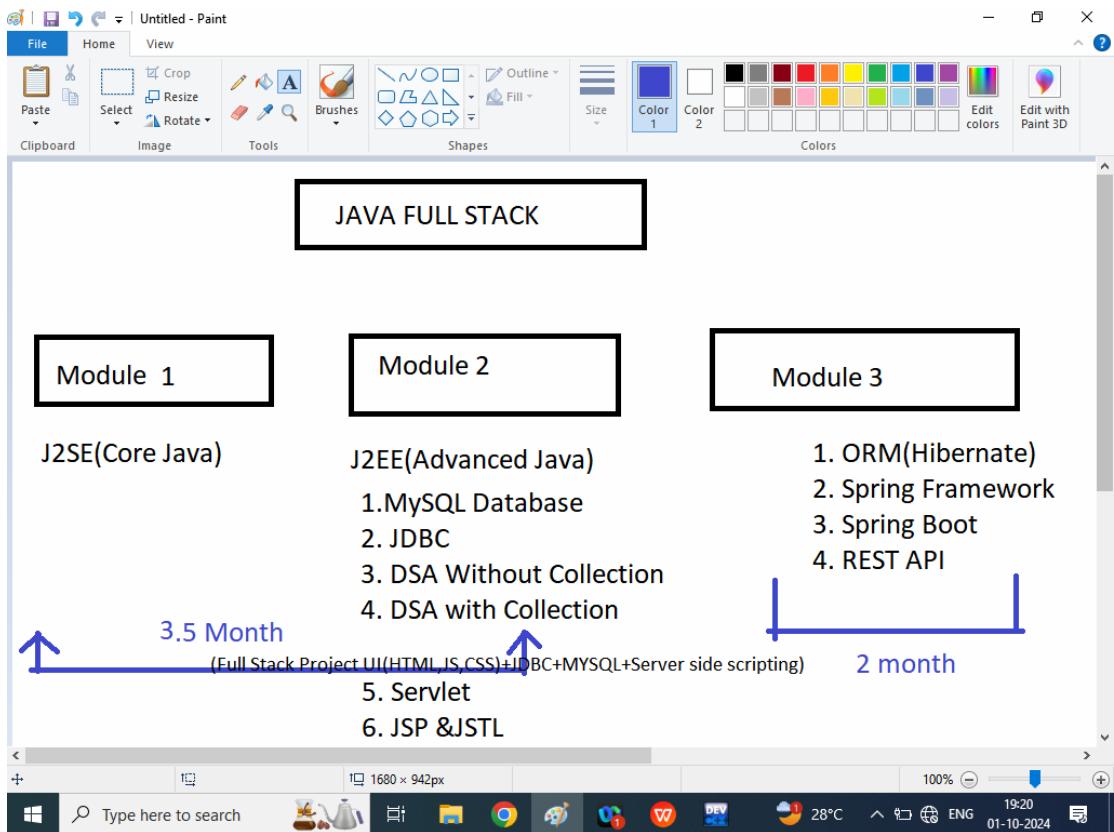
E. Float

F. Double

G. Character

H. Boolean

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## J2SE Syllabus

1. Basics of java programming
2. Software Requirement (JDK1.8, IDE [Netbeans,Eclipse, IntelJIDEA, VSCODE,STS],mysql 8.0)
3. How to download JDk, How install and Path Set
4. Structure of the java program
5. Keywords, Identifier
6. Java output methods
7. Data types
8. Variables
9. Input [BufferedReader, Scanner, Command Line Argument]

## MCQ TEST

## Input output Based Task

- 10. Operators
  - 11. Binary
  - 12. Unary
  - 13. Ternary
  - 14. Arithmetic Operators
  - 15. Relational Operator
  - 16. Logical Operators
  - 17. Bitwise Operators
  - 18. Ternary Operators
  - 19. Assignment Operator
  - 20. Operator Precedence
  - 21. Operator Associativity
  - 22. Table
- 

## MCQ TEST

---

- 23. Control Flow Statement
- 24. Conditional Statement
- 25. If
- 26. If else
- 27. Else if
- 28. nested if
- 29. Switch
- 30. Looping Statement
- 31. While
- 32. Do while
- 33. For
- 34. For each
- 35. Jumping Statement
- 36. Break

37. continue

38. return

39. System.exit(0)

40. Number Based Task

41. Coding Question on different platform

---

MCQ TEST

Number Based Task

Coding Test

---

42. Array

43. 1D Array

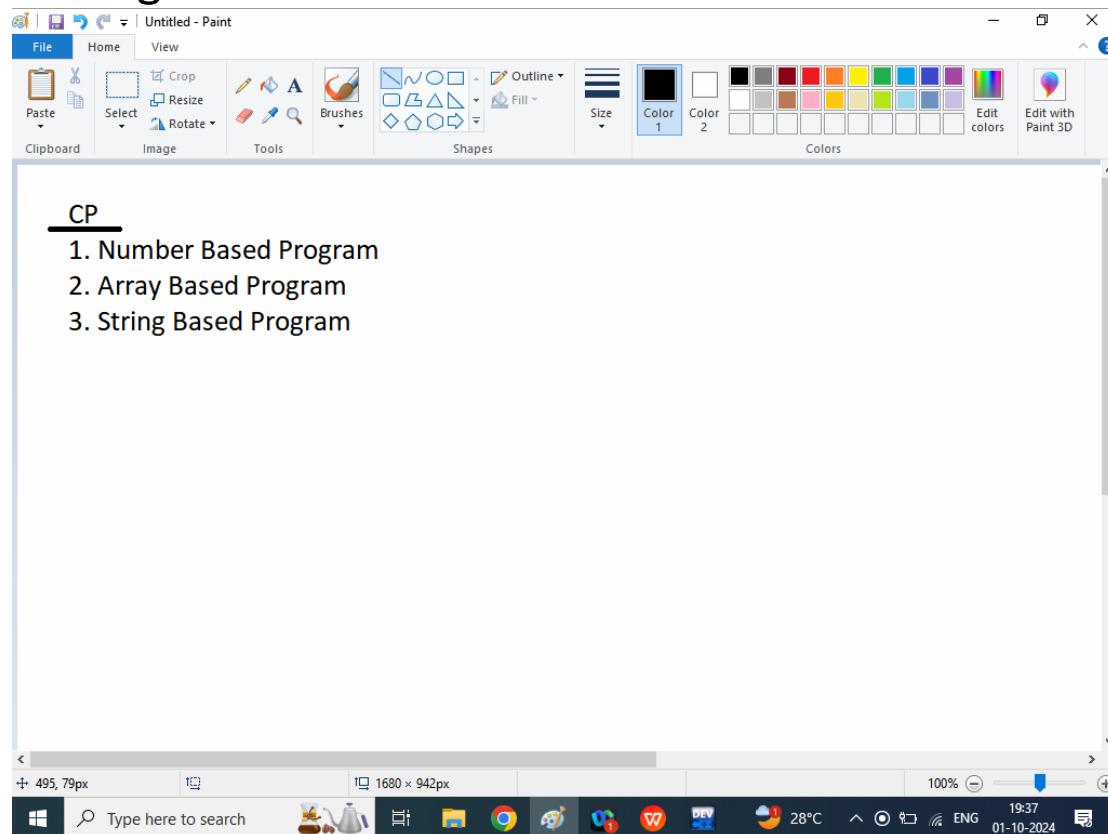
44. 2D Array

---

MCQ TEST

Array Based Task

Coding Test



- 45. String(Immutable)
  - 46. SCP(String Constant Pool)
  - 47. StringBuffer(Mutable)
  - 48. StringBuilder(Mutable)
- 

MCQ Test

String Based Task

Coding Test

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OOPS concept

- 49. Class
- 50. Object
- 51. Member Data
- 52. Member Function
- 53. Access Specifier (private, public, protected)
- 54. Constructor
- 55. Default Constructor
- 56. Parameterized Constructor
- 57. Encapsulation
- 58. Inheritance
- 59. Polymorphism
- 60. Compile time Polymorphism [method overloading]
- 61. Run time Polymorphism [Method Overriding]
- 62. Static variables
- 63. Static block
- 64. Static method
- 65. final variable
- 66. final methods
- 67. final class

- 68. Variable argument(...)
  - 69. Abstraction [abstract class, interface]
  - 70. Interface
  - 71. Multiple Inheritance through interface
- 

MCQ TEST

CODING TEST

OOPS BASED TASK

---

- 77. Exception Handling
  - 78. try
  - 79. catch
  - 80. throw
  - 81. Throws
  - 82. finally
  - 83. Pre - Defined Exception
  - 84. User Defined Exception
  - 85. Checked Exception
  - 86. Un Checked Exception
- 

MCQ Test

Coding Test

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- 87. JAVA SWING(UI)
- 88. IO (File Handling)
- 89. MySQL Database
- 90. How to create a database
- 91. How to create table
- 92. How to update table structure
- 93. How to insert data into table
- 94. How to update data
- 95. How to delete data

96. How to select data from the database table
  97. Aggregate function
  98. Where clause
  99. Order by
  100. Group by
  101. In
  102. Not in
  103. Between
  104. Not between
  105. Like
  106. Not Like
  107. Having
  108. Joins
  109. Inner Join
  110. Left Outer Join
  111. Right Outer Join
  112. Cross Join
- 

## JDBC

113. CRUD Operation without(design Pattern)
114. CRUD Operation with Design Pattern (Beans and DAOS)
115. Registration and login module for project without design pattern
116. Registration and login module for project with design pattern

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117. DSA without Collection
118. Linear Data Structure
119. Time Complexity

- 120. Space Complexity
- 121. Array
- 122. Stack
- 123. Queue
- 124. Linked List
- 125. Singly Linked List
- 126. Doubly Linked List
- 127. Circular Linked List
- 128. Sorting
- 129. Selection Sort
- 130. Bubble Sort
- 131. Insertion Sort
- 132. Merge Sort
- 133. Quick Sort
- 134. Heap Sort
- 135. Searching
- 136. Linear Search
- 137. Binary Search
- 138. Non Linear Data Structure
- 139. Tree
- 140. Tree Related Terms
- 141. Tree Traversal Technique
- 142. In Order
- 143. Pre Order
- 144. Post Order
- 145. Binary Tree and its types
- 146. Binary Search Tree
- 147. Almost complete Binary Tree

148. Heap Data structure

149. Max Heap

150. Min Heap

151. Heap Sort

152. Graph

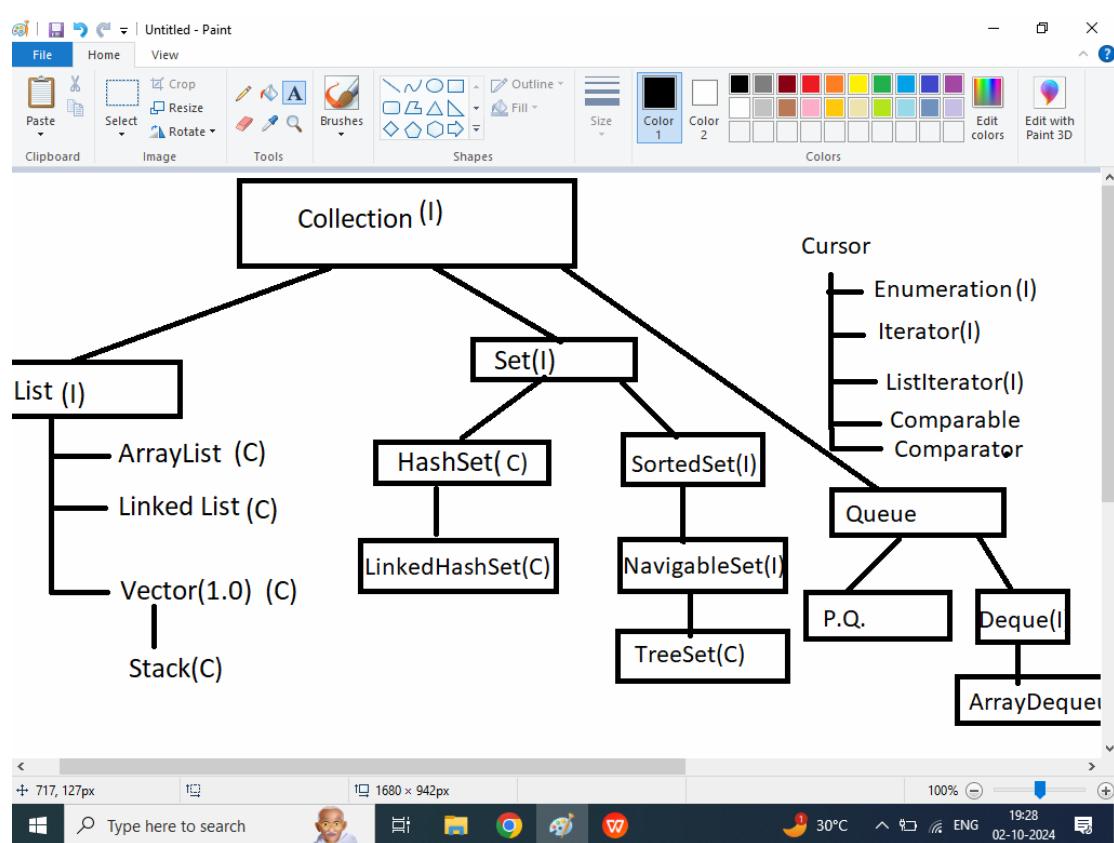
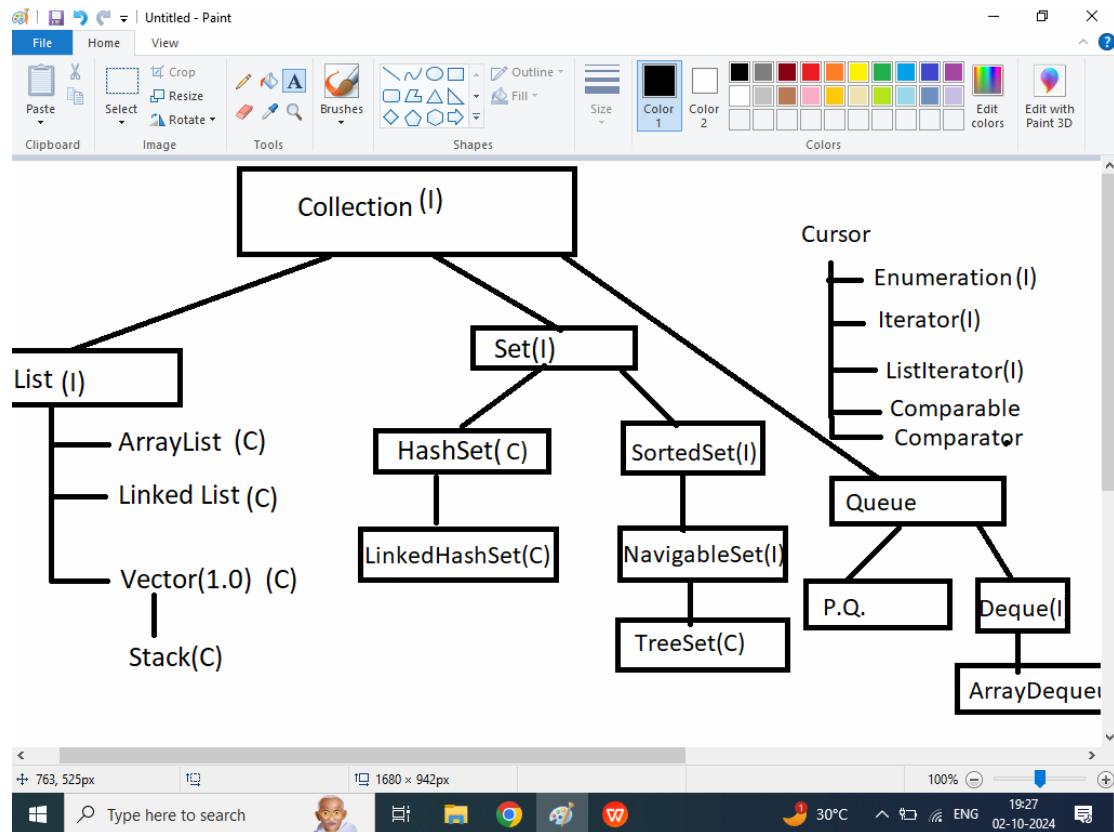
153. BFS (Queue)

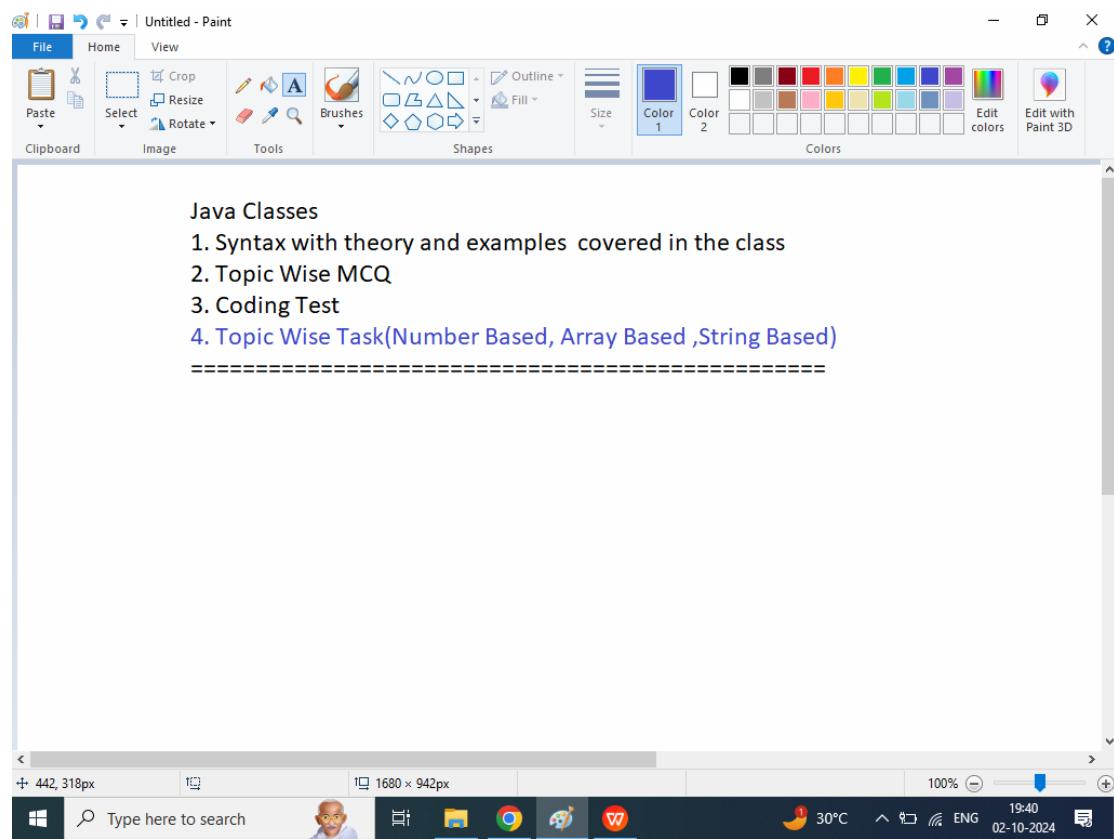
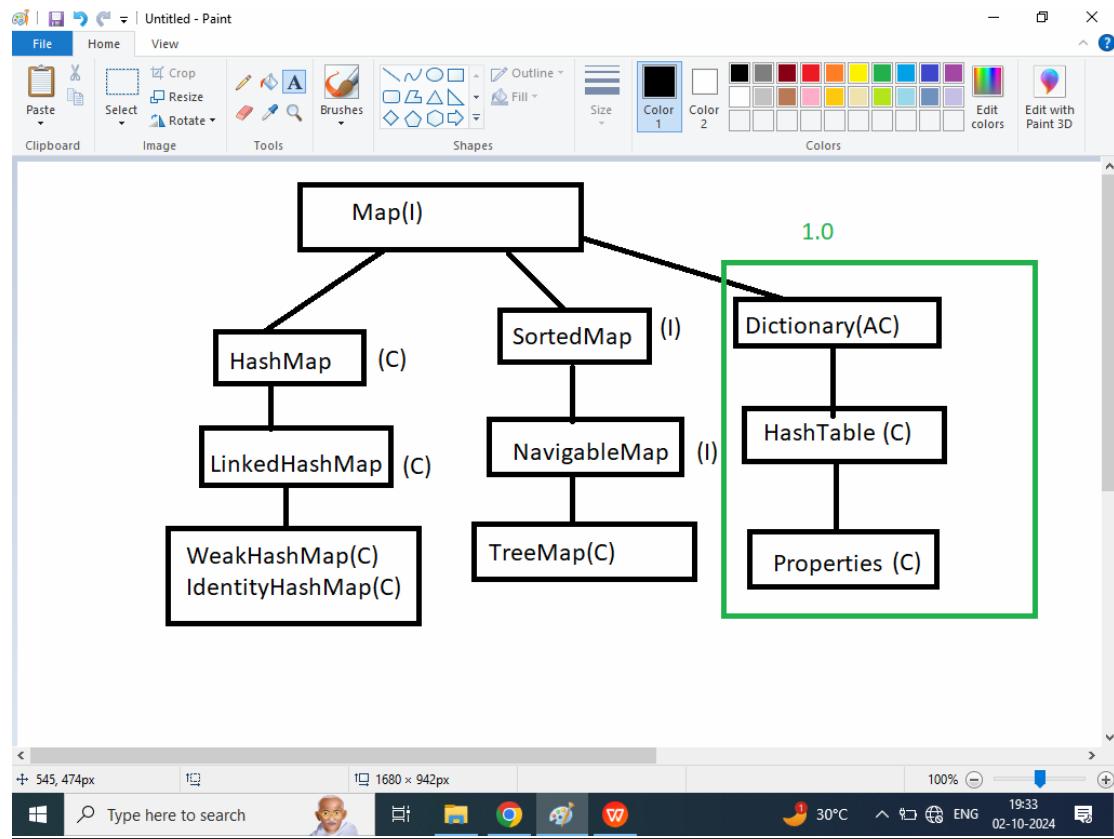
154. DFS(Stack)

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DSA Using Collection

## DSA With Collection Framework





**Q1. Overview of java programming?**

**Ans:**

1. Java is a programming language introduced in 1991 by the name “OAK”.
  2. It was re-released in 1995 by the name “Java”
  3. Java is product from sun micro system.
  4. Founder of java James gosling and his team
  5. Currently java acquired by an Oracle from jdk1.8
  6. Latest version of java is java 21
- 

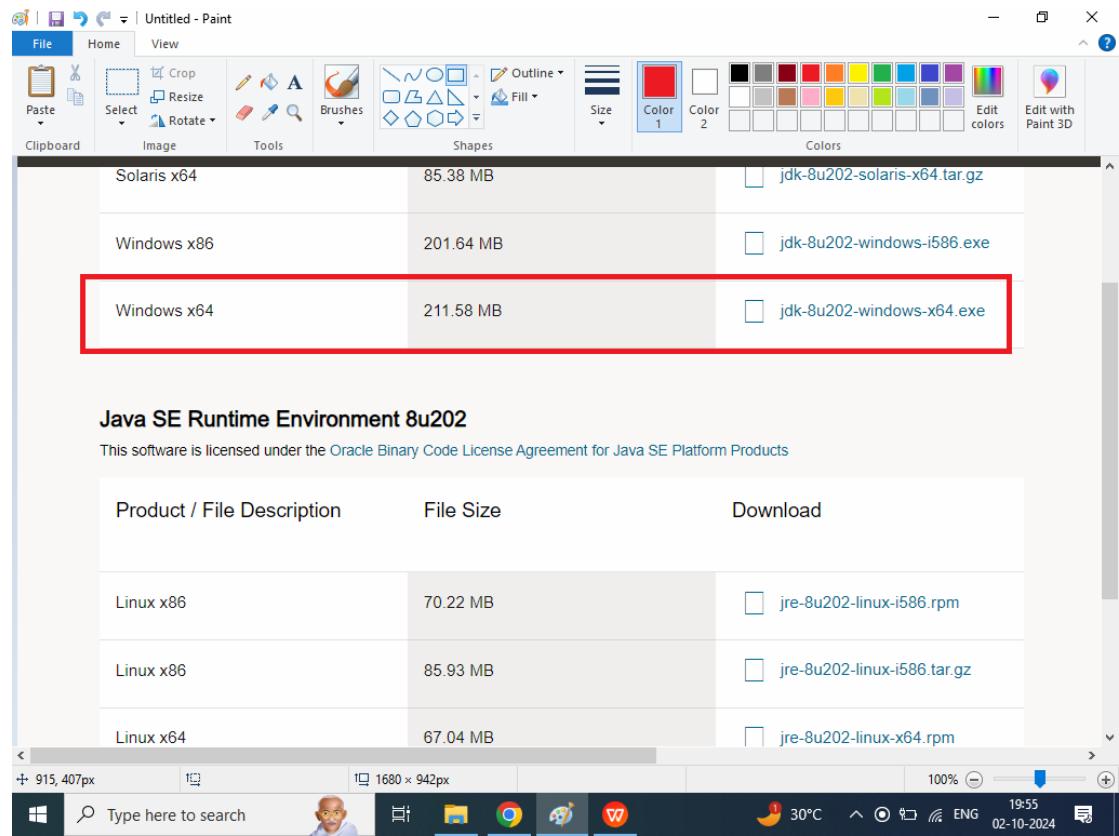
**Q2. Software Requirement for java full stack?**

**Ans:**

- A. JDK 1.8
- B. NOTEPAD
- C. Mysql(8.0)
  
- D. IDE [Netbeans, Eclipse, VS CODE, IntelliJIDEA,STS]
- E. POSTMAN

<https://www.oracle.com/in/java/technologies/javase/javase8-archive-downloads.html>

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Next class Topic:

1. How to set path in java
2. Java program structure
3. Sample program using java

Q1. Explain Data types in java programming?

Ans: Data type can specify what type data can be stored and how many bytes memory could be allocated

Types of data type

1. Primitive Data type / Pre-Defined Data type / Built in data type/ Fundamental data type

1. int : 4 byte %d -2147483648 To +  
2147483647

Long: if we want to store a number that is greater than integer then we should use long

Long 8 byte %ld

2. float: if we want to store a real number upto 6 decimal places then we should go for float data type

Example:

1.9  
1.99  
1.999  
1.9999  
1.99999  
1.999999

float 4 byte %f

3. double: if we want to store a real number upto 15 decimal places then we should go for double data type

Example:

1.9

1.99

1.999

1.9999

1.99999

1.999999

double 8 byte %f or %lf

4. char: if we want to store a character or alphabet then we should go for char data type

char 2 byte %c

5. boolean: if we want to store true and false type value then we should go for boolean data type

2. Non Primitive Data Type

- A. String(Immutable)
- B. StringBuffer(Mutable)
- C. StringBuilder(Mutable)
- D. Integer
- E. Float
- F. Double

- G. Long
- H. Character
- I. Boolean

---

## Q2. Explain Variables in Java Programming?

Ans:

- A. Variable is a temporary memory location it is used to store a value
- B. Value of variable may be changed during execution of the program
- C. Variable must be declared and initialize before using it.
- D. A variable can be store only one value at a time

Constant:

10,20, 'A','B'

Variable:

a,b,c

Steps of variable

**Step1: declaration of the variable**

Step2: Initialize the variable

Step3: Perform operations

Step4: Print Value of the variable

**Step1 : How to declare a variable in java  
programming**

Syntax:

Data type variableName;

int A,B,C;

OR

int A;

int B;

int C;

## **Step2 : How to initialize a variable in java**

LHS=RHS;

**LHS Must be a variable, and RHS may be constant, expression, variable**

A=10;

B=20;

10=A;//Invalid

10+20=C;// Invalid

## **Step3: Perform Operation**

C=A+B;

## **Step4: Print Value of the variable**

### **Print Value of variable without message**

- A. System.out.println(variableName);
- B. System.out.print(variableName);
- C. System.out.printf("Format Specifier",variableName);

### **Print Value of variable with message**

- D. System.out.println("Message "+variableName);
  - E. System.out.print("Message "+variableName);
  - F. System.out.printf("Message Format  
Specifier",variableName);
-

**Q1. How to take input from the user in java a programming?**

**Ans:** if we want to take quick input from the user then we should go for Scanner class

Scanner class is features of java 5.

If we use Scanner class in our program then we should follow the 3 steps

**Step1: import Scanner class in your program(outside the program , before class)**

import all classes and interfaces in your program  
import package.subpackage.\*

**Example**

```
import java.util.*;
```

import specific class in your program  
import packagename.subpackage.ClassName;  
**import java.util.Scanner;**

## **Step2: Create an Object of Scanner class [inside main]**

How to create an object in java(Syntax)

ClassName objName=new ClassName(Parameter);

Example:

Scanner sk=new Scanner(System.in);

## **Step3: Call method of Scanner class via object**

How to call method of any class

objectName.methodName();

int a=sk.nextInt();

float b=sk.nextFloat();

double c=sk.nextDouble();

String word=sk.next();

String sentence=sk.nextLine();

char ch=sk.next().charAt(0);

Q1. Write a java program to print sum of two numbers

Enter Number 1 : 12

Enter Number 2 : 13

Addition : 25

The screenshot shows a Windows operating system interface. At the top is a Notepad window titled "\*P1 - Notepad" containing Java code. The code defines a class P1 with a main method that uses Scanner to input two numbers and prints their sum. Below the Notepad is a taskbar with various pinned icons and a search bar. A notification bubble from Google Meet is visible, stating "meet.google.com is sharing your screen." with buttons for "Stop sharing" and "Hide". The taskbar also displays system information like battery level (70%), temperature (30°C), and date/time (08-10-2024).

```
//step1: import  
import java.util.Scanner;  
  
class P1{  
    public static void main(String args[]){  
        //step2: Create object  
        Scanner kb=new Scanner(System.in);  
        int n1,n2,n3;  
  
        //step3: call method  
        System.out.println("Enter Number 1 : ");  
        n1=kb.nextInt();  
        System.out.println("Enter Number 2 : ");  
        n2=kb.nextInt();  
  
        n3=n1+n2;  
        System.out.println("Addition : "+n3);  
    }  
}
```

---

Q2. Write a java program to calculate area and circumference of Circle?

Enter Radius: 2.0

Area : 12.56

Circumference: 12.56

P2 - Notepad

File Edit Format View Help

```
class P2{
    public static void main(String args[]){
        //step2: Create an object
        java.util.Scanner obj=new java.util.Scanner(System.in);

        float r,ar,cr;

        // step3: call Scanner class method
        System.out.println("Enter Radius : ");
        r=obj.nextFloat();

        ar=3.14f*r*r;
        cr=2*3.14f*r;

        System.out.println("Area : "+ar);
        System.out.println("Circumference : "+cr);
    }
}
```

Area : 12.56  
Circumference : 12.56

C:\Users\Admin\Desktop\Java Task>



P2 - Notepad

File Edit Format View Help

```
class P2{
    public static void main(String args[]){
        //step2: Create an object
        java.util.Scanner obj=new java.util.Scanner(System.in);

        double r,ar,cr;

        // step3: call Scanner class method
        System.out.println("Enter Radius : ");
        r=obj.nextDouble();

        ar=3.14f*r*r;
        cr=2*3.14f*r;

        System.out.println("Area : "+ar);
        System.out.println("Circumference : "+cr);
    }
}
```

Select Command Prompt

```
Enter Radius :
2.0
Area : 12.5600004196167
Circumference : 12.5600004196167
```

Type here to search



28°C 19:44 08-10-2024

Q3. Write a java program to print total Marks and Percentage of the Student?

```
Enter Name : Sanjay Kumar Jain
Enter Enrollment No: 0103CS181022
Enter Section : A
Enter Maths Marks: 88
Enter Physics Marks:71
Enter Chemistry Marks: 60
Enter Hindi Marks: 90
Enter English Marks: 56
```

```
=====
Name : Sanjay Kumar Jain
Enrollment No: 0103CS181022
Section : A
Maths Marks: 88
Physics Marks:71
Chemistry Marks: 60
Hindi Marks: 90
English Marks: 56
Total Marks: 365
Percentage: 73
```

```
import java.util.Scanner;
class P3{
    public static void main(String args[]){
        Scanner k=new Scanner(System.in);
        System.out.println("Enter Name : ");
        String name=k.nextLine();
        System.out.println("Enter Enrollment : ");
        String enroll=k.nextLine();
        System.out.println("Enter Section : ");
        char s=k.next().charAt(0);
        System.out.println("Enter Maths Marks : ");
        int m=k.nextInt();
        System.out.println("Enter Physics Marks : ");
        int p=k.nextInt();
        System.out.println("Enter Chemistry Marks : ");
        int c=k.nextInt();
        System.out.println("Enter Hindi Marks : ");
        int h=k.nextInt();
        System.out.println("Enter English Marks : ");
        int e=k.nextInt();

        int total=p+c+m+h+e;
        float per=total/5.0f;

        System.out.println("Name : "+name);
        System.out.println("Enrollment : "+enroll);
        System.out.println("Section : "+s);
```

```
System.out.println("Maths Marks : "+m);
System.out.println("Physics Marks : "+p);
System.out.println("Chemistry Marks : "+c);
System.out.println("Hindi Marks : "+h);
System.out.println("English Marks : "+e);
System.out.println("Total Marks : "+total);
System.out.println("Percentage : "+per);
}



---


```

Q1. Write a java program to print student information?

Name: Akash

Enrollment No : 0103CS181022

Section : A

Physics Marks: 67

Chemistry Marks: 78

Hindi Marks: 66

English Marks: 56

Maths Marks: 88

Total Marks: 355

Percentage : 71

---

```
class Info{
```

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

```
        //step1: Declaration
```

```
        String name;
```

```
String enroll;
char s;
int m;
int p;
int c;
int h;
int e;
int total;
float per;
//step2: Initialization
name="akash";
enroll="0103CS181022";
s='A';
m=88;
p=67;
c=78;
h=66;
e=56;
//step3:Operations
total=m+p+c+h+e;
```

```
per=total/5.0f;

//step4: Print Value of the
variable
System.out.println("Name :
"+name);

System.out.println("Enrollmentno :
"+enroll);
System.out.println("Section :
"+s);
System.out.println("Maths :
"+m);
System.out.println("Chemistry :
"+c);
System.out.println("Physics :
"+p);
System.out.println("Hindi : "+h);
System.out.println("English :
"+e);
```

```
    System.out.println("Total Marks  
: "+total);  
    System.out.println("Percentage:  
"+per);  
  
}  
}
```

---

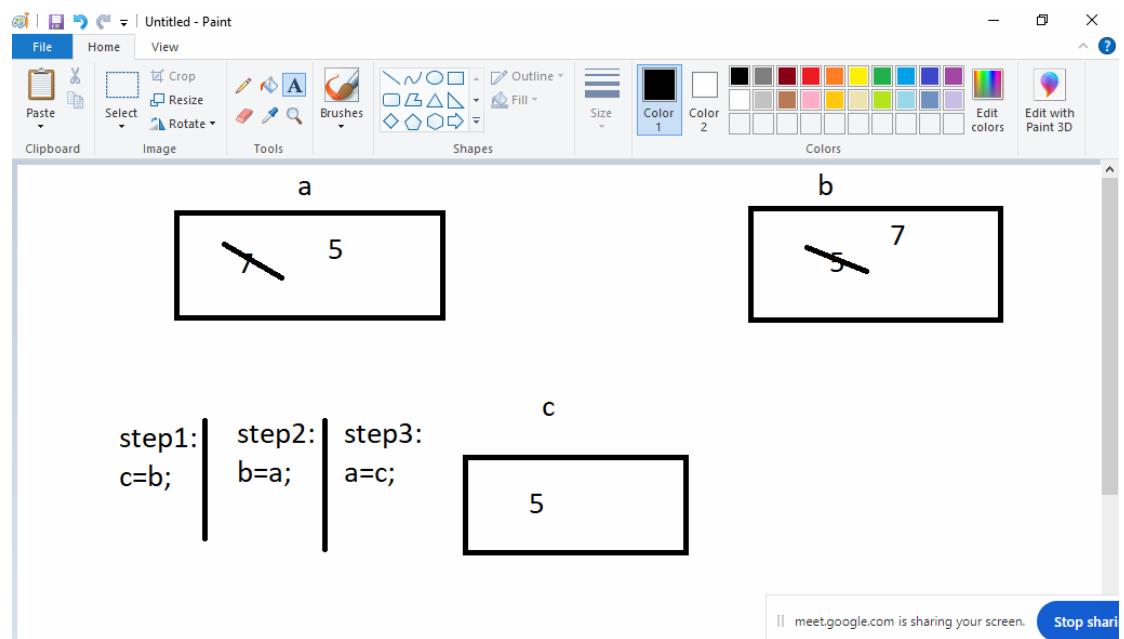
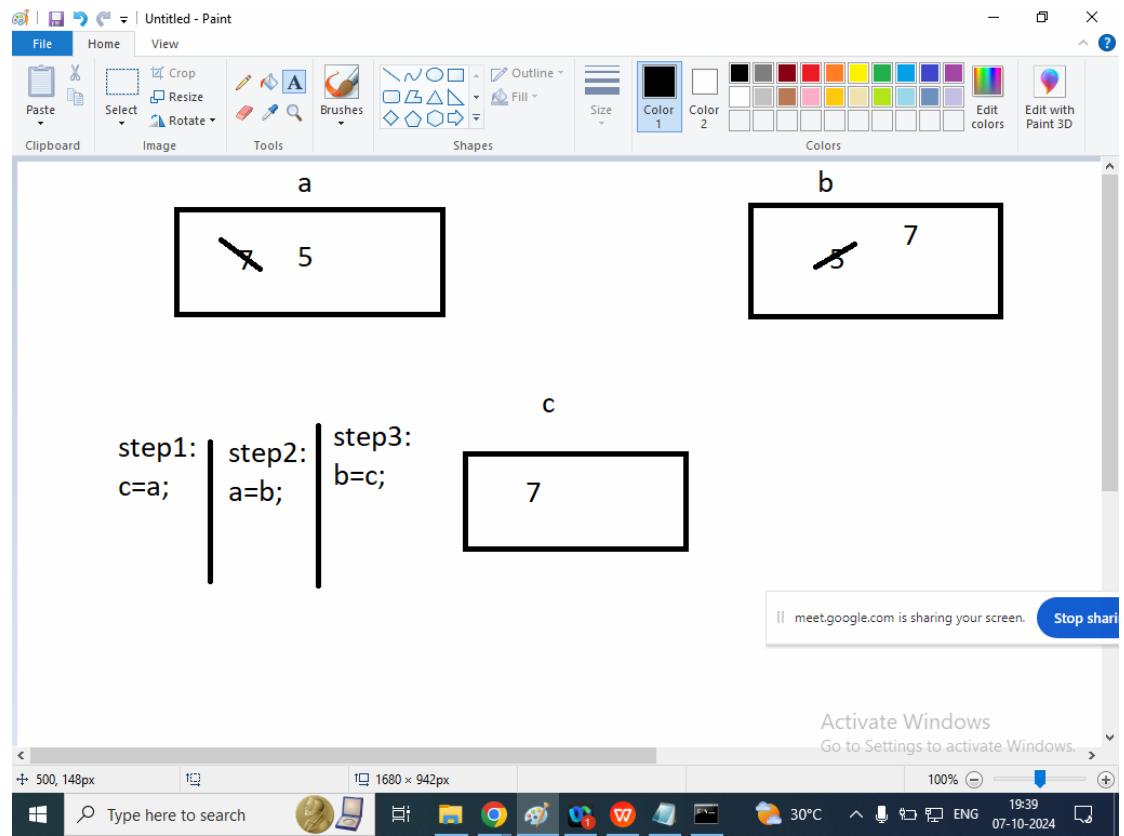
Q2. Write a java program to swap two numbers using third variable?

Before Swapping

A = 7 B= 5

After Swapping

A= 5 B=7



```
Swap1 - Notepad
File Edit Format View Help
class Swap1{
    public static void main(String args[]){
        int a,b,c;
        a=7;
        b=5;
        System.out.println("Before Swapping : ");
        System.out.printf("A =%d B= %d ",a,b);

        c=a;
        a=b;
        b=c;
        System.out.println("\nAfter Swapping : ");
        System.out.printf("A =%d B= %d ",a,b);
    }
}
```

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Activate Windows  
Go to Settings to activate Windows.

Ln 11, Col 6 90% Windows (CRLF) UTF-8  
Type here to search 30°C 19:44 07-10-2024

```
Swap1{
public static void main(String args[]){
    int a,b,c;
    a=7;
    b=5;
    System.out.println("Before Swapping : ");
    System.out.printf("A =%d B= %d ",a,b);

    c=b;
    b=a;
    a=c;
    System.out.println("\nAfter Swapping : ");
    System.out.printf("A =%d B= %d ",a,b);

}
}
```

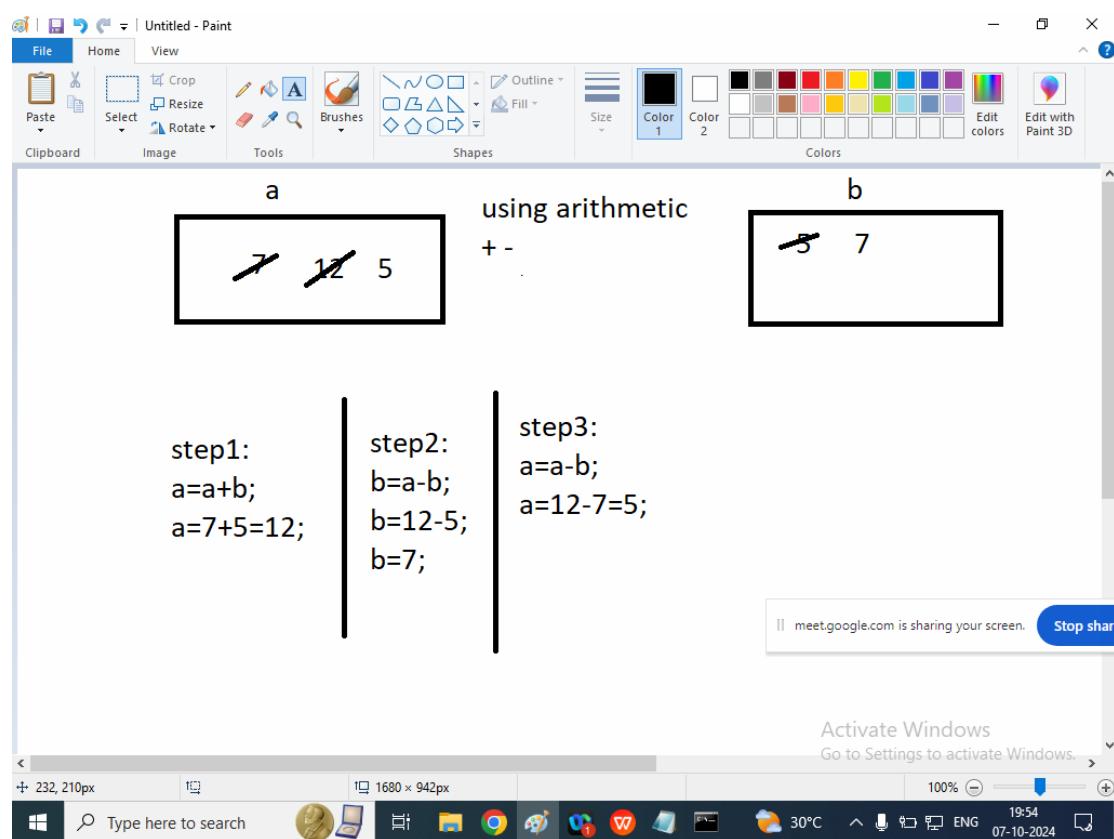
Q2. Write a java program to swap two numbers without using third variable?

Before Swapping

A = 7 B= 5

After Swapping

A= 5 B=7



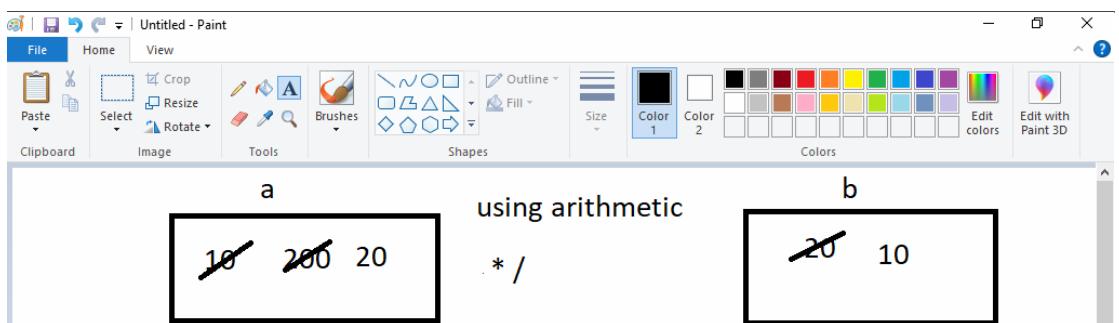
```

Swap1 - Notepad
File Edit Format View Help
class Swap1{
    public static void main(String args[]){
        int a,b;
        a=7;
        b=5;
        System.out.println("Before Swapping : ");
        System.out.printf("A =%d B= %d ",a,b);
        a=a+b;
        b=a-b;
        a=a-b;
        System.out.println("\nAfter Swapping : ");
        System.out.printf("A =%d B= %d ",a,b);
    }
}

```

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Activate Windows  
Go to Settings to activate Windows.



step1:  
a=a\*b;  
a=10\*20;  
a=200;

step2:  
b=a/b;  
b=200/20;  
b=10;

step3:  
a=a/b;  
a=200/10;  
a=20

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Activate Windows  
Go to Settings to activate Windows.



```

class Swap1{
    public static void main(String args[]){
        int a,b;
    }
}

```

```
a=10;
b=20;
System.out.println("Before Swapping : ");
System.out.printf("A =%d B= %d ",a,b);
a=a*b;
b=a/b;
a=a/b;
System.out.println("\nAfter Swapping : ");
System.out.printf("A =%d B= %d ",a,b);

}

}
```

Q1. Write a java program to convert given amount into smallest possible bank Notes?

Amount : 1388

Notes of 100: 13

Notes of 50: 1

Notes of 20: 1

Notes of 10 : 1

Notes of 5: 1

Notes of 2: 1

Notes of 1: 1

---

```
//step1:  
import java.util.Scanner;  
class Q1{  
    public static void main(String args[]){  
        //step2:  
        Scanner sk=new Scanner(System.in);  
        //step3:  
        System.out.println("Enter Amount : ");  
        int a=sk.nextInt(); //1388  
  
        int rm,n;  
        n=a/100;
```

```
System.out.println("Notes of 100 : "+n);
rm=a-(n*100); // rm=1388-1300=88
n=rm/50;
System.out.println("Notes of 50 : "+n);
rm=rm-n*50;
n=rm/20;
System.out.println("Notes of 20 : "+n);
rm=rm-n*20;
n=rm/10;
System.out.println("Notes of 10 : "+n);
rm=rm-n*10;
n=rm/5;
System.out.println("Notes of 5 : "+n);
rm=rm-n*5;
n=rm/2;
System.out.println("Notes of 2 : "+n);
rm=rm-n*2;
n=rm/1;
System.out.println("Notes of 1: "+n);

}
```

---

**Q2. Explain Operators in java programming?**

**Ans:** Operators are symbols that tells to the compiler to perform some specific task

Operators work with operand, Operand may be inform of variable,inform of constant, or inform of any function call

**Example:**

`int x=10+20*3;// operand= constant`

In above expression 10,20,3 are operand,  
+,\*,= are operators

```
int a,b,c,d;  
a=10;  
b=20;  
c=30;  
d=a+b*c; //operand =variables
```

## On the basis of Number of operand types of operators

1. **Unary** : It takes only one operand at a time

Example: `++,--,!,~`

2. **Binary** : It takes two operand at a time

Example: `>,+,-,*,/,%`

3. **Ternary operators**: It takes three operand at a time and perform some operations

Syntax:

`Expression1 ? Expression 2 : Expression 3;`

---

Q3. Explain types of Operators on the basis of functionality?

Ans:

1. Arithmetic Operators`[+,-,*/,%,++,--]`

2. Relational Operators `[>,>=,<,<=,==,!=]`

3. Logical Operators `[&&,||,!]`

4. Bitwise Operator `[&, |, ^,<<,>>,~]`

5. Conditional Operators `[?:]`

6. Assignment Operator `[=,+=,-=,*=,/=]`

7. Operator Precedence

8. Operator Associativity

---

## Q2. Explain Modulo Operators in Java Programming?

Ans: If we want to find remainder then we should go for modulo operators

Syntax:(%)

First Operand % Second Operand

Example:

10%3==>1

35%6==>5

34%7==>6

5%10==>5

**Note: if first operand is less than second operand then result must be first operand but not 0.**

Syntax:(/)

First Operand / Second Operand

10/3==>3

35/6==>5

34/7==>4

5/10==>0

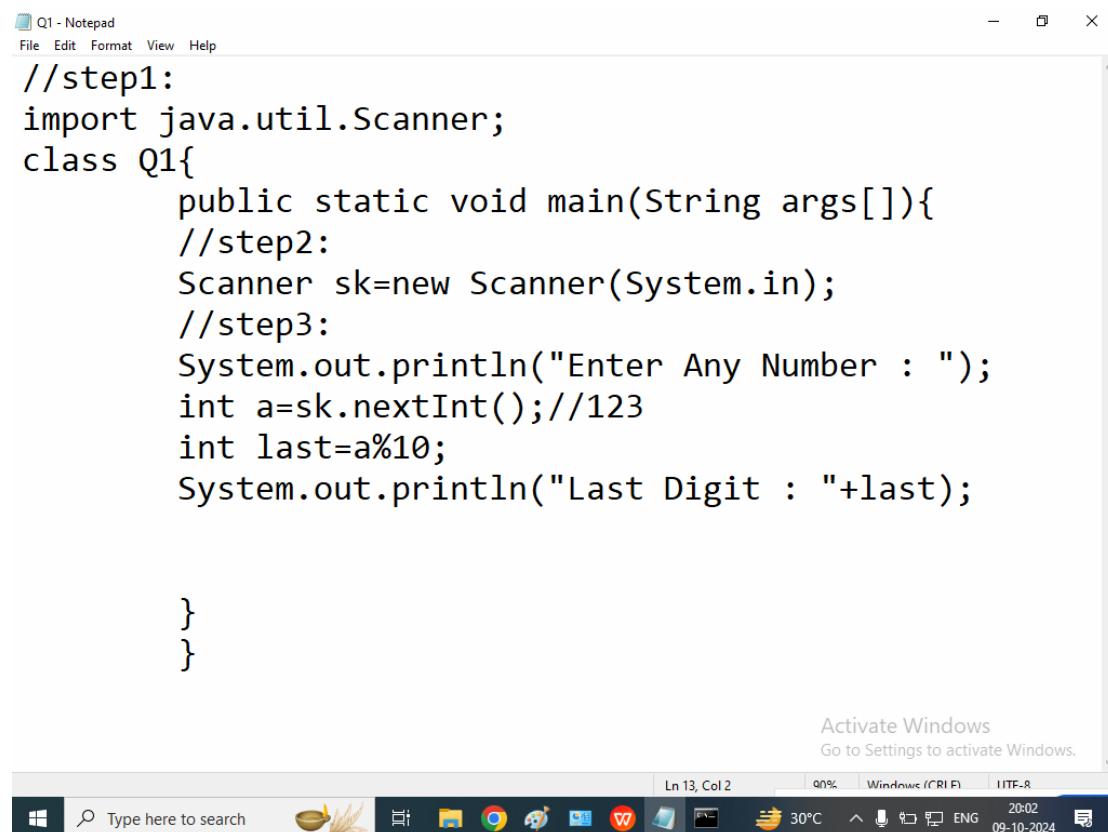
**Note: if first operand is less than second operand then result must be 0 when both operands are integer.**

---

Q1. Write a java program to print last digit of given number?

Enter Any Number : 123

Last Digit of the Number : 3



The screenshot shows a Windows desktop environment. In the center is a Notepad window titled "Q1 - Notepad". The code inside the window is:

```
//step1:  
import java.util.Scanner;  
class Q1{  
    public static void main(String args[]){  
        //step2:  
        Scanner sk=new Scanner(System.in);  
        //step3:  
        System.out.println("Enter Any Number : ");  
        int a=sk.nextInt(); //123  
        int last=a%10;  
        System.out.println("Last Digit : "+last);  
  
    }  
}
```

Below the Notepad window is the Windows taskbar. On the taskbar, there is a search bar with the placeholder "Type here to search", a pinned icon of a lamp, and several other pinned icons including File Explorer, Google Chrome, Microsoft Edge, and Microsoft Word. To the right of the taskbar, system status information is displayed: "Ln 13, Col 2", "00%", "Windows (CRI F)", "ITF-8", "30°C", "20:02", "ENG", "09-10-2024", and a battery icon. At the very top of the screen, a message from Microsoft says "Activate Windows Go to Settings to activate Windows."

**Q1. Explain Modulo(%) Operators in java Programming?**

Ans: if we want to find a remainder then we should use modulo operator

Note : All Operand are integer types

Syntax: (%)

First Operand % Second Operand

Example:

$10 \% 3 ==> 1$

$14 \% 11 ==> 3$

$39 \% 7 ==> 4$

$5 \% 10 ==> 5$

**Note: if first operand is less than second operand then remainder must be first operand but not 0.**

Syntax: (/)

First Operand / Second Operand

$10 / 3 ==> 3$

$14 / 11 ==> 1$

$39 / 7 ==> 5$

$5 / 10 ==> 0$

**Note: if first operand is less than second operand then result must be 0**

## **Example:(all operand are int type)**

Any Number Mode(%) By 10 : Always return last digit

123%10==>3

12%10=2

5%10==>5

Any Number divide (/) By 10 : Always return all digit

except last

12345/10====>1234

1234/10=====>123

123/10=====>12

12/10=====>1

1/10=====>0

---

## **Q2. Write a java program to print last digit of the given number?**

Example1:

Enter Any Number : 123

Last digit of the given number : 3

The screenshot shows a Windows desktop environment. In the center, there is a Notepad window titled "P1 - Notepad" containing the following Java code:

```
//step1: import Scanner class
import java.util.Scanner;
class P1{
    public static void main(String args[]){
        //step2: create an object of Scanner
        Scanner obj=new Scanner(System.in);
        //step3:
        System.out.println("Enter Any Number : ");
        int n=obj.nextInt(); //123

        int last=n%10;

        System.out.println("Last Digit : "+last);
    }
}
```

Below the Notepad window, a Command Prompt window is open, displaying the output of the program. The command prompt shows the input "345345" and the output "Last Digit : 5".

The taskbar at the bottom of the screen includes icons for File Explorer, Edge browser, and other system utilities. The system tray shows the date and time as "10-10-2024" and the temperature as "32°C".

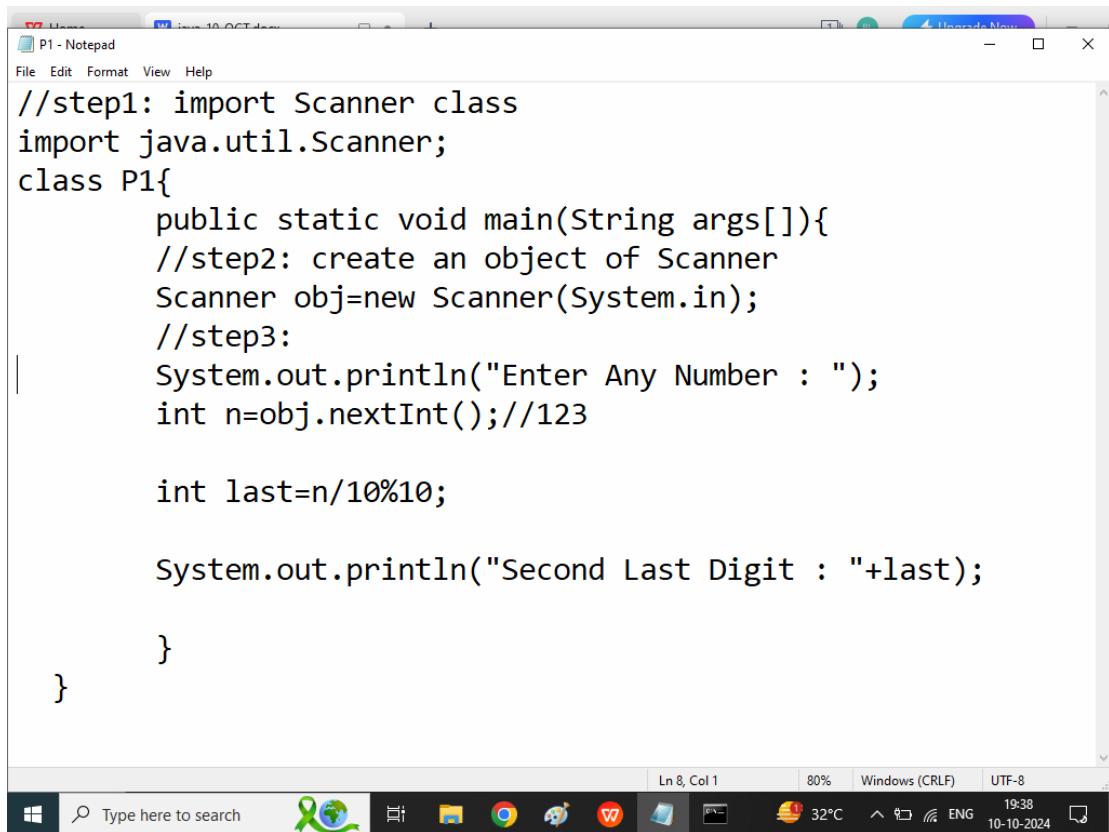
---

## Q2. Write a java program to print second last digit of the given number?

Example1:

Enter Any Number : 1~~2~~3

Last digit of the given number : ~~2~~



```
//step1: import Scanner class
import java.util.Scanner;
class P1{
    public static void main(String args[]){
        //step2: create an object of Scanner
        Scanner obj=new Scanner(System.in);
        //step3:
        System.out.println("Enter Any Number : ");
        int n=obj.nextInt(); //123

        int last=n/10%10;

        System.out.println("Second Last Digit : "+last);
    }
}
```

---

## **Q2. Write a java program to print third last digit of the given number?**

**Example1:**

Enter Any Number : 123~~4~~56

Last digit of the given number : **4**

```
//step1: import Scanner class
import java.util.Scanner;
class P1{
    public static void main(String args[]){
        //step2: create an object of Scanner
        Scanner obj=new Scanner(System.in);
        //step3:
        System.out.println("Enter Any Number : ");
        int n=obj.nextInt(); //123456

        int last=n/100%10;

        System.out.println("Third Last Digit : "+last);
    }
}
```

Q2. Explain Increment (++) and decrement (--) operators in java programming?

Ans: Increment (++): It is used to increase the value of the variable / operand by 1

Increment operator does not work with constant or expression

10++;//invalid

(10+20)++;//invalid

int a,b,c,d;

a=10;

b=20;

c=30;

d=(a+b+c)++;//invalid

**Example:**

```
int a,b,c,d;
```

```
a=10;
```

```
b=20;
```

```
c=30;
```

```
++a;
```

```
b++;
```

```
++c;
```

The image shows a Windows desktop environment. On the left, there is a Notepad window titled "P1 - Notepad" containing Java code for a class named P1. The code initializes variables a and b to 10 and 20 respectively, then increments them using the pre-increment operator (++). It prints the values of a and b to the console. On the right, there is a Command Prompt window showing the output of the program. The output shows the current directory as C:\Users\Admin\Desktop\, followed by the printed values "a : 11" and "b : 21".

```
class P1{
    public static void main(String args[]){
        int a,b;
        a=10;
        b=20;
        ++a;//a=a+1; 10+1=11
        ++b;//b=b+1; 20+1=21
        System.out.println("a : "+a);
        System.out.println("b : "+b);
    }
}
```

```
C:\Users\Admin\Desktop\
C:\Users\Admin\Desktop\
a : 11
b : 21
C:\Users\Admin\Desktop\
```

The image shows a Windows desktop environment with three windows open:

- Top Window (Notepad):** Displays Java code for a class P1. The code uses pre-increment operators (++a, ++b) instead of post-increment (a=a+1, b=b+1). The output of this code would be "a : 11" and "b : 21".
- Second Notepad Window:** Shows the same Java code as the first window.
- Command Prompt Window:** Located at the bottom, it shows the command "java P1" being run from the directory "C:\Users\Admin\Desktop\Java Task". The output of the command is "a : 11" and "b : 21".

```
class P1{
    public static void main(String args[]){
        int a,b;
        a=10;
        b=20;
        ++a;//a=a+1; 10+1=11
        ++b;//b=b+1; 20+1=21
        System.out.println("a : "+a);
        System.out.println("b : "+b);

    }
}
```

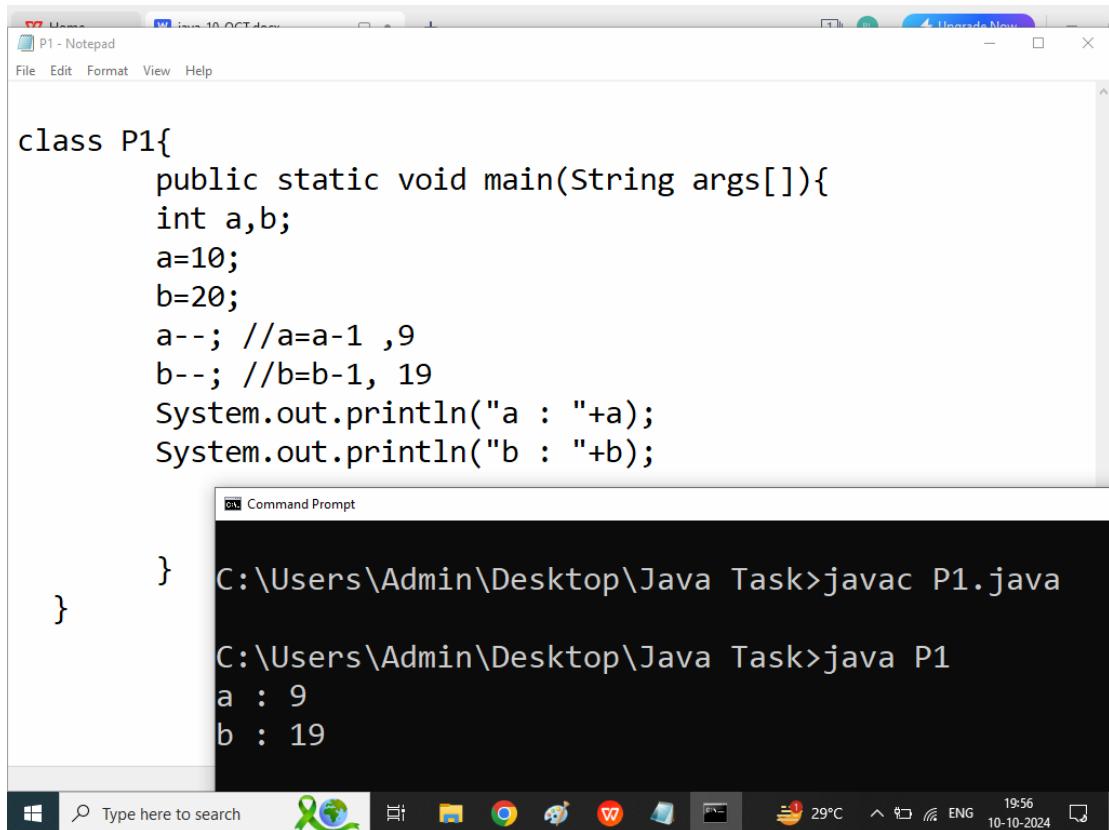
```
class P1{
    public static void main(String args[]){
        int a,b;
        a=10;
        b=20;
        a++;
        b++;
        System.out.println("a : "+a);
        System.out.println("b : "+b);
    }
}
```

```
C:\Users\Admin\Desktop\Java Task>java P1
a : 11
b : 21

C:\Users\Admin\Desktop\Java Task>
```

**Decrement (--)**: It is used to decrease the value of the variable / operand by 1

Increment operator does not work with constant or expression



The screenshot shows a Windows desktop environment. At the top, there is a taskbar with various icons. In the center, there is a Command Prompt window titled "Command Prompt". The window contains the following text:

```
C:\Users\Admin\Desktop\Java Task>javac P1.java
C:\Users\Admin\Desktop\Java Task>java P1
a : 9
b : 19
```

Below the Command Prompt window, there is a Notepad window titled "P1 - Notepad". The code inside is:

```
class P1{
    public static void main(String args[]){
        int a,b;
        a=10;
        b=20;
        a--; //a=a-1 ,9
        b--; //b=b-1, 19
        System.out.println("a : "+a);
        System.out.println("b : "+b);
```

---

Next Class Topics:

Pre Increment  
Post Increment

A screenshot of a Windows desktop environment. At the top, there is a taskbar with various icons. In the center, a Paint application window titled "Text Tools" is open, showing the following Java code:

```
class P1{
    public static void main(String args[]){
        int a,b;
        a=10;
        b=20;

        System.out.println(++a);
        System.out.println(++b);
    }
}
```

Below the Paint window, a Command Prompt window is open with the following text:

```
C:\Users\Admin\Desktop\Java Task>javac P1.java

C:\Users\Admin\Desktop\Java Task>java P1
11
21
```

A screenshot of a Windows desktop environment. At the top, there is a taskbar with various icons. In the center, a Notepad application window titled "P1 - Notepad" is open, showing the following Java code:

```
class P1{
    public static void main(String args[]){
        int a,b;
        a=10;
        b=20;

        System.out.println(a++); //10
        System.out.println(b++); //20

        System.out.println(a); //11
        System.out.println(b); //21
    }
}
```

Below the Notepad window, a Command Prompt window is open with the following text:

```
C:\Users\Admin\Desktop\Java Task>javac P1.java

C:\Users\Admin\Desktop\Java Task>java P1
10
20
11
21
```

**Q1.Explain Relational Operators in Java?**

**Ans:** If we want to compare something or define some conditions then we should go for relational Operators

We discuss following relational operators

1. >
2. <
3. >=
4. <=
5. ==
6. !=

**Note:** Result of All Relational operators are true or false

A screenshot of a Windows desktop environment. On the left, a Notepad window titled "Op6 - Notepad" displays Java code. On the right, a Command Prompt window shows the output of running the code. The taskbar at the bottom includes icons for File Explorer, Google Chrome, and other applications.

```
class Op6{
    public static void main(String args[]){
        int a,b;
        a=10;
        b=20;

        System.out.println(a>b);//false
        System.out.println(a<b);//true
        System.out.println(a>=b);//false
        System.out.println(a<=b);//true
        System.out.println(a==b);//false
        System.out.println(a!=b);//true
    }
}
```

```
C:\Users\Adm...  
C:\Users\Adm...  
false  
true  
false  
true  
false  
true  
C:\Users\Adm...
```

Q2. Explain Logical Operators in Java Programming?

Ans: if we want to combine two or more than two conditions then we should go for logical operators

We discuss following logical operators in java

1. Logical AND (&&)
2. Logical OR (||)
3. Logical NOT (!)

Result of all logical operators are true or false

# Q1. Explain Logical AND Operator(&&) in Java?

Ans:

Result of logical AND Operator is true when all conditions under considerations are true

Result of logical AND Operator is false when one or more than one or all conditions under considerations are false.

Logical AND

A	B	A&&B
T	F	F
F	T	F
F	F	F
T	T	T

Op6 - Notepad

File Edit Format View Help

```
class Op6{
    public static void main(String args[]){
        int a,b,c,d;
        a=10;
        b=20;
        c=30;
        d=40;
        boolean r=a<b && c<d;
                    // T   && T
        System.out.println(r);
    }
}
```

Select Command Prompt

```
C:\Users\Admin\Desktop\J
true
C:\Users\Admin\Desktop\J
```



Op6 - Notepad

File Edit Format View Help

```
class Op6{
    public static void main(String args[]){
        int a,b,c,d;
        a=10;
        b=20;
        c=30;
        d=40;

        System.out.println(a<b && c<d);
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>java Op6
true

C:\Users\Admin\Desktop\Java Task>
```



The screenshot shows a Windows desktop environment. At the top, there is a taskbar with various icons. Below the taskbar, a Notepad window titled "Op6 - Notepad" is open, displaying the following Java code:

```
class Op6{
    public static void main(String args[]){
        int a,b,c,d;
        a=10;
        b=20;
        c=30;
        d=40;

        System.out.println(a<b && c>d);
    }
}
```

Below the Notepad window is a Command Prompt window titled "Command Prompt". It shows the following output:

```
C:\Users\Admin\Desktop\Java Task>java Op6
true

C:\Users\Admin\Desktop\Java Task>javac Op6.j
C:\Users\Admin\Desktop\Java Task>java Op6
false
```

## Q1. Explain Logical OR Operator(||) in Java?

Ans:

Result of logical OR Operator is true when one condition or more than conditions or all conditions under considerations are true.

Result of logical OR Operator is false when all conditions under considerations are false.

## Logical OR

A	B	A    B
T	F	T
F	T	T
F	F	F
T	T	T

Op6 - Notepad

File Edit Format View Help

```
class Op6{
    public static void main(String args[]){
        int a,b,c,d;
        a=10;
        b=20;
        c=30;
        d=40;

        System.out.println(a>b || c<d);
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac Op6.java
C:\Users\Admin\Desktop\Java Task>java Op6
true

C:\Users\Admin\Desktop\Java Task>
```

Windows Start button Type here to search File Explorer Chrome Paint Word Excel 27°C ENG 19:29 24-10-2024

Q3. Explain logical not operator in java?

Ans: It takes only one operand at a time hence it is also known as unary operator

Result of logical not operator is true when condition is false

Result of logical not operator is false when condition is true

Logical NOT

A	!A
T	F
F	T

Op6 - Notepad

File Edit Format View Help

```
class Op6{
    public static void main(String args[]){
        int a,b,c,d;
        a=10;
        b=20;
        c=30;
        d=40;

        System.out.println(!(a>b || c<d));
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac Op6.j

C:\Users\Admin\Desktop\Java Task>java Op6
false

C:\Users\Admin\Desktop\Java Task>
```

Windows Taskbar

# Binary of : 176

	$2^7$	$2^6$	$2^5$	$2^4$	$2^3$	$2^2$	$2^1$	$2^0$
	128	64	32	16	8	4	2	1
	1	0	1	1	0	0	0	0

# Decimal Number of : 101010110

	$2^8$	$2^7$	$2^6$	$2^5$	$2^4$	$2^3$	$2^2$	$2^1$	$2^0$
	256	128	64	32	16	8	4	2	1
	1	0	1	0	1	0	1	1	0

342

---

Decimal Number	Binary Number
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001

# Q1. Explain Bitwise AND (&) Operator in Java programming?

Ans:It takes two bit at a time and perform some operations

Result of bitwise and is 1 when both bits are 1.

Result of Bitwise and is 0 when one or both bits are 0.

Bitwise AND (&)

A	B	A&B
1	0	0
0	1	0
0	0	0
1	1	1

Example:

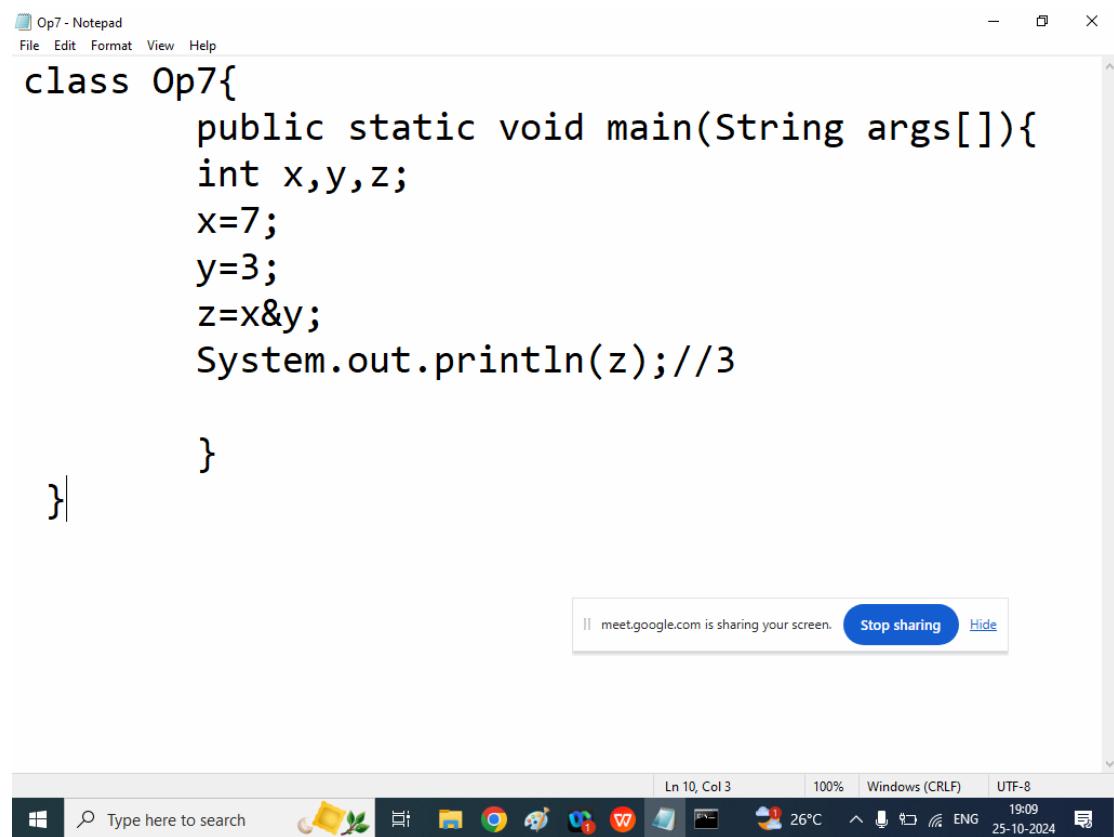
```
int x,y,z;
```

```
X=7;
```

```
Y=3;
```

$z=x\&y;$

X=7	0	1	1	1
Y=3	0	0	1	1
X&y=3	0	0	1	1



```
Op7 - Notepad
File Edit Format View Help
class Op7{
    public static void main(String args[]){
        int x,y,z;
        x=7;
        y=3;
        z=x&y;
        System.out.println(z); //3
    }
}

meet.google.com is sharing your screen. Stop sharing Hide
```

Ln 10, Col 3    100%    Windows (CRLF)    UTF-8  
Type here to search    26°C    19:09  
Windows 10    ENG    25-10-2024

**Q1. Explain Bitwise OR (|) Operator in Java programming?**

**Ans:** It takes two bit at a time and perform some operations

Result of bitwise or is 1 when one or both bits are 1.

Result of Bitwise and is 0 when one or both bits are 0.

Bitwise OR ( $|$ )

A	B	A B
1	0	1
0	1	1
0	0	0
1	1	1

Example:

```
int x,y,z;
```

```
X=7;
```

```
Y=3;
```

```
z=x|y;
```

X=7	0	1	1	1
Y=3	0	0	1	1

0	1	1	1
---	---	---	---

X|y=7

```

Op7 - Notepad
File Edit Format View Help

class Op7{
    public static void main(String args[]){
        int x,y,z;
        x=7;
        y=3;
        z=x|y;
        System.out.println(z);//7
    }
}

```

Select Command Prompt

7

C:\Users\Admin\Desktop\Java Task>

meet.google.com is sharing your screen. Stop sharing Hide

Type here to search

Ln 7, Col 27 100% Windows (CRLF) UTF-8

26°C 19:16 25-10-2024

**Q3. Explain Bitwise XOR(^) Operator in java programming?**

**Ans:**

**Result of Bitwise XOR(^) is 1 when both bits are different**

**Result of Bitwise XOR(^) is 0 when both bits are same**

## Bitwise XOR(^)

A	B	A^B
1	0	1
0	1	1
0	0	0
1	1	0

Example:

int x,y,z;

X=7;

Y=3;

$z=x \wedge y;$

X=7	0	1	1	1
Y=3	0	0	1	1
X^y=4	0	1	0	0

The image shows a Windows desktop environment. At the top, there is a taskbar with various icons. In the center, a Command Prompt window is open with the following text:  
C:\Users\Admin\Desktop\Java Task>java Op7  
4

Below the Command Prompt window, a Notepad window titled "Op7 - Notepad" contains the following Java code:

```
class Op7{  
    public static void main(String args[]){  
        int x,y,z;  
        x=7;  
        y=3;  
        z=x^y;  
        System.out.println(z); //4  
    }  
}
```

---

**Q4. Explain Left Shift(<<) Operator in java programming?**

**Ans:** Bitwise Left Shift operator is used to shift the binary sequence to the left side by specified positions

Syntax:

First Operand << Second Operand

**First Operand:** Number whose bits are shifted

Second Operand: Number of Bits are shifted

Example:

int x=1;

Int y=x<<1;

	0	0	0	1
0	0	0	1	_
0	0	0	1	0

```
int x=2;  
Int y=x<<1;
```

	0	0	1	0
0	0	1	0	—
0	0	1	0	0

Example:

2 shift 1 bit= 4

4 shift 1 bit=8

8 shift 1 bit=16

16 shift 1 bit=32

32 shift 2 bit=128

128 shift 3 bit=1024

A screenshot of a Windows desktop environment. At the top, there is a taskbar with various pinned icons. Below the taskbar, a Notepad window titled "Op7 - Notepad" is open, displaying the following Java code:

```
class Op7{
    public static void main(String args[]){
        int x,y;
        x=128;
        y=x<<3;
        System.out.println(y);//256
    }
}
```

Below the Notepad window, a Command Prompt window titled "Command Prompt" is open, showing the output of running the Java code:

```
C:\Users\Admin\Desktop\Java Task>javac Op7.java
C:\Users\Admin\Desktop\Java Task>java Op7
1024
```

The Command Prompt window has a message bar at the bottom stating "meet.google.com is sharing your screen." with "Stop sharing" and "Hide" buttons.

A screenshot of a Windows desktop environment. At the top, there is a taskbar with various pinned icons. Below the taskbar, a Notepad window titled "\*Op7 - Notepad" is open, displaying the following Java code:

```
class Op7{
    public static void main(String args[]){
        int x,y;
        x=5678;
        y=x<<1;
        System.out.println(y);//11356
    }
}
```

The Notepad window has a status bar at the bottom indicating "Ln 8, Col 3".

A screenshot of a Windows desktop environment. At the top, there is a taskbar with various pinned icons. Below the taskbar, a Command Prompt window is open, showing the output of running the Java code:

```
C:\Users\Admin\Desktop\Java Task>javac Op7.java
C:\Users\Admin\Desktop\Java Task>java Op7
11356
```

The Command Prompt window has a message bar at the bottom stating "meet.google.com is sharing your screen." with "Stop sharing" and "Hide" buttons.

**Q5. Explain Right Shift(>>) Operator in java programming?**

**Ans:** Bitwise Right Shift operator is used to shift the binary sequence to the right side by specified positions

**Syntax:**

First Operand >> Second Operand

**First Operand:** Number whose bits are shifted

**Second Operand:** Number of Bits are shifted

**Example:**

```
int x=8;  
Int y=x>>1;
```

1	0	0	0
—	1	0	0
0	1	0	0

8 right shift by 1 bit =4

4 right shift by 1 bit=2

2 right shift by 1 bit=1

The screenshot shows a Windows desktop environment. At the top, there is a taskbar with various icons. Below the taskbar, a Notepad window titled "Op7 - Notepad" is open, displaying the following Java code:

```
class Op7{  
    public static void main(String args[]){  
        int x,y;  
        x=5678;  
        y=x>>1;  
        System.out.println(y);/  
    }  
}
```

Below the Notepad window, a Command Prompt window titled "Command Prompt" is open, showing the output of running the Java code:

```
C:\Users\Admin\Desktop\Java Task>javac Op7.java  
C:\Users\Admin\Desktop\Java Task>java Op7  
2839  
|| meet.google.com is sharing your screen. Stop sharing Hide  
C:\Users\Admin\Desktop\Java Task>
```

The Command Prompt window also displays system status information at the bottom, including the date and time.

**Q6. Explain Bitwise NOT( $\sim$ ) operator in java programming?**

**Ans:** It takes only one bit at a time hence it is also known as unary operator

**Result of bitwise NOT is 0 when bit is 1**

**Result of bitwise NOT is 1 when bit is 0**

**Bitwise NOT**

A	$\sim A$
1	0
0	1

**Example:**

`int x,y;`

`x=6;`

	8	4	2	1
X=7	0	1	1	0
Y= $\sim X$	1	0	0	1
	-8	0	0	1

# In Signed Bit

## 1=Negative Number

## 0=Positive Number

The screenshot shows a Windows operating system interface. At the top is a Notepad window titled "\*Op7 - Notepad" containing Java code. Below it is a taskbar with various icons and system status indicators.

```
class Op7{
    public static void main(String args[]){
        int x,y;
        x=6;
        y=~x;
        System.out.println(y); // -7
    }
}
```

At the top of the screen, there is a message box from Google Meet stating "meet.google.com is sharing your screen." with "Stop sharing" and "Hide" buttons. The taskbar includes the Start button, a search bar, pinned application icons for File Explorer, Edge, and others, and system status like battery level, temperature (27°C), and date/time (25-10-2024).

---

Example:

int x,y;

x=8;

	16	8	4	2	1
X=7	0	1	0	0	0
Y=~X	1	0	1	1	1
	-16	0	4	2	1

A screenshot of a Windows desktop environment. At the top, there is a Notepad window titled "Op7 - Notepad" containing Java code. Below it is a Command Prompt window showing the execution of the Java code. The taskbar at the bottom displays various pinned icons and system status information.

Op7 - Notepad

File Edit Format View Help

```
class Op7{
    public static void main(String args[]){
        int x,y;
        x=8;
        y=~x;
        System.out.println(y); // -9
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac Op7.java
C:\Users\Admin\Desktop\Java Task>java Op7
-9
|| meet.google.com is sharing your screen. Stop sharing Hide
C:\Users\Admin\Desktop\Java Task>
```

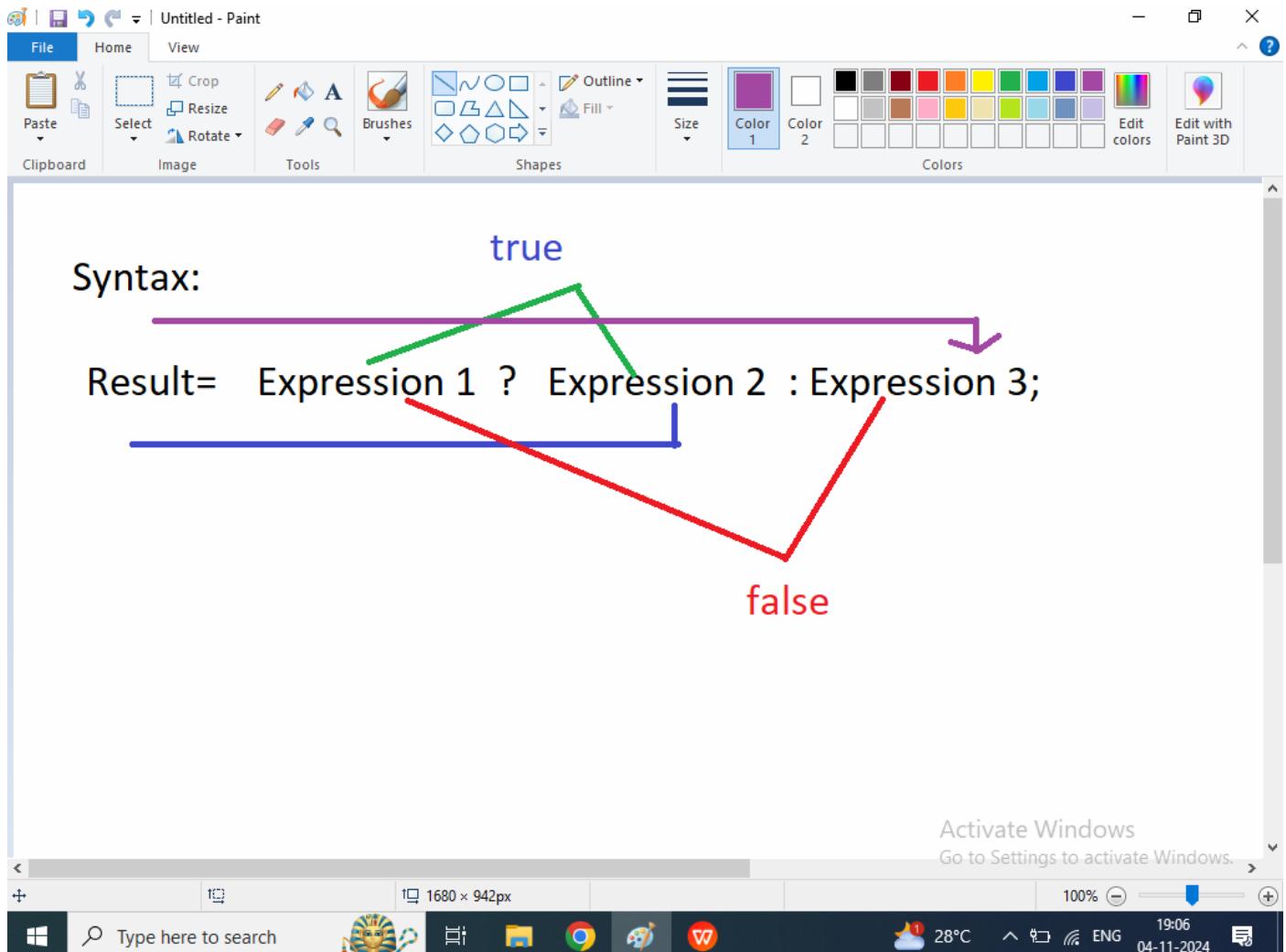
Windows Taskbar:

- Type here to search
- Icons for File Explorer, Edge, Google Chrome, Paint, File Explorer, Task View, Task Manager, Taskbar settings, and Start button.
- System status: Ln 6, Col 28, 100%, Windows (CRLF), UTF-8, 19:58, 25-10-2024.

Q1.Explain Ternary Operators in java?

Ans: It takes three operand at a time and perform some operations

This is alternate of if else statement



In the above syntax if Expression 1 evaluated true then Expression 2 will executed

If Expression 1 evaluated false then Expression 3 will executed.

Example:

**Q1. Write a java program to check given number is positive or negative?**

**Example1:**

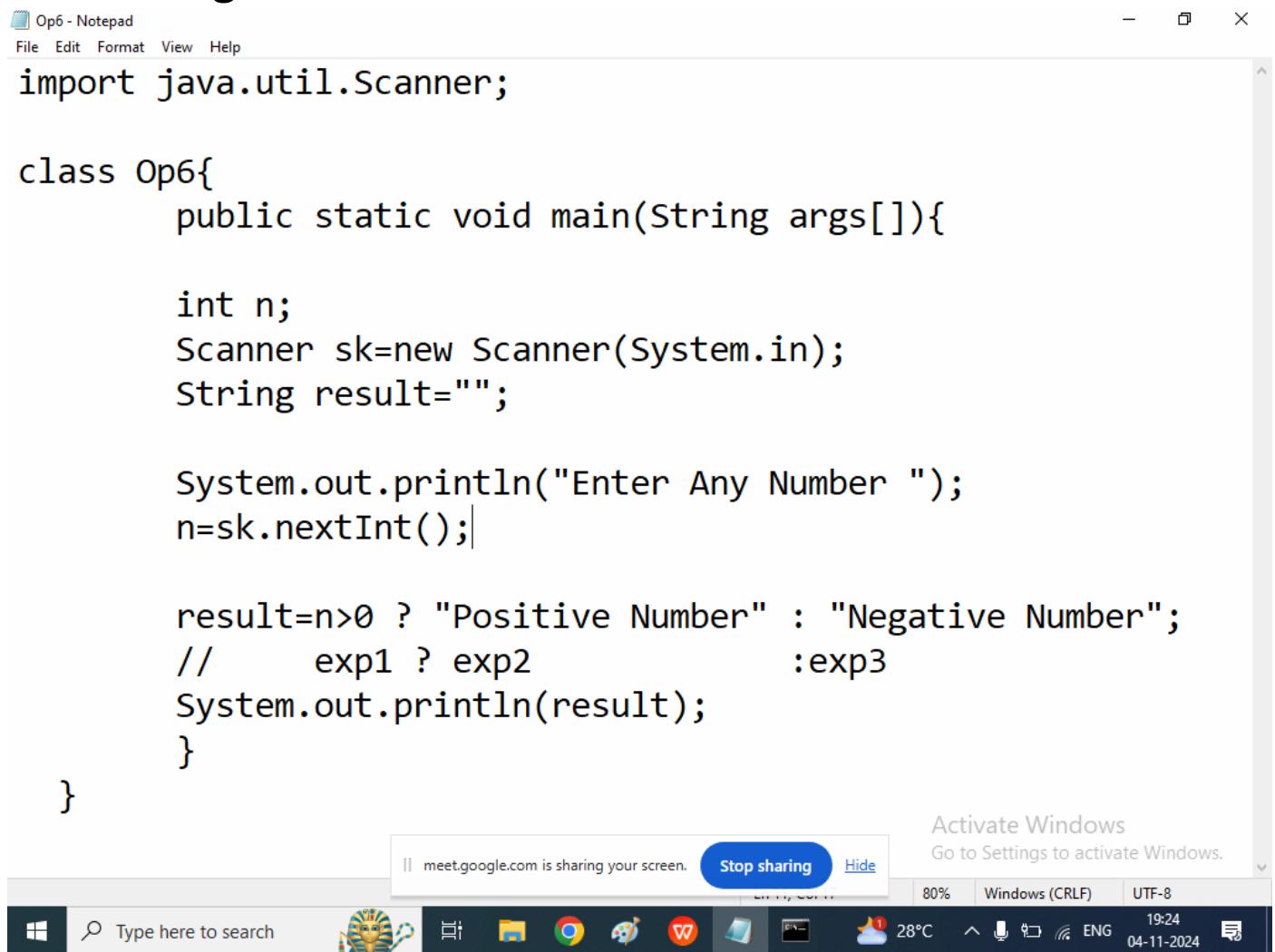
Enter Any Number : 4

This is Positive Number

**Example1:**

Enter Any Number : -2

This is Negative Number



```
Op6 - Notepad
File Edit Format View Help

import java.util.Scanner;

class Op6{
    public static void main(String args[]){

        int n;
        Scanner sk=new Scanner(System.in);
        String result="";

        System.out.println("Enter Any Number ");
        n=sk.nextInt();

        result=n>0 ? "Positive Number" : "Negative Number";
        //      exp1 ? exp2           :exp3
        System.out.println(result);
    }
}

Activate Windows
Go to Settings to activate Windows.

80% Windows (CRLF) UTF-8
28°C 19:24 04-11-2024
```

**Q2. Write a java program to check given number is even or odd**

## **Example1:**

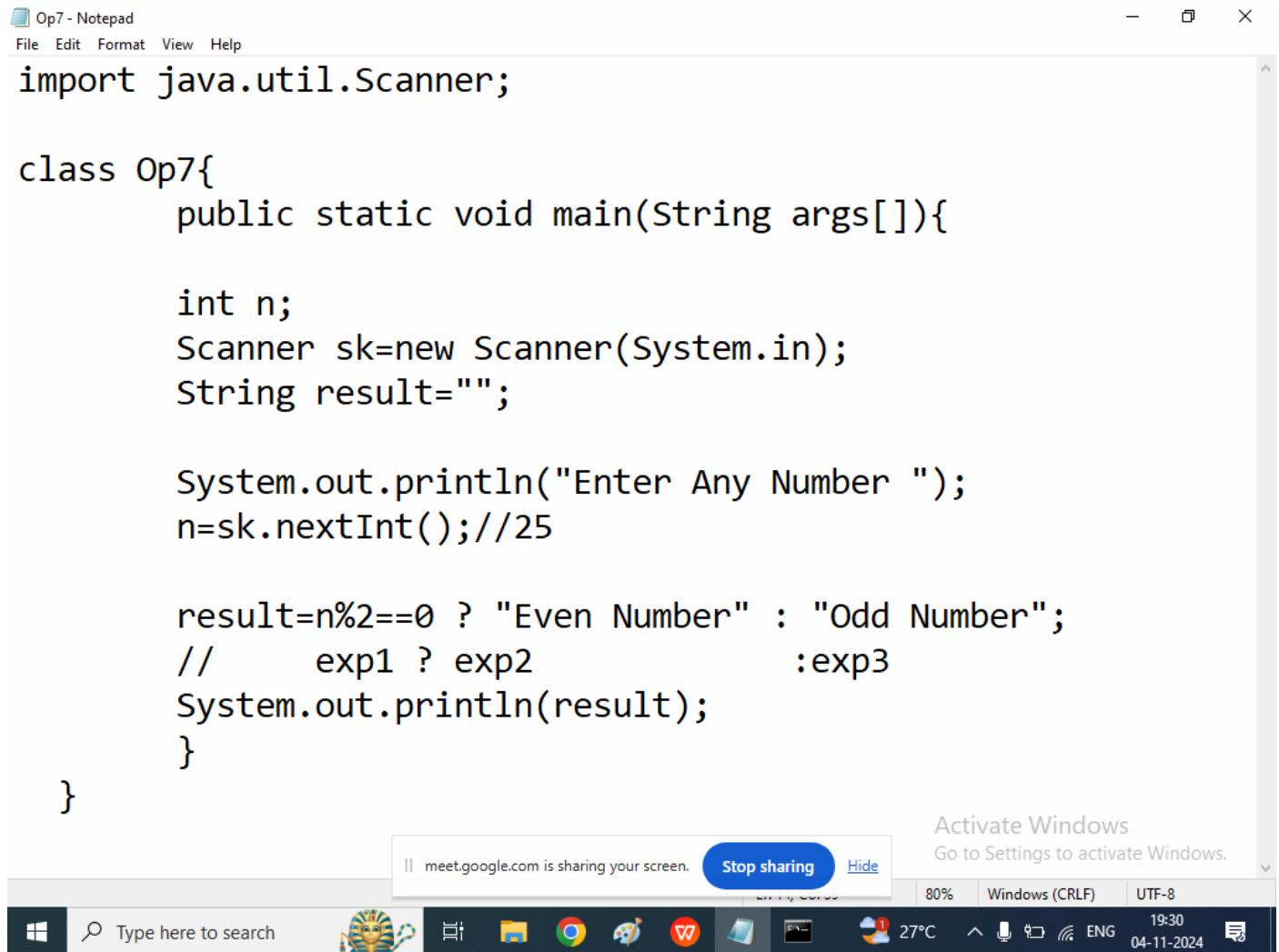
Enter Any Number : 24

Even Number

## **Example2:**

Enter Any Number : 25

Odd Number



```
Op7 - Notepad
File Edit Format View Help
import java.util.Scanner;

class Op7{
    public static void main(String args[]){
        int n;
        Scanner sk=new Scanner(System.in);
        String result="";
        System.out.println("Enter Any Number ");
        n=sk.nextInt(); //25
        result=n%2==0 ? "Even Number" : "Odd Number";
        //      exp1 ? exp2           :exp3
        System.out.println(result);
    }
}

meet.google.com is sharing your screen. Stop sharing Hide
Activate Windows
Go to Settings to activate Windows.
80% Windows (CRLF) UTF-8
19:30
27°C ENG 04-11-2024
```

**Q3.** Write a java program to print largest number from the given two numbers

### **Example1:**

Enter Number 1: 100

Enter Number 2: 50

Number 1 is Greater

### **Example2:**

Enter Number 1: 100

Enter Number 2: 500

Number 2 is Greater

### **Example3:**

Enter Number 1: 100

Enter Number 2: 100

Both are equal

```
import java.util.Scanner;
```

```
class Op7{
```

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

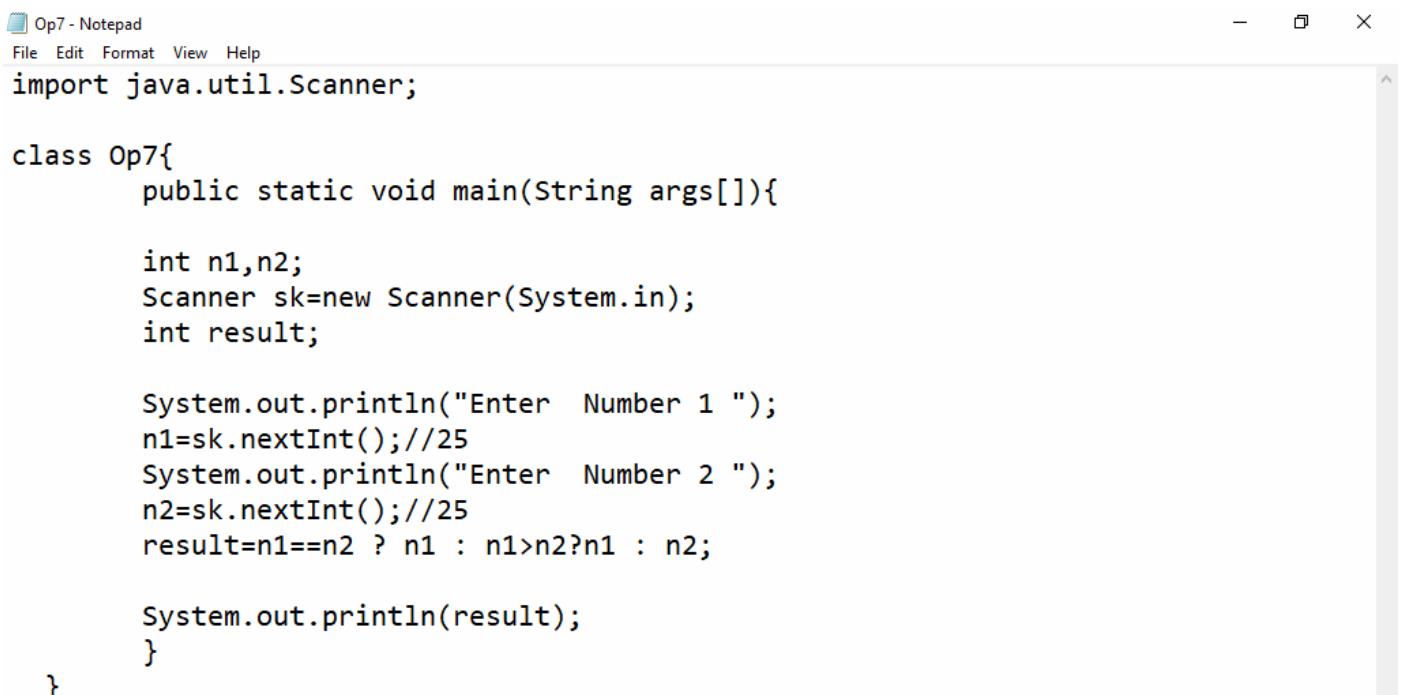
```
        int n1,n2;
```

```
        Scanner sk=new Scanner(System.in);
```

```
        String result="";
```

```
System.out.println("Enter Number 1 ");
n1=sk.nextInt();//25
System.out.println("Enter Number 2 ");
n2=sk.nextInt();//25
result=n1==n2 ? "Both Numbers are equal" :
n1>n2?"Number 1 is Greater" : "Number 2 is
Greater";
```

```
System.out.println(result);
}
}
```



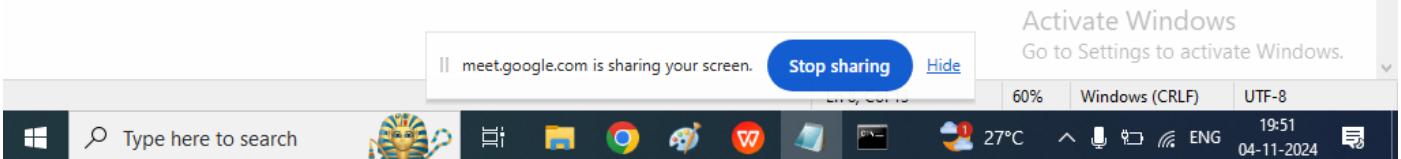
```
Op7 - Notepad
File Edit Format View Help
import java.util.Scanner;

class Op7{
    public static void main(String args[]){

        int n1,n2;
        Scanner sk=new Scanner(System.in);
        int result;

        System.out.println("Enter Number 1 ");
        n1=sk.nextInt();//25
        System.out.println("Enter Number 2 ");
        n2=sk.nextInt();//25
        result=n1==n2 ? n1 : n1>n2?n1 : n2;

        System.out.println(result);
    }
}
```



**Q2. Write a java program to check you are eligible for voting or not**

**Example1:**

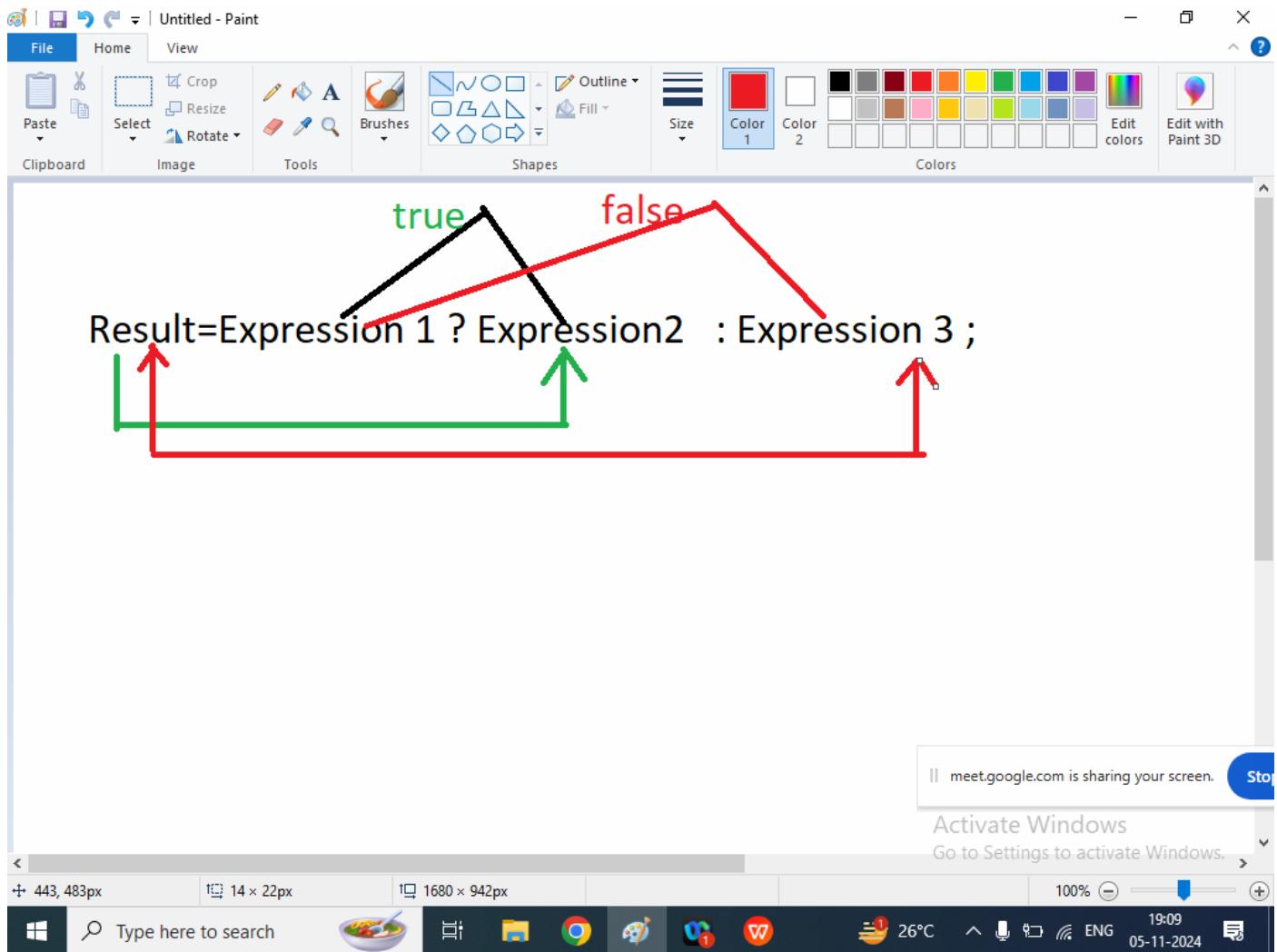
Enter Your Age: 21

You are Eligible for Voting

**Example2:**

Enter Your Age: 11

You are Not Eligible for Voting



Q2. Write a java program to check you are Eligible for voting or not?

### Example1:

Enter Your Age : 21

You are Eligible for Voting

### Example2:

Enter Your Age : 12

You are Not Eligible for Voting

```
import java.util.Scanner;  
class Op8{  
    public static void main(String args[]){  
        Scanner kb=new Scanner(System.in);
```

```
System.out.println("Enter Your Age : ");
int age=kb.nextInt();//21

String r= age>18 ? "Eligible For Voting" : "Not Eligible For
Voting";
    //exp1 ? exp2      : exp3
System.out.println(r);
}
}
```

---

Q2. Explain Operator Precedence in java programming?

Ans: Precedence of an operator come into picture when expression having multiple operators and we want to decide which operator evaluated first

Operator having high precedence will evaluated first

Example:

int x=23+2\*3;

In above expression +,\* ,= are operators and x,23,2,3 are operands

The screenshot shows a Windows operating system interface. At the top is a Notepad window titled "Op8 - Notepad" containing Java code. The code defines a class Op8 with a main method that prints the value of the expression  $x=23+2*3-5$ . Below the window is a taskbar with various pinned icons and a search bar. The system tray shows the date (26°C), time (19:26), and battery status.

```
import java.util.Scanner;
class Op8{
    public static void main(String args[]){
        int x=23+2*3-5;
        System.out.println(x);
    }
}
```

**Q3. Explain Operator Associativity in java programming?**

Ans: Associativity of an operator come into picture when we need to decide which operator evaluated first when operator having same precedence

Associativity of an Operator either Left to Right or Right to Left

Op8 - Notepad

File Edit Format View Help

```
import java.util.Scanner;
class Op8{
    public static void main(String args[]){
        int x=23*2+3/5%7;
        System.out.println(x);
    }
}
```

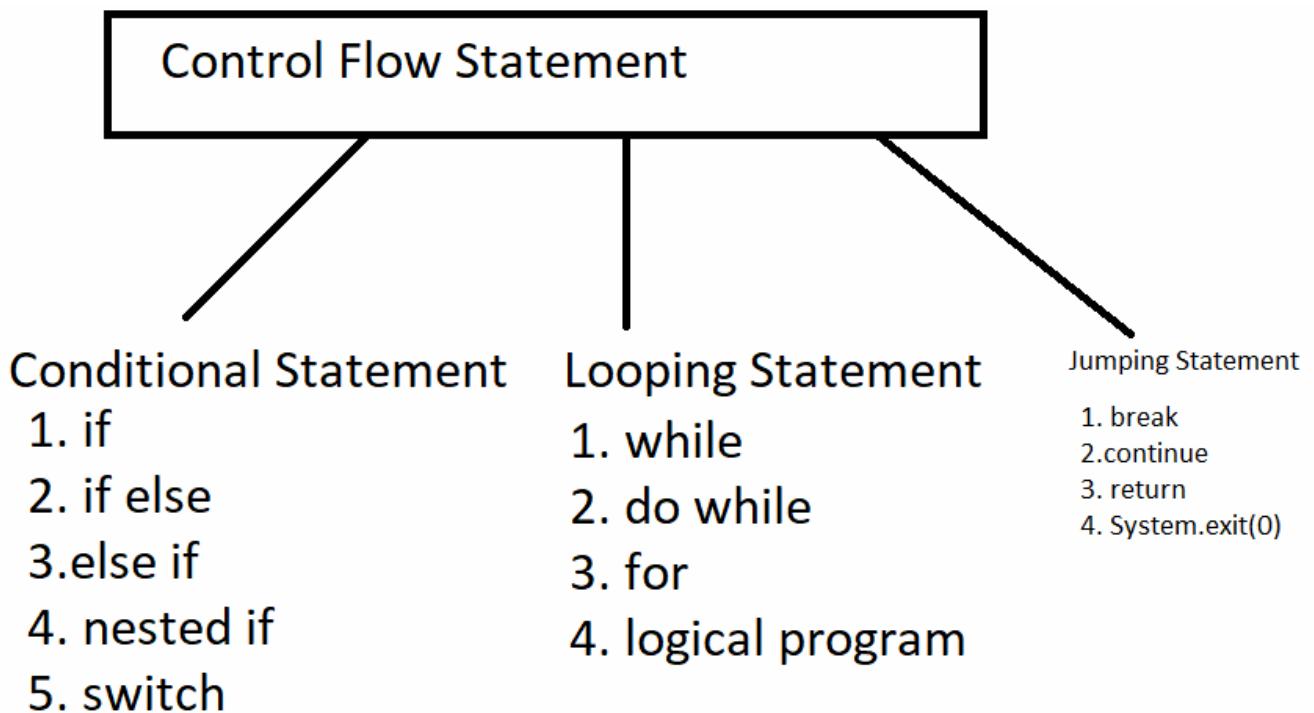
Activate Windows  
Go to Settings to activate Windows.

Ln 9, Col 1 | 100% | Windows (CRLF) | UTF-8

Windows Start | Type here to search | Taskbar icons (File Explorer, Edge, Paint, File History, Word, Task View, Power User) | 26°C | 19:32 | ENG | 05-11-2024 | Battery icon

### Q3. Operator Precedence and Associativity Table?

Category	Operator	Associativity
Brackets	( ), [ ], { }	L To R
Unary	++, --, !, ~	R To L
Multiplicative	* , / , %	L To R
Additive	+ -	L To R
Shift Operator	<<, >>	L To R
Relational Operator	>, >=, <, <=	L To R
Equality Operators	==, !=	L To R
Bitwise AND	&	L To R
Bitwise XOR	^	L To R
Bitwise OR		L To R
Logical AND	&&	L To R
Logical OR		L To R
Ternary Operator	? :	R To L
Assignment Operator	=, +=, -=, *=, /=, %=	R To L



**Q1.Explain if statement in java programming?**

Ans: if given condition evaluated true then statement of if will executed

If we define multiple if then every condition will check and executed if condition is true

if is independent

Syntax:

```
if(condition){  
    //statement 1  
    //statement 2  
}
```

Syntax:

```
if(condition)  
    //statement1  
    //statement2
```

Note: curly braces are optional

**Q1. Write a java program to compare two number?**

**Example1:**

Enter Number 1: 100

Enter Number 2: 50

Number 1 is greater

**Example2:**

Enter Number 1: 100

Enter Number 2: 500

Number 2 is greater

**Example3:**

Enter Number 1: 100

Enter Number 2: 100

Both numbers are equal

```
import java.util.Scanner;
```

```
class C1{
```

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

```
        Scanner k=new Scanner(System.in);
```

```
        int n1,n2;
```

```
        System.out.println("Enter Number 1 : ");
```

```
n1=k.nextInt();//100
System.out.println("Enter Number 2 :");
n2=k.nextInt();//50

if(n1>n2)
    System.out.println("Number 1 is
Greater");
    System.out.println("This is if 1");

if(n1<n2)
    System.out.println("Number 2 is
Greater");
    System.out.println("This is if 2");

if(n1==n2)
    System.out.println("Both Numbers are
equal");
    System.out.println("This is if 3");

}

}
```

---

```
import java.util.Scanner;
```

```
class C1{
    public static void main(String args[]){
        Scanner k=new Scanner(System.in);
        int n1,n2;
        System.out.println("Enter Number 1 : ");
        n1=k.nextInt();//100
        System.out.println("Enter Number 2 : ");
        n2=k.nextInt();//100

        if(n1>n2)
            System.out.println("Number 1 is
Greater");
            System.out.println("This is if 1");

        if(n1<n2)
            System.out.println("Number 2 is
Greater");
            System.out.println("This is if 2");

        if(n1==n2)
            System.out.println("Both Numbers are
equal");
            System.out.println("This is if 3");
```

```
}
```

```
}
```

The screenshot shows a Windows operating system desktop. In the center is a Notepad window titled "C1 - Notepad" containing a Java program. The code uses Scanner to input two numbers from the user and then compares them using if statements to determine which is greater or if they are equal. The Notepad window has standard menu options: File, Edit, Format, View, Help. At the bottom of the window, there is a status bar showing "Ln 1, Col 26", "60%", "Windows (CRLF)", and "UTF-8". To the right of the Notepad window, a message box says "Activate Windows Go to Settings to activate Windows." At the very bottom of the screen is the Windows taskbar, which includes the Start button, a search bar with the placeholder "Type here to search", and icons for various pinned apps like File Explorer, Edge, and Mail. On the far right of the taskbar, there are system status icons for battery level (25°C), signal strength, and the date and time (06-11-2024).

```
import java.util.Scanner;
class C1{
    public static void main(String args[]){
        Scanner k=new Scanner(System.in);
        int n1,n2;
        System.out.println("Enter Number 1 : ");
        n1=k.nextInt(); //100
        System.out.println("Enter Number 2 : ");
        n2=k.nextInt(); //100

        if(n1>n2){
            System.out.println("Number 1 is Greater");
            System.out.println("This is if 1");
        }

        if(n1<n2){
            System.out.println("Number 2 is Greater");
            System.out.println("This is if 2");
        }

        if(n1==n2){
            System.out.println("Both Numbers are equal");
            System.out.println("This is if 3");
        }
    }
}
```

The screenshot shows a Windows Notepad window titled "C1 - Notepad". The code is a Java program that uses the Scanner class to input two integers from the user. It then compares the integers using if statements to determine which one is greater or if they are equal. The code is as follows:

```
import java.util.Scanner;
class C1{
    public static void main(String args[]){
        Scanner k=new Scanner(System.in);
        int n1,n2;
        System.out.println("Enter Number 1 : ");
        n1=k.nextInt(); //100
        System.out.println("Enter Number 2 : ");
        n2=k.nextInt(); //100

        if(n1>=n2){
            System.out.println("Number 1 is Greater");
            System.out.println("This is if 1");
        }

        if(n1<=n2){
            System.out.println("Number 2 is Greater");
            System.out.println("This is if 2");
        }

        if(n1==n2){
            System.out.println("Both Numbers are equal");
            System.out.println("This is if 3");
        }
    }
}
```

The status bar at the bottom of the Notepad window shows "Ln 13, Col 44", "60%", "Windows (CRLF)", "UTF-8", "Activate Windows", and "Go to Settings to activate Windows." The taskbar below the Notepad window includes icons for File Explorer, Edge, and other system tools, along with system status indicators like battery level, temperature (25°C), and date/time (06-11-2024).

---

**Q2. Write a java program to check given number is positive or negative?**

**Example1:**

Enter Any Number : 4  
Positive Number

**Example2:**

Enter Any Number : -2  
Negative Number

The screenshot shows a Windows desktop environment with a Notepad window open. The window title is "C1 - Notepad". The menu bar includes "File", "Edit", "Format", "View", and "Help". The code in the Notepad window is as follows:

```
Scanner k=new Scanner(System.in);
int n;
System.out.println("Enter Any Number : ");
n=k.nextInt();

if(n>0)
System.out.println("This is Positive Number");

if(n<0)
System.out.println("This is Negative Number");

}
```

The cursor is positioned at the end of the closing brace of the outermost if-else block. Below the Notepad window, the Windows taskbar is visible, featuring the Start button, a search bar with placeholder text "Type here to search", and icons for various system and application functions. The system tray shows the date and time as "06-11-2024 19:39", along with icons for battery, signal, and language.

Q2. Write a java program to check given number is even or odd using if?

**Example1:**

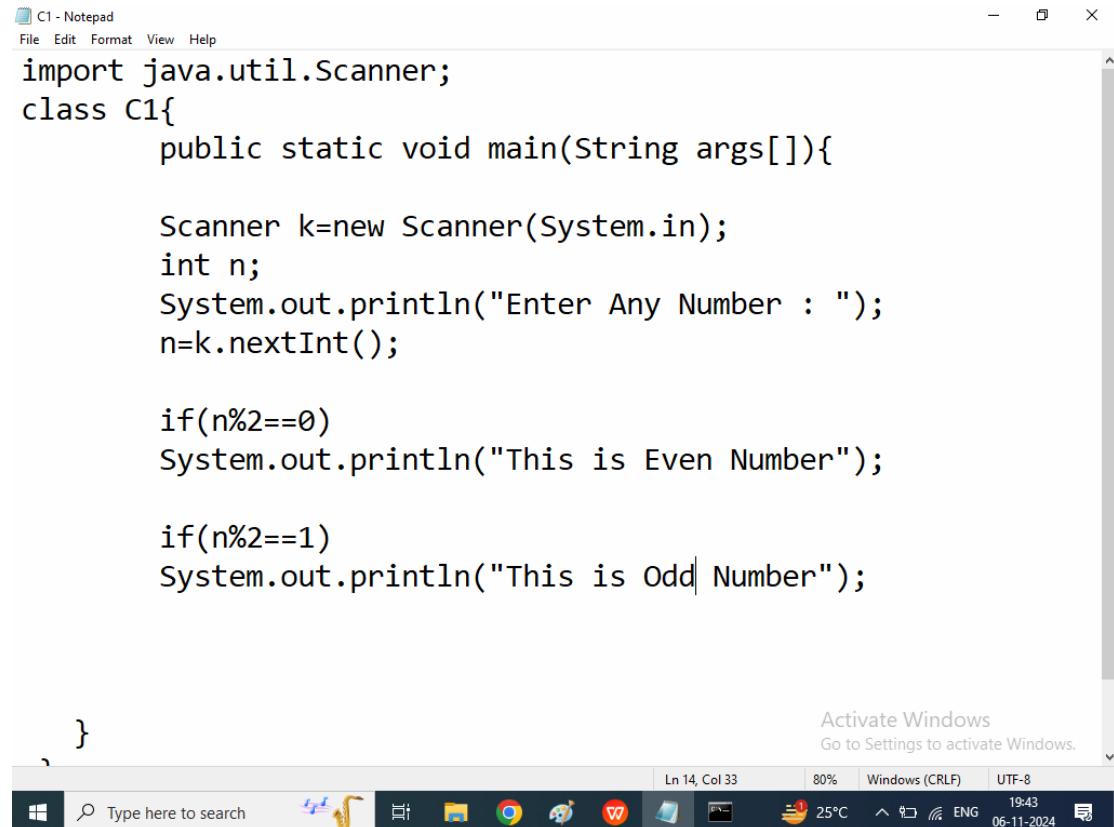
Enter Any Number : 4

This is Even Number

**Example2:**

Enter Any Number : 7

## This is Odd Number



```
C1 - Notepad
File Edit Format View Help
import java.util.Scanner;
class C1{
    public static void main(String args[]){
        Scanner k=new Scanner(System.in);
        int n;
        System.out.println("Enter Any Number : ");
        n=k.nextInt();
        if(n%2==0)
            System.out.println("This is Even Number");
        if(n%2==1)
            System.out.println("This is Odd Number");
    }
}

Activate Windows
Go to Settings to activate Windows.

Ln 14, Col 33 80% Windows (CRLF) UTF-8
Type here to search 25°C 19:43
Windows ENG 06-11-2024
```

**Q3.Explain if else statement in java programming?**

**Ans:** if we have exactly two possibilities and we want to select only one at a time then we should go for if else

**else always depends on if**

Statement of if will executed when condition is true and statement of else will executed condition is false

Syntax:

```
if(condition){//true  
//if statement  
}  
else{  
//else statement  
}
```

Example:

Q1. Write a java program to check you are eligible for voting or not?

**Example1:**

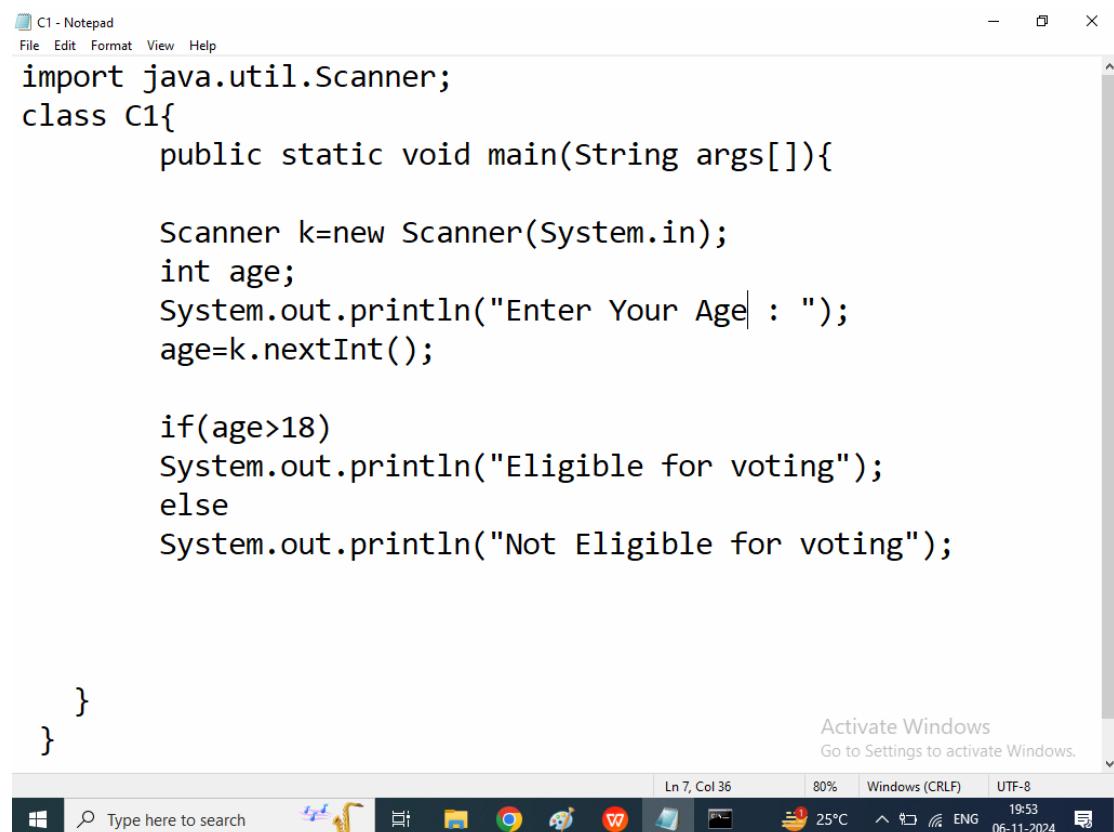
Enter Your Age: 21

Eligible for voting

## Example2:

Enter Your Age: 11

Not Eligible for voting



The screenshot shows a Windows operating system desktop. In the center is a Notepad window titled "C1 - Notepad" containing the following Java code:

```
import java.util.Scanner;
class C1{
    public static void main(String args[]){
        Scanner k=new Scanner(System.in);
        int age;
        System.out.println("Enter Your Age : ");
        age=k.nextInt();

        if(age>18)
            System.out.println("Eligible for voting");
        else
            System.out.println("Not Eligible for voting");
    }
}
```

The code uses a Scanner to read an integer from standard input. It then checks if the age is greater than 18. If true, it prints "Eligible for voting"; otherwise, it prints "Not Eligible for voting".

At the bottom of the screen is a taskbar with several icons, including the Start button, a search bar, and icons for File Explorer, Edge, Google Chrome, Paint, Word, and Powerpoint. The system tray shows the date (06-11-2024), time (19:53), battery level (25°C), and network status.

The image shows a Windows operating system desktop. In the foreground, there is a Notepad window titled "C1 - Notepad" containing Java code. The code is a simple program that prompts the user for their age and prints whether they are eligible to vote or not. Below the Notepad window, the Windows taskbar is visible, featuring the Start button, a search bar with placeholder text "Type here to search", and several pinned icons for common applications like File Explorer, Edge, and Word.

```
import java.util.Scanner;
class C1{
    public static void main(String args[]){
        Scanner k=new Scanner(System.in);
        int age;
        System.out.println("Enter Your Age : ");
        age=k.nextInt();

        if(age>18){
            System.out.println("Eligible for voting");
        }
        else{
            System.out.println("Not Eligible for voting");
        }
    }
}
```

**Q1. write a java program to check given character is vowel or not?**

**Example1:**

Enter Any Character : i

This is vowel

**Example2:**

Enter Any Character : h

This is not a vowel

**Example1:**

Enter Any Character : A

This is vowel

```
import java.io.*;
class C2{
    public static void main(String args[]) throws
IOException{
```

```
    BufferedReader br=new BufferedReader(new
InputStreamReader(System.in));
```

```
    System.out.println("Enter Any Character : ");
    char c=br.readLine().charAt(0);
```

```
if(c=='a'||c=='i'||c=='o'||c=='u'||c=='e'||c=='A'||c=='I'||  
c=='O'||c=='U'||c=='E'){  
System.out.println("This is Vowel");  
}  
else{  
System.out.println("This is Not a vowel");  
}  
  
}  
}
```

---

Q2. Explain else if statement in java programming?

Ans: if we have more than two possibilities and we want to select only one option at a time then we should go for else if statement

We cannot use else if without using if

Syntax:

```
if(condition1){  
//statement 1  
}  
else if(condition2){  
//statement 2  
}  
else if(condition3){
```

```
//statement 3  
}  
else{  
//statement 4  
}
```

---

Q3. write a java program to check given character is  
UPPER CASE, lower case, digit or special character?

A To Z : UPPER CASE( $c \geq 'A'$  &&  $c \leq 'Z'$ )

a to z : lower case( $c \geq 'a'$  &&  $c \leq 'z'$ )

0 to 9: digits( $c \geq '0'$  &&  $c \leq '9'$ )

Special character

```
import java.util.Scanner;  
class C2{  
    public static void main(String args[]){  
        Scanner br=new Scanner(System.in);  
        System.out.println("Enter Any Character : ");  
        char c=br.nextLine().charAt(0);  
  
        if(c>=48 && c<=57){  
            System.out.println("digit");  
        }  
        else if(c>=97 && c<=122 ){  
            System.out.println("lowercase");  
        }  
        else if(c>=65 && c<=90){  
            System.out.println("uppercase");  
        }  
        else{  
            System.out.println("special character");  
        }  
    }  
}
```

```
System.out.println("lower case");
}
else if(c>=65 && c<=90 ){
System.out.println("UPPER CASE");
}else{
System.out.println("Special character");
}
}
=====
```

Q1. Write a java program to take an score of the student in a particular subject and print the grade of the student in the following criteria

**Enter Student Score : 76**

90 and Above: “A Grade”

80 to 89 : “B Grade”

70 to 79: “C Grade”

60 to 69: “D Grade”

Below 60: “F”

---

Q3. Write a java program that reads an integer from the user and print it is **Even, Odd, Zero**

**Example1:**

Enter Any Number : 24

**Even**

**Example2:**

Enter Any Number :27

**Odd**

**Example3:**

Enter Any Number :0

**Zero**

# Q1. Write a java program to create a basic calculator using else if?

Enter Choice
Press + For Addition Press - For Subtraction Press * For Multiplication Press / For division
+
Enter Number 1 : 12 Enter Number 2: 13
Addition : 25

```
import java.util.Scanner;
class Calc{
    public static void main(String args[]){
        char c;
        int n1,n2;
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Your Choice ");
        System.out.println("=====");
        System.out.println("Press + For Addition");
        System.out.println("Press - For Subtraction");
        System.out.println("Press * For Multiplication");
        System.out.println("Press / For Division");
        System.out.println("=====");
        c=sk.next().charAt(0);
        System.out.println("=====");
        System.out.println("Enter Number 1 : ");
        n1=sk.nextInt();
        System.out.println("Enter Number 2 : ");
        n2=sk.nextInt();
        System.out.println("=====");

        if(c=='+' ){
            System.out.println("Addition : "+(n1+n2));
        }
    }
}
```

```

        else if(c=='-'){
            System.out.println("Subtraction : "+(n1-n2));
        }else if(c=='*'){
            System.out.println("Multiplication : "+(n1*n2));
        }else if(c=='/'){
            System.out.println("Division : "+(n1/n2));
        }
        else{
            System.out.println("Invalid Choice : ");
        }
        System.out.println("=====");
    }
}

```

---

### Q3. Explain nested if in java programming?

Ans:

If we are using if inside another if is also known as nested if

Syntax:

```

if(condition1){//outer if
    if(condition1_1){//inner if
        //statement 1
    }
}
else if(condition2){
    if(condition2_2){
        //statement 2
    }
}

```

### Q4. Write a java program to check given character is Upper case or lower case without using logical operators

OR

Write a java program to check given character is upper case or lower case without using in built function

OR

Write a java program to check given character is upper case or lower case using nested if

The screenshot shows a Notepad window titled "T1 - Notepad" containing Java code. The code uses a Scanner to read a character from standard input, then checks if it is lowercase or uppercase. The Notepad interface includes a menu bar with File, Edit, Format, View, and Help, and a status bar at the bottom showing file information like "Ln 17, Col 28", "70%", "Windows (CRLF)", "UTF-8", and system status like "Stop sharing".

```
import java.util.Scanner;
class T1{
    public static void main(String args[]){
        char c;

        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Character ");
        c=sk.next().charAt(0);
        if(c>='a'){//outer if
            if(c<='z'){//inner if
                System.out.println("lower Case");
            }
        }
        else if(c>='A'){//outer if
            if(c<='Z'){
                System.out.println("upper| case");
            }
        }
    }
}
```

Q3. Explain switch statement in java programming?

Ans:

The switch statement is used to select one option out of multiple conditions

In switch we cannot define duplicate case

Syntax:

```
switch(constant/variable/expression/function call){
```

```
case constant/expression :  
//statement
```

```
break;
```

```
case constant/expression :  
//statement  
break;
```

```
case constant/expression :  
//statement  
break;
```

```
default:  
//statement  
}
```

Note: break and default are optional

We can define default statement anywhere inside the switch  
but default will executes if all cases are false.

**Q1. Write a java program to check given character is vowel or not without using relational and logical operators?**

**OR**

**Write a java program to check given character is vowel or not using switch**

**Example1:**

Enter Any Character : i

This is vowel

**Example1:**

Enter Any Character : x

This is not a vowel

```
import java.util.Scanner;
class S1{
    public static void main(String args[]){
        char c;
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Character : ");
        c=sk.next().charAt(0);

        switch(c){
            case 'a':
                System.out.println("It is vowel");
                break;
```

```
case 'i':  
    System.out.println("It is vowel");  
    break;  
case 'o':  
    System.out.println("It is vowel");  
    break;  
case 'u':  
    System.out.println("It is vowel");  
    break;  
case 'e':  
    System.out.println("It is vowel");  
    break;  
  
default:  
    System.out.println("Not a vowel");  
  
}  
  
}  
}
```

---

```
import java.util.Scanner;  
class S1{  
    public static void main(String args[]){  
  
        char c;  
        Scanner sk=new Scanner(System.in);  
        System.out.println("Enter Any Character : ");  
        c=sk.next().charAt(0);
```

```
switch(c){  
  
    case 'a':  
    case 'A':  
        System.out.println("It is vowel");  
        break;  
    case 'i':  
    case 'I':  
        System.out.println("It is vowel");  
        break;  
    case 'o':  
    case 'O':  
        System.out.println("It is vowel");  
        break;  
    case 'u':  
    case 'U':  
        System.out.println("It is vowel");  
        break;  
    case 'e':  
    case 'E':  
        System.out.println("It is vowel");  
        break;  
  
    default:  
        System.out.println("Not a vowel");  
  
}  
  
}
```

Q2. Write a java program to check given number is even or odd using switch?

### Example1:

Enter Any Number : 24

Even Number

### Example2:

Enter Any Number : 25

Odd Number

The screenshot shows a Windows desktop environment. In the center is a Notepad window titled "S1 - Notepad" containing the following Java code:

```
import java.util.Scanner;
class S1{
    public static void main(String args[]){
        int n;
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number : ");
        n=sk.nextInt();

        switch(n%2){
            case 0: System.out.println("Even Number");
            break;

            case 1: System.out.println("odd Number");
            break;
        }
    }
}
```

At the bottom of the screen, the Windows taskbar is visible, featuring the Start button, a search bar with the placeholder "Type here to search", and several pinned icons for apps like File Explorer, Google Chrome, Paint, and others. The system tray shows the date (09-11-2024), time (19:32), battery level (70%), and network status. A watermark for "Activate Windows" is present in the bottom right corner of the Notepad window.

S1 - Notepad

File Edit Format View Help

```
import java.util.Scanner;
class S1{
    public static void main(String args[]){
        int n;
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number : ");
        n=sk.nextInt(); //15

        switch(n%2){

            default:
                System.out.println("Odd Number");
                break;
            case 0: System.out.println("Even Number");
                break;

        }
    }
}
```

Activate Windows  
Go to Settings to activate Windows.

Ln 4, Col 2 | 70% | Windows (CRLF) | UTF-8

Type here to search             26°C  ENG 19:36 09-11-2024 

Enter Your Choice

Press + For Addition

Press - For Subtraction

Press \* For Multiplication

Press / For Division

+

Enter Number 1 : 60

Enter Number 2: 15

Addition : 75

**Q1. Explain looping statement in java programming?**

Ans: if we want repeat something then we should go for looping statements

There are two types of loop in java

1. Entry Controlled Loop(while, for)
2. Exit Controlled Loop (do while loop)

Loop Related Terms

**1. Initialization :** starting of the loop and it is perform only once

For Example: If we want to print number from 1 to 5

```
int x;
```

```
x=1;
```

If we want to print number from 5 to 1

```
int x;
```

```
x=5;
```

**2. Test Condition:** Ending of the loop (check every time when body of loop will executed)

Example:

If we want to print no from 1 to 5.

```
int x;
```

```
x=1;
```

Condition :  $x \leq 5$

<,<= : Increment(++)

>,>= : Decrement(--)

If we want to print no from 5 to 1.

```
int x;
```

```
x=5;
```

```
Condition : x>=1
```

### **3. Increment / Decrement :**

**while:** if we don't known exact number of iteration then we should go for while loop

**for:** if we know exact number of iterations then we should go for , for loop

**do while :** if we want to execute loop at least once when condition is false then we should go for do while loop

---

**Q1.Explain while loop?**

**Ans:**

**Syntax:**

**Initialization**

```
while(Test Condition) {
```

```
  //statement
```

**Increment / decrement**

```
}
```

---

**Q2. Explain do while loop?**

Syntax:

**Initialization**

**do{**

**//statement**

**Increment / decrement**

**}while(**Test Condition**);**

---

**Q3. Explain for loop?**

Syntax:

```
for(Initialization(1);Test Condition(2);Increment / Decrement(4)){  
//statement(3)  
}
```

=====

**Q2. Write a java program to print number from 1 to 5 using while, do while and for loop**

1

2

3

4

5

\*L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int a;
        a=1;//initialization
        while(a<=5){//Test condition
            System.out.println(a);//1 2 3 4 5
            a++;//Increment 6
        }
    }
}
```



L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int a;
        a=1;//initialization
        while(a<=5)//Test condition
            System.out.println(a);//1 2 3 4 5
            a++;//Increment 6
    }
}
```



L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int a;
        a=10;//initialization
        while(a<=5){//Test condition
            System.out.println(a);//1 2 3 4 5
            a++;
        }
    }
}
```

Command Prompt

```
4
5
C:\Users\Admin\Desktop\Java Task>javac L1.java

C:\Users\Admin\Desktop\Java Task>java L1

C:\Users\Admin\Desktop\Java Task>
```



L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int a;
        a=10;//initialization
        do{//Test condition
            System.out.println(a);//1 2 3 4 5
            a++;
        }while(a<=5);
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac L1.java
C:\Users\Admin\Desktop\Java Task>java L1
10

C:\Users\Admin\Desktop\Java Task>
```



L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int a;
        a=1;//initialization
        do{//Test condition
            System.out.println(a);//1 2 3 4 5
            a++;
        }while(a<=5);
    }
}
```

1  
2  
3  
4  
5

C:\Users\Admin\Desktop\Java Task>



Q1. Write a java program to print number from 1 to 5 using for loop?

1  
2  
3  
4  
5

L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int i;
        for(i=1;i<=5;i++){//i=6
            System.out.println(i);//1 2 3 4 5
        }
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac L1.java

C:\Users\Admin\Desktop\Java Task>java L1
1
2
3
4
5
```

Activate Windows  
Go to Settings to activate Windows.

C:\Users\Admin\Desktop\Java Task>

Windows Start button Type here to search File Explorer Google Photos Microsoft Edge Microsoft Word Microsoft Excel Microsoft Powerpoint 23°C ENG 19:09 12-11-2024

The screenshot shows a Windows desktop environment. In the top-left corner, there is a Notepad window titled "L1 - Notepad" containing Java code. Below it is a Command Prompt window titled "Command Prompt" showing the output of the Java program. The taskbar at the bottom includes the Start button, a search bar, pinned icons for File Explorer, Google Chrome, Paint, OneDrive, and others, and system status icons.

```
class L1{
    public static void main(String args[]){
        for(int i=1;i<=5;i++){//i=6
            System.out.println(i);//1 2 3 4 5
        }
    }
}
```

```
C:\Users\Admin\Desktop\Java Task>java L1
1
2
3
4
5

C:\Users\Admin\Desktop\Java Task>
```

---

Q2. Write a java program to print even number from 10 to 20 using while, do while,for loop

10  
12  
14  
16  
18  
20

L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int i;
        i=10;
        while(i<=20){//i=21
            if(i%2==0){
                System.out.println(i);//10 12 14 16 18 20
            }
            i++;//21
        }
    }
}
```



L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int i;
        i=10;
        do{
            if(i%2==0){
                System.out.println(i); //10 12 14 16 18 20
            }
            i++;
        }while(i<=20);
    }
}
```



L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int i;
        for(i=10;i<=20;i++){
            if(i%2==0){
                System.out.println(i); //10 12 14 16 18 20
            }
        }
    }
}
```

Activate Windows  
Go to Settings to activate Windows.



L1 - Notepad

File Edit Format View Help

```
class L1{
    public static void main(String args[]){
        int i;
        for(i=10;i<=20;i=i+2){
            System.out.println(i); //10 12 14 16 18 20
        }
    }
}
```

Command Prompt

C:\Users\Admin\Desktop\Java Task>java L1

10  
12  
14  
16  
18  
20

Activate Windows  
Go to Settings to activate Windows.

C:\Users\Admin\Desktop\Java Task>

Windows Start button

Type here to search

File Explorer

Google Chrome

Paint

PowerShell

Windows Update

Task View

System tray icons: 23°C, ENG, 19:30, 12-11-2024

Q4. Write a java program to print table of given number using while,do while and for?

Enter Any Number :2

```
2 * 1 = 2
2 * 2 = 4
2 * 3 = 6
2 * 4 = 8
2 * 5 = 10
2 * 6 = 12
2 * 7 = 14
2 * 8 = 16
2 * 9 = 18
2 * 10 = 20
```

L1 - Notepad

File Edit Format View Help

```
import java.util.Scanner;
class L1{
    public static void main(String args[]){
        int n,i;
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number ");
        n=sk.nextInt();
        i=1;
        while(i<=10){
            System.out.println(n+" * "+i+" = "+(n*i));
            i++;
        }
    }
}
```

Activate Windows  
Go to Settings to activate Windows.



L1 - Notepad

File Edit Format View Help

```
import java.util.Scanner;
class L1{
    public static void main(String args[]){
        int n,i;
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number ");
        n=sk.nextInt();
        i=1;
        do{
            System.out.println(n+" * "+i+" = "+(n*i));
            i++;
        }while(i<=10);

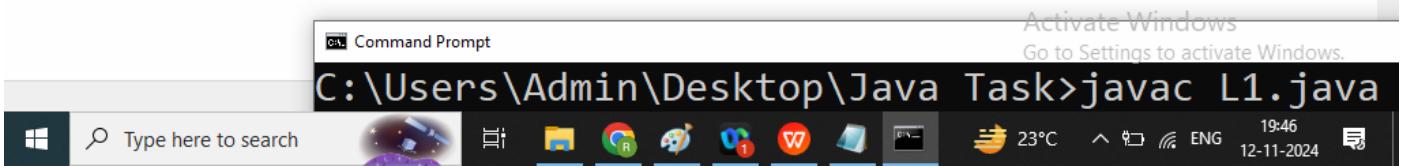
    }
}
```

Activate Windows  
Go to Settings to activate Windows.

Ln 4, Col 2 | 80% | Windows (CRLF) | UTF-8

Windows Start | Type here to search | File Explorer | Google | Paint | OneDrive | Word | Excel | Edge | 23°C | 19:44 | ENG | 12-11-2024 | Battery

```
L1 - Notepad
File Edit Format View Help
import java.util.Scanner;
class L1{
    public static void main(String args[]){
        int n,i;
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number ");
        n=sk.nextInt();
        for(i=1;i<=10;i++){
            System.out.println(n+" * "+i+" = "+(n*i));
        }
    }
}
```



Q4. Write a java program to print multiple of 3 and 5 from 1 to 60 using while, do while, for

15  
30  
45  
60

**Q1. Write a java program to print factorial of given number?**

**Example1:**

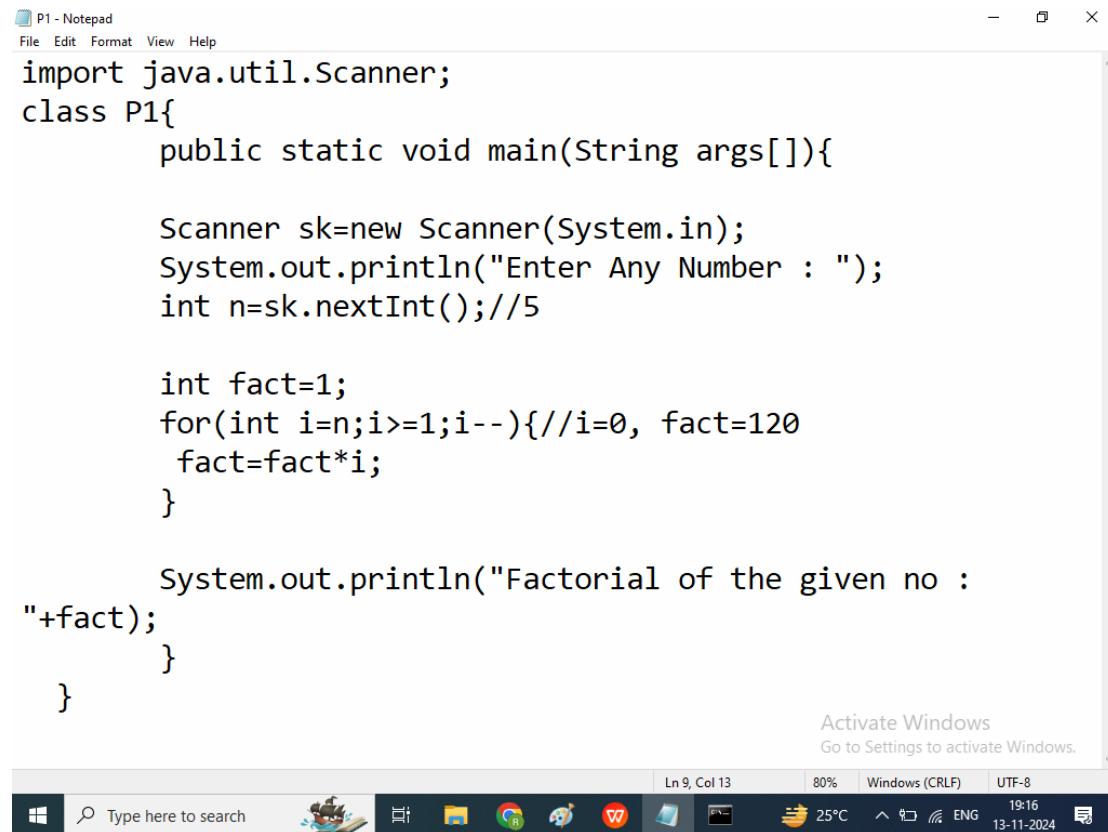
Enter Any Number : 5

Factorial of the Number : 120

**Example2:**

Enter Any Number : 7

Factorial of the Number : 5040



```
P1 - Notepad
File Edit Format View Help
import java.util.Scanner;
class P1{
    public static void main(String args[]){
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number : ");
        int n=sk.nextInt(); //5

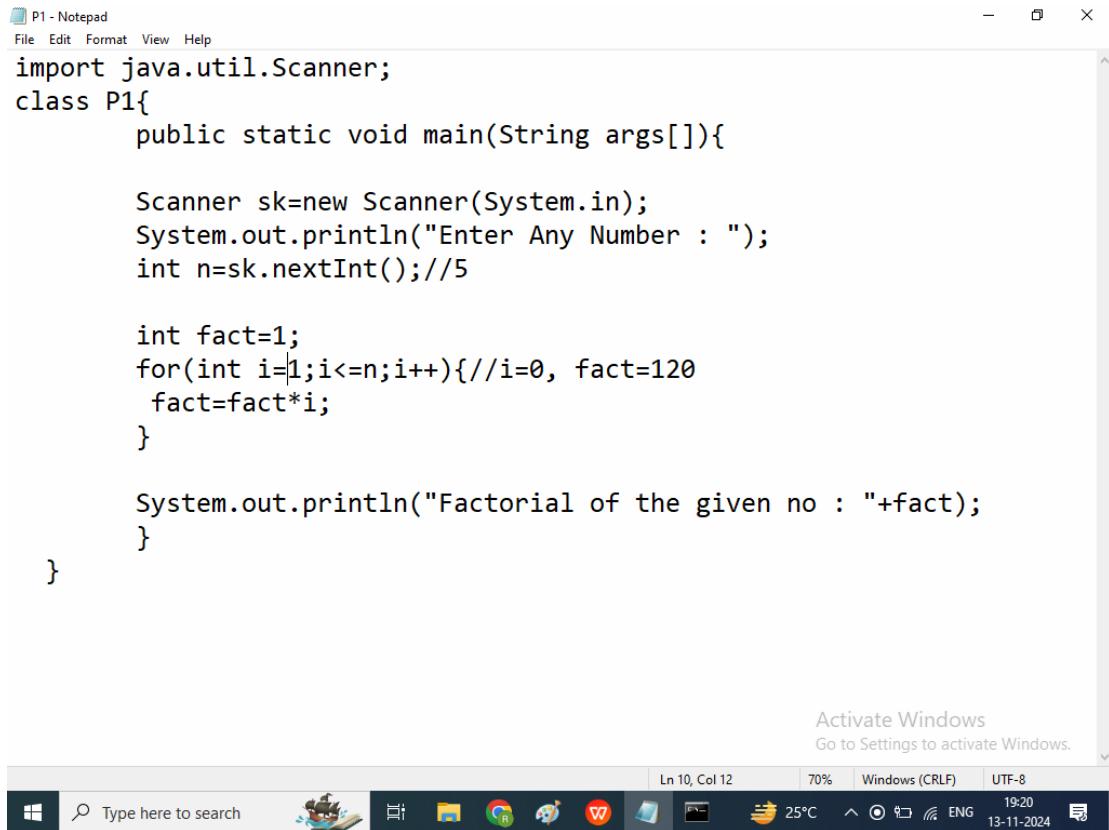
        int fact=1;
        for(int i=n;i>=1;i--) { //i=0, fact=120
            fact=fact*i;
        }

        System.out.println("Factorial of the given no :
"+fact);
    }
}
```

Activate Windows  
Go to Settings to activate Windows.

Ln 9, Col 13    80%    Windows (CRLF)    UTF-8

Windows Start button    Type here to search    File Explorer    Mail    Google Chrome    Paint    Edge    File History    Task View    25°C    19:16    ENG    13-11-2024



P1 - Notepad

```
File Edit Format View Help
import java.util.Scanner;
class P1{
    public static void main(String args[]){
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number : ");
        int n=sk.nextInt(); //5

        int fact=1;
        for(int i=1;i<=n;i++){ //i=0, fact=120
            fact=fact*i;
        }

        System.out.println("Factorial of the given no : "+fact);
    }
}
```

Activate Windows  
Go to Settings to activate Windows.

Ln 10, Col 12   70%   Windows (CRLF)   UTF-8

Windows Start Button   Type here to search   Taskbar Icons (Calculator, Mail, Google, Chrome, File Explorer, Task View, Taskbar Buttons)

25°C   19:20   ENG   13-11-2024

---

**Q2.** Write a java program to check given number is perfect or not?

**Perfect Number :** A Perfect Number is a positive number that is equal to the sum of its proper divisors (excluding itself).

**Example1:**

Enter Any Number : 6

This is Perfect Number

## **Example2:**

Enter Any Number : 8

This is not a Perfect Number

```
import java.util.Scanner;
class P1{
    public static void main(String args[]){

        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number :
");
        int n=sk.nextInt();
        int sum=0;
        for(int i=1;i<n;i++){
            if(n%i==0){
                sum=sum+i;
            }
        }

        if(n==sum){
            System.out.println("This is Perfect
Number");
        }
    }
}
```

```
    }
    else{
        System.out.println("This is Not a Perfect
Number");
    }

}
```

---

Q2. Write a java program to print sum of digits of the given number?

**Example1:**

Enter Any Number : 1234

Sum of digits: 10

**Example2:**

Enter Any Number : 123456789

Sum of digits: 45

```
import java.util.Scanner;
class P1{
    public static void main(String args[]){
```

```
Scanner sk=new Scanner(System.in);
System.out.println("Enter Any Number :
");
int n=sk.nextInt();//1234
int sum=0;
while(n!=0){//n=0
    int r=n%10;//r=1
    sum=sum+r;//sum=10
    n=n/10;//0

}
System.out.println("Sum of digits :
"+sum);

}
```

---

Q3. Write a java program to count Number of digits in the given numbers?

**Example1:**

Enter Any Number : 5566  
Number of digits: 4

## **Example2:**

Enter Any Number : 12345678

Number of digits: 8

```
import java.util.Scanner;
class P1{
    public static void main(String args[]){
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number :
");
        int n=sk.nextInt();//1234
        int count=0;
        while(n!=0){
            count++;
            n=n/10;

        }
        System.out.println("Number of Digits in
the given no : "+count);

    }
}
```

---

**Q2.** Write a java program to print sum of even digits of the given number?

**Example1:**

Enter Any Number : 1234

Sum of even digits: 6

**Example2:**

Enter Any Number : 123456789

Sum of digits: 20

```
import java.util.Scanner;
class P1{
    public static void main(String args[]){
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number :
");
        int n=sk.nextInt(); //1234
        int sum=0;
        while(n!=0){
```

```
int r=n%10;
if(r%2==0){
    sum=sum+r;
}
n=n/10;
}

System.out.println("Sum of all even digits
: "+sum);
```

---

**Q1.** Write a java program to reverse of the given Number?

**Example1:**

Enter Any Number : 123

Reverse Number: 321

**Example1:**

Enter Any Number : 1331

Reverse Number:1331

```
import java.util.Scanner;
class P2{
    public static void main(String
args[]){
    Scanner sk=new
Scanner(System.in);
    System.out.println("Enter Any
Number ");
    int n=sk.nextInt();//123
```

```
int res=0;
while(n!=0){
    int r=n%10;
    res=res*10+r;
    n=n/10;
}
System.out.println("Reverse No :
"+res);
}
}
```

---

Q3. Write a Java Program to check given number is Palindrome Number or not?

Ans:

**Palindrome Number:** A Palindrome Number is a Number that remains same when its digits are revered . In Other words If reads the same forward and backward

Example:

121  
1331  
12321

```
import java.util.Scanner;
class P2{
    public static void main(String
args[]){
    Scanner sk=new
Scanner(System.in);
    System.out.println("Enter Any
Number ");
    int n=sk.nextInt();//123
    int m=n;
    int res=0;
    while(n!=0){
        int r=n%10;
        res=res*10+r;
        n=n/10;
    }
}
```

```
if(m==res){  
    System.out.println("This is  
Palindrome Number");  
}  
else{  
    System.out.println("This is Not a  
Palindrome Number");  
}  
}  
}
```

---

Q3. Write a java program to check given number is **Strong Number / Krishnmurthy Number** ?

Ans: Strong Number : A Strong Number in which the sum of the factorials of its digits is equal to the number itself

Example:

145

$1!+4!+5!$

$1+24+120=145$

### **Example1:**

Enter Any Number : 145

This is Strong Number

### Example:

Enter Any Number : 123

This is Not a Strong Number

```
import java.util.Scanner;  
class P2{  
    public static void main(String  
args[]){
```

```
    Scanner sk=new  
Scanner(System.in);
```

```
System.out.println("Enter Any  
Number ");  
int n=sk.nextInt();//145  
int m=n;  
int sum=0;  
int fact;  
while(n!=0){//1  
int r=n%10;//r=1  
//factorial logic  
fact=1;  
for(int i=r;i>=1;i--){//fact=24  
fact=fact*i;  
}  
sum=sum+fact;//145  
n=n/10;  
}  
  
if(m==sum){
```

```
        System.out.println("This is
Strong Number");
    }
else{
    System.out.println("This is Not a
Strong Number");
}
}
```

**Q1. Write a java program to check given number is Prime or not?**

**Example1:**

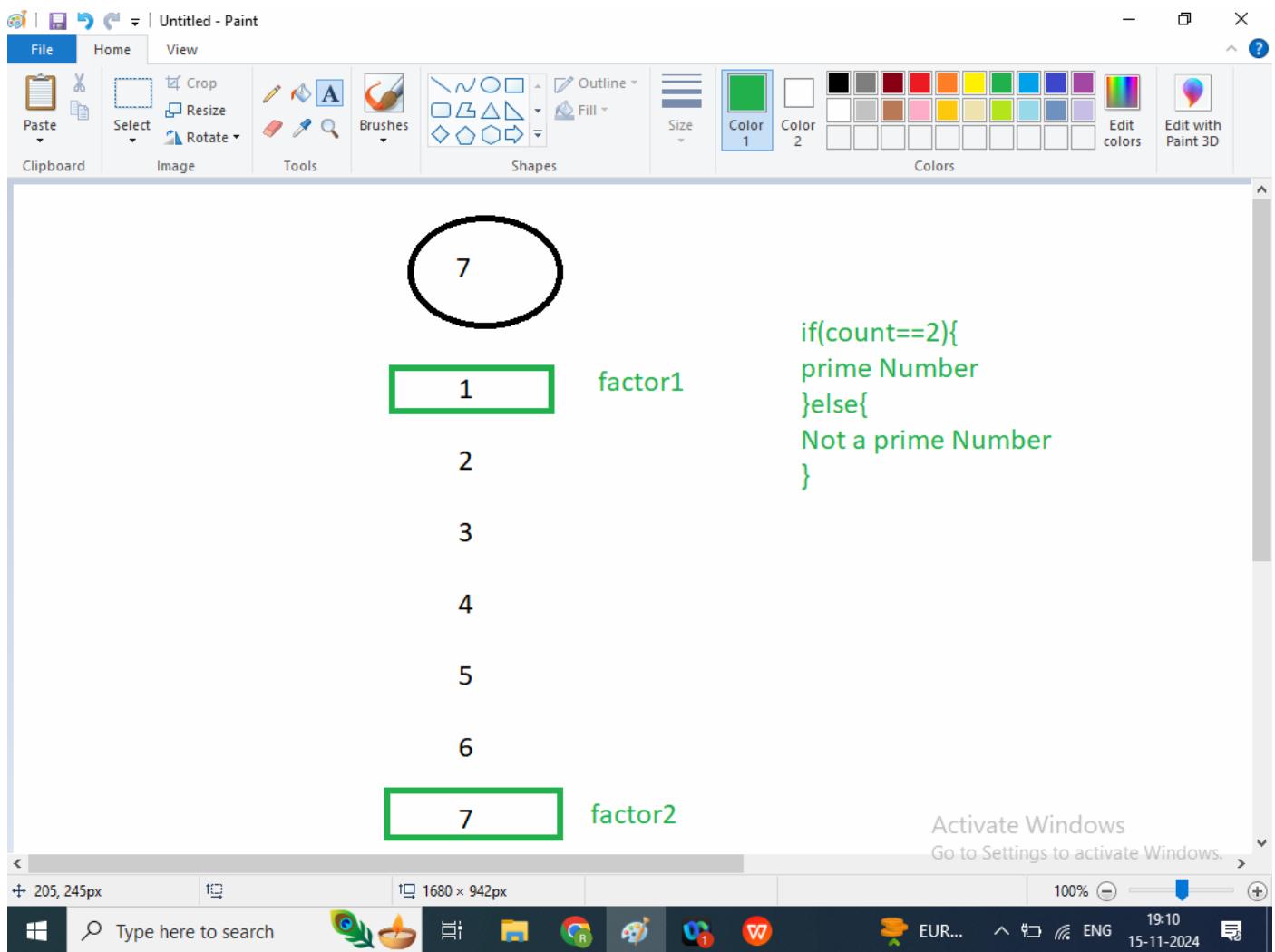
Enter Any Number : 7

This is Prime Number

**Example2:**

Enter Any Number : 8

This is not a Prime Number



```

import java.util.Scanner;
class P1{
    public static void main(String args[]){
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any No : ");
        int n=sk.nextInt(); //7

        int count=0;

        for(int i=1;i<=n;i++){
            if(n%i==0){
                count++;//2
            }
        }

        if(count==2){
            System.out.println("This is Prime Number");
        }else{
            System.out.println("This is Not a Prime Number");
        }
    }
}

```

---

## Q2. Write a java program to print Fibonacci Series?

**Example1:**

Enter Terms: 10

0 1 1 2 3 5 8 13 21 34

```

import java.util.Scanner;
class P1{
    public static void main(String args[]){
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any No : ");
        int n=sk.nextInt(); //5

        int t1,t2,t3;
        t1=0;
        t2=1;
        System.out.print("\t"+t1+"\t"+t2); //0 1 1 2 3
        for(int i=3;i<=n;i++){ //t1=2, t2=3, t3=3
            t3=t1+t2;
            t1=t2;
            t2=t3;
            System.out.print("\t"+t3);
        }
    }
}

```

```
t3=t1+t2;  
System.out.print("\t"+t3);  
t1=t2;  
t2=t3;  
}  
}
```

```
P1 - Notepad  
File Edit Format View Help  
import java.util.Scanner;  
class P1{  
    public static void main(String args[]){  
  
        Scanner sk=new Scanner(System.in);  
        System.out.println("Enter Any No : ");  
        int n=sk.nextInt(); //5  
  
        int t1,t2,t3;  
        t1=0;  
        t2=1;  
        System.out.print("\t"+t1+"\t"+t2); //0 1 1 2 3  
        for(int i=3;i<=n;i++){ //t1=2, t2=3, t3=3  
            t3=t1+t2;  
            System.out.print("\t"+t3);  
            t1=t2;  
            t2=t3;  
        }  
  
        Activate Windows  
        Go to Settings to activate Windows.  
Ln 15, Col 28 70% Windows (CRLF) UTF-8  
Type here to search 19:36 15-11-2024
```

## Q1. Explain Break Statement in java programming?

Ans: if we want to exit from the loop or switch then we should go for break statement

The screenshot shows a Windows desktop environment. At the top, there is a taskbar with various icons. In the center, a Command Prompt window is open, displaying the output of a Java program. Above the Command Prompt, a Notepad window titled "P1 - Notepad" contains the Java code for a "break" statement example.

```
class P1{
    public static void main(String args[]){
        for(int i=1;i<=10;i++){
            if(i==5){
                break;
            }
            System.out.println(i);
        }
    }
}
```

```
C:\Users\Admin\Desktop\Java Task>java P1
1
2
3
4
```

C:\Users\Admin\Desktop\Java Task> Windows Go to Settings to activate Windows.

Windows Type here to search 19:38 15-11-2024

## Q2. Explain continue Statement in Java Programming?

Ans: if we want to exit from the current iteration then we should go for continue

Continue work with only loop.

The screenshot shows a Windows desktop environment. In the foreground, there is a Notepad window titled "P1 - Notepad" containing Java code. Below it is a Command Prompt window showing the output of the program. The taskbar at the bottom includes icons for File Explorer, Google Chrome, and other system tools.

```
class P1{
    public static void main(String args[]){
        for(int i=1;i<=10;i++){
            if(i==5){
                continue;
            }
            System.out.println(i);
        }
    }
}
```

```
Command Prompt
C:\Users\Admin\Desktop\Java
1
2
3
4
6
7
8
9
10

C:\Users\Admin\Desktop\Java
```

### Q3. Explain System.exit(0)?

Ans: if we want to exit from the program then we should go for System.exit(0) function

The screenshot shows a Windows operating system interface. At the top is a Notepad window titled "\*P1 - Notepad" containing Java code. Below the window is a taskbar with various icons and system status indicators.

```
class P1{
    public static void main(String args[]){
        System.out.println("Hello Java");
        System.exit(0);
        System.out.println("Hello Bhopal");
    }
}
```

Activate Windows  
Go to Settings to activate Windows.

Type here to search

Ln 13, Col 1 | 70% | Windows (CRLF) | UTF-8

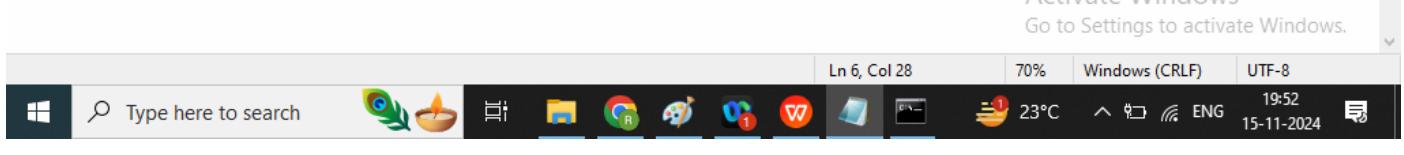
23°C | 19:46 | ENG | 15-11-2024

Q1. What will be the output of the following program?

\*P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i;
        for(i=1;i<=10;i++){
            System.out.println(i); //11
        }
    }
}
```



P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i;
        for(i=1;i<=10;i++){
            System.out.println(i);
        }

        while(i<=20){
            System.out.println(i);
            i++;
        }

        do{
            System.out.println(i);
            i++;
        }while(i<=30);
    }
}
```

Activate Windows  
Go to Settings to activate Windows.



P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i;
        for(i=1;i<=10;){
            System.out.println(i);
            ++i;
        }
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>
C:\Users\Admin\Desktop\Java Task>
1
2
3
4
5
6
7
8
9
10
```

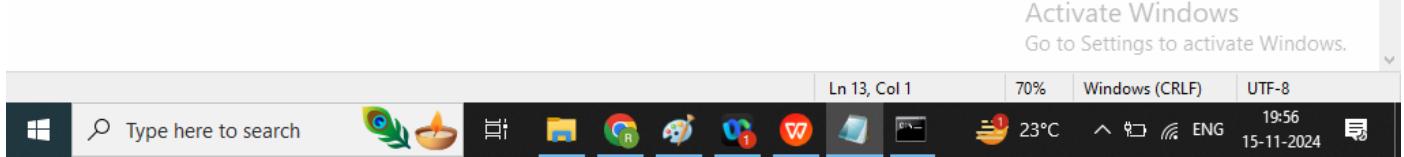
Activate Windows  
Go to Settings to activate Windows.

C:\Users\Admin\Desktop\Java Task>

P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i;
        for(i=1;i<=10;i++){
            System.out.println(i);
        }
    }
}
```



P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i;
        for(i=1;i==1;i++){
            System.out.println(i);
        }
    }
}
```

Activate Windows  
Go to Settings to activate Windows.



P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i=5;
        for(;i<=10;i++){
            System.out.println(i);
        }
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac P1.java

C:\Users\Admin\Desktop\Java Task>java P1
5
6
7
8
9
10

C:\Users\Admin\Desktop\Java Task>
```



P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i=5;
        for(;true;i++){
            System.out.println(i);
        }
    }
}
```

C:\ Command Prompt

1035  
1036  
1037  
1038  
1039  
1040  
1041  
1042  
1043  
1044  
1045  
1046  
1047

Activate Windows  
Go to Settings to activate Windows.

Windows Start Type here to search Peacock icon File Explorer Google Paint Microsoft Edge Microsoft Word Microsoft Excel 23°C ENG 19:58 15-11-2024

P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i=5;
        for(;false;i++){
            System.out.println(i);
        }
    }
}
```

C:\Users\Admin\Desktop\Java Task>javac P1.java  
P1.java:5: error: unreachable statement  
 for(;false;i++){  
 ^  
1 error

C:\Users\Admin\Desktop\Java Task>

Activate Windows

Go to Settings to activate Windows.



P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i=5;
        for(;i++){
            System.out.println(i);
        }
    }
}
```

C:\ Command Prompt

1127  
1128  
1129  
1130  
1131  
1132  
1133  
1134  
1135  
1136  
1137  
1138  
1139

Activate Windows  
Go to Settings to activate Windows.

Windows Start Type here to search 🌐 File Explorer Google Edge Paint OneDrive Word Excel 23°C ENG 19:59 15-11-2024

P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int i=5;
        for(;;){
            System.out.println(i);
            i++;
        }
    }
}
```

C:\ Command Prompt

1035  
1036  
1037  
1038  
1039  
1040  
1041  
1042  
1043  
1044  
1045  
1046  
1047

Activate Windows  
Go to Settings to activate Windows.

Windows Start button Type here to search Peacock icon File Explorer icon Google Chrome icon Paint icon Microsoft Edge icon Microsoft Word icon Microsoft Excel icon Microsoft Powerpoint icon Microsoft Word icon 23°C ENG 15-11-2024

# Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	*	*	*	*	*
Row 2	*	*	*	*	*
Row 3	*	*	*	*	*
Row 4	*	*	*	*	*
Row 5	*	*	*	*	*

```
P1 - Notepad
File Edit Format View Help
class P1{
    public static void main(String args[]){
        int r,c;
        for(r=1;r<=5;r++){//r=6
            for(c=1;c<=5;c++){//c=6
                System.out.print("*");
            }
            System.out.println("");
        }
    }
}

Activate Windows
Go to Settings to activate Windows.

Ln 11, Col 2      100%  Windows (CRLF)  UTF-8
Type here to search  24°C  19:27  ENG  16-11-2024
```

```
class P1{
    public static void main(String args[]){
        int r,c;
        for(r=1;r<=5;r++){//r=6 25
            for(c=1;c<=5;c++){//c=6
                System.out.print("*");
            }
            System.out.println("");
        }
    }
}
```

Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	*				
Row 2	*	*			
Row 3	*	*	*		
Row 4	*	*	*	*	
Row 5	*	*	*	*	*

P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int r,c;
        for(r=1;r<=5;r++){//r=5
            for(c=1;c<=r;c++){//c=1
                System.out.print("*");
            }
            System.out.println("");
        }
    }
}
```

Activate Windows  
Go to Settings to activate Windows.

Ln 8, Col 4   100%   Windows (CRLF)   UTF-8

Type here to search   24°C   19:38   ENG   16-11-2024

Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	*	*	*	*	*
Row 2	*	*	*	*	
Row 3	*	*	*		
Row 4	*	*			
Row 5	*				

P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int r,c;
        for(r=5;r>=1;r--){//r=5
            for(c=1;c<=r;c++){//c=1
                System.out.print("*");
            }
        System.out.println("");
    }
}
```

Command Prompt

```
*****  
****  
***  
**  
*
```

Activate Windows  
Go to Settings to activate Windows.



P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int r,c;
        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){
                System.out.print("*");
            }
            System.out.println("");
        }
    }
}
```

Command Prompt

C:\Users\Admin\Desktop

C:\Users\Admin\Desktop

\*

\*\*

\*\*\*

\*\*\*\*

\*\*\*\*\* Go to Settings to activate Windows.

Ln 8, Col 1

Type here to search

24°C 19:35 16-11-2024

Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	1				
Row 2	2	2			
Row 3	3	3	3		
Row 4	4	4	4	4	
Row 5	5	5	5	5	5

A screenshot of a Windows desktop environment. In the foreground, a Notepad window titled "P1 - Notepad" displays a Java code snippet. The code prints a 5x5 pattern of numbers. In the background, a Command Prompt window titled "Command Prompt" shows the output of the program, which is the pattern "12345" repeated five times vertically. The desktop taskbar at the bottom includes icons for File Explorer, Google Chrome, and other applications.

```
class P1{
    public static void main(String args[]){
        int r,c;
        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){
                System.out.print(r);
            }
            System.out.println("");
        }
    }
}
```

```
C:\Users\Admin\Desktop>
C:\Users\Admin\Desktop>
1
22
333
4444
55555
```

Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	5	5	5	5	5
Row 2	4	4	4	4	
Row 3	3	3	3		
Row 4	2	2			
Row 5	1				

P1 - Notepad

File Edit Format View Help

```
class P1{
    public static void main(String args[]){
        int r,c;
        for(r=5;r>=1;r--){
            for(c=1;c<=r;c++){
                System.out.print(r);
            }
        System.out.println("");
    }
}
```

Command Prompt

55555  
4444  
333  
22  
1

C:\Users\Admin\Desktop

Activate Windows  
Go to Settings to activate Windows.



# Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	1				
Row 2	1	2			
Row 3	1	2	3		
Row 4	1	2	3	4	
Row 5	1	2	3	4	5

The screenshot shows a Windows desktop environment. In the center, there is a Notepad window titled "P2 - Notepad" containing the following Java code:

```
class P2{
    public static void main(String args[]){
        int r,c;

        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){
                System.out.print(c);
            }
            System.out.println("");
        }
    }
}
```

Below the Notepad window is a Command Prompt window titled "Command Prompt" with the following text:

```
C:\Users\Admin\Desktop\Java Task>java P2
1
12
123
1234
12345
```

The desktop taskbar at the bottom includes icons for File Explorer, Google Chrome, Paint, Word, OneDrive, and File Explorer. The system tray shows the date and time as "18-11-2024 19:13".

# Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	1	2	3	4	5
Row 2	1	2	3	4	
Row 3	1	2	3		
Row 4	1	2			
Row 5	1				

P2 - Notepad

File Edit Format View Help

```
class P2{
    public static void main(String args[]){
        int r,c;

        for(r=5;r>=1;r--){
            for(c=1;c<=r;c++){
                System.out.print(c);
            }
            System.out.println("");
        }
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>java P2
12345
1234
123
12
1
```

Type here to search

Activate Windows  
Go to Settings to activate Windows.

23°C 19:18 18-11-2024

Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	1				
Row 2	2	3			
Row 3	4	5	6		
Row 4	7	8	9	10	
Row 5	11	12	13	14	15

P2 - Notepad

File Edit Format View Help

```
class P2{
    public static void main(String args[]){
        int r,c;
        int n=0;
        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){
                n++;
                System.out.print(n+ " ");
            }
            System.out.println("");
        }
    }
}
```

Command Prompt

C:\Users\Admin\Desktop\Java Task>java P2

1  
2 3  
4 5 6  
7 8 9 10  
11 12 13 14 15

Type here to search

Activate Windows  
Go to Settings to activate Windows.

23°C ENG 19:24 18-11-2024

Q1. Write a java program to print following pattern?

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	A				
Row 2	B	B			
Row 3	C	C	C		
Row 4	D	D	D	D	
Row 5	E	E	E	E	E

P2 - Notepad

File Edit Format View Help

```
class P2{
    public static void main(String args[]){
        int r,c;

        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){

                System.out.print((char)(64+r));
            }
            System.out.println("");
        }
    }
}
```

Output:

```
C:\Users\Admin\Desktop\Java Task>java P2
A
BB
CCC
DDDD
EEEEE
```

Activate Windows  
Go to Settings to activate Windows.

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	E	E	E	E	E
Row 2	D	D	D	D	
Row 3	C	C	C		
Row 4	B	B			
Row 5	A				

P2 - Notepad

File Edit Format View Help

```

class P2{
    public static void main(String args[]){
        int r,c;

        for(r=5;r>=1;r--){
            for(c=1;c<=r;c++){
                System.out.print((char)(64+r));
            }
            System.out.println("");
        }
    }
}

```

Command Prompt

C:\Users\Admin\Desktop\Java Task>java P2

EEEEEE  
DDDD  
CCC  
BB  
A

C:\Users\Admin\Desktop\Java Task>

Activate Windows  
Go to Settings to activate Windows.

Windows Start Type here to search File Explorer Google Paint Word OneDrive File Explorer 23°C ENG 19:33 18-11-2024

Q1.

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	A				
Row 2	B	C			
Row 3	D	E	F		
Row 4	G	H	I	J	
Row 5	K	L	M	N	O

P2 - Notepad

File Edit Format View Help

```

class P2{
    public static void main(String args[]){
        int r,c;
        int n=0;
        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){
                n++;
                System.out.print((char)(64+n));
            }
            System.out.println("");
        }
    }
}

```

Command Prompt

C:\Users\Admin\Desktop\Java Task>java P2

A  
BC  
DEF  
GHIJ  
KLMNO

C:\Users\Admin\Desktop\Java Task>



Q1.

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1	0				
Row 2	1	0			
Row 3	0	1	0		
Row 4	1	0	1	0	
Row 5	0	1	0	1	0

P2 - Notepad

File Edit Format View Help

```
class P2{
    public static void main(String args[]){
        int r,c;

        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){

                if((r+c)%2==0){
                    System.out.print("0");
                }
                else{
                    System.out.print("1");
                }
            }
            System.out.println("");
        }
    }
}
```

Command Prompt

```
0
10
010
1010
01010

Activate Windows
C:\Users\Admin\Desktop\Java
```

Windows Start button

Type here to search

Taskbar icons: File Explorer, Google Chrome, Paint, Word, OneDrive, Task View, Power User

System tray: 23°C, ENG, 19:48, 18-11-2024

P2 - Notepad

File Edit Format View Help

```
class P2{
    public static void main(String args[]){
        int r,c;

        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){

                System.out.print((r+c)%2);
            }
            System.out.println("");
        }
    }
}
```

Command Prompt

```
0
10
010
1010
01010
```

Activate Windows  
Go to Settings to activate Windows.

C:\Users\Admin\Desktop\Java Tasks

23°C 19:50 18-11-2024

P2 - Notepad

File Edit Format View Help

```
class P2{
    public static void main(String args[]){
        int r,c;

        for(r=1;r<=5;r++){
            for(c=1;c<=r;c++){
                System.out.print((r+c)%2);
            }
            System.out.println("");
        }
    }
}
```

Activate Windows  
Go to Settings to activate Windows.



## Homework

Q1.

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1					0
Row 2				0	1
Row 3			0	1	0
Row 4		0	1	0	1
Row 5	0	1	0	1	0

Q1.

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1					0
Row 2				0	1
Row 3			0	1	0
Row 4		0	1	0	1
Row 5	0	1	0	1	0

```
*P2 - Notepad
File Edit Format View Help
class P2{
    public static void main(String args[]){
        int r,c;
        for(r=1;r<=5;r++){
            for(c=5;c>r;c--) System.out.print(" ");
            for(c=1;c<=r;c++) System.out.print((r+c)%2);
            System.out.println("");
        }
    }
}
```

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Ln 16, Col 3 80% Windows (CRLF) UTF-8  
Type here to search 22°C 19:15 20-11-2024

Q1.

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1					*
Row 2				*	*
Row 3			*	*	*
Row 4		*	*	*	*
Row 5	*	*	*	*	*

P2 - Notepad

```

File Edit Format View Help
class P2{
    public static void main(String args[]){
        int r,c;

        for(r=1;r<=5;r++){//r=5

            for(c=5;c>r;c--){//c=5
                System.out.print(" ");
            }//space
            for(c=1;c<=r;c++){//c=1

                System.out.print("*");//
            }
            System.out.println("");
        }
    }
}

```

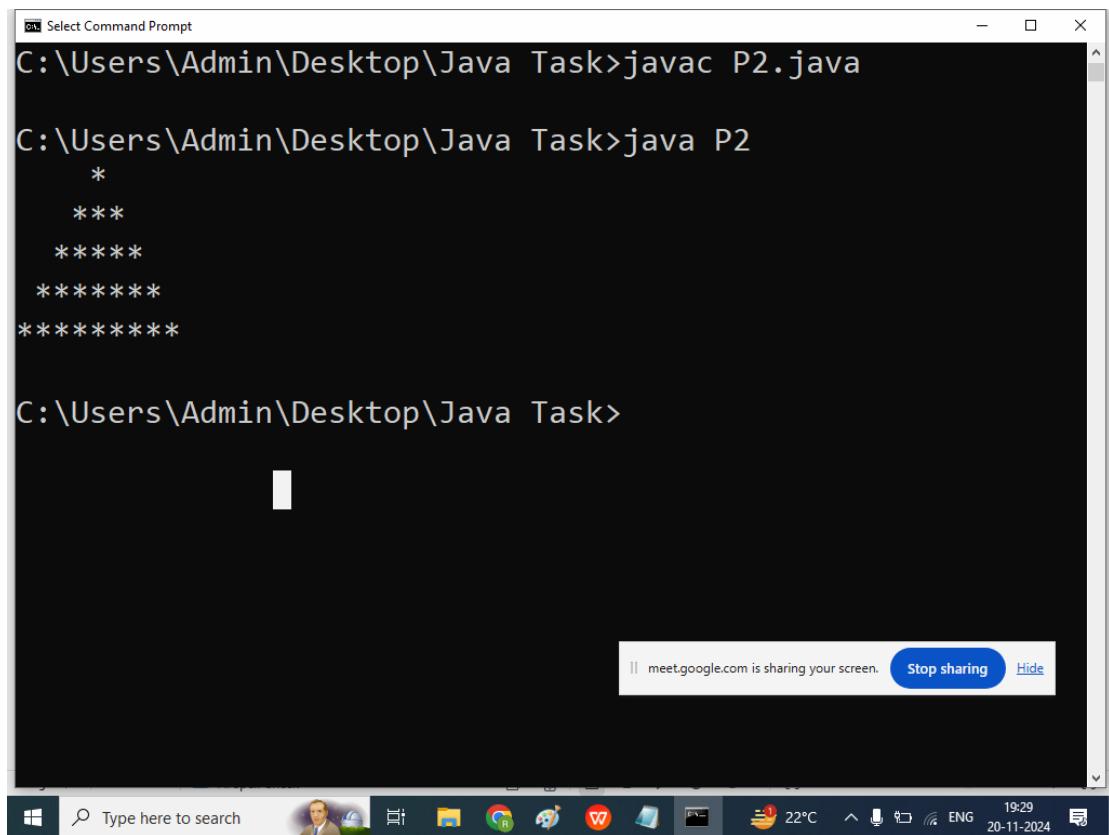
|| meet.google.com is sharing your screen. [Stop sharing](#) [Hide](#)

Ln 15, Col 3    80%    Windows (CRLF)    UTF-8  
22°C 19:16 ENG 20-11-2024

Q1.

	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Row 1					A
Row 2				B	C
Row 3			D	E	F
Row 4		G	H	I	J
Row 5	K	L	M	N	O

Q1.



```
C:\Users\Admin\Desktop\Java Task>javac P2.java
C:\Users\Admin\Desktop\Java Task>java P2
*
 ***
 *****
 *****

C:\Users\Admin\Desktop\Java Task>
```

```
class P2{
    public static void main(String args[]){
        int r,c;
        for(r=1;r<=5;r++){
            for(c=5;c>r;c--){
                System.out.print(" ");
            }//space
            for(c=1;c<=2*r-1;c++){
                System.out.print("*");
            }
            System.out.println("");
        }
    }
}
```

```
C:\ Command Prompt
C:\Users\Admin\Desktop\Java Task>javac P2.java

C:\Users\Admin\Desktop\Java Task>java P2
*****
 *****
 ***
 *
C:\Users\Admin\Desktop\Java Task>
```

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```
P2 - Notepad
File Edit Format View Help
class P2{
    public static void main(String args[]){
        int r,c;

        for(r=5;r>=1;r--){
            for(c=5;c>r;c--){
                System.out.print(" ");
            }//space
            for(c=1;c<=2*r-1;c++){
                System.out.print("*");
            }
            System.out.println("");
        }
    }
}
```

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Ln 17, Col 2 80% Windows (CRLF) UTF-8
22°C 19:32 20-11-2024

```
class P2{
    public static void main(String args[]){
        int r,c;
        for(r=1;r<=5;r++){
            for(c=5;c>r;c--){
                System.out.print(" ");
            }//space
            for(c=1;c<=2*r-1;c++){
                System.out.print("*");
            }
            System.out.println("");
        }

        for(r=4;r>=1;r--){
            for(c=5;c>r;c--){
                System.out.print(" ");
            }//space
            for(c=1;c<=2*r-1;c++){
                System.out.print("*");
            }
            System.out.println("");
        }
    }
}
```

---

# Q1. Explain Array in java programming?

Ans:

If we want to store multiple value under single variable name then we Should go for array

An Array in java is store multiple values(same types) in a single variable with continuous memory allocation.

Elements of the array access or assigned by index

Index always start with 0.

Java Does not support negative index

Arrays are fixed in size after declaring the array we cannot increase or decrease the size of array

In java Array is dynamic

Element of the array can be access sequentially and randomly

## How to declare array in java

Data type ArrayName[] = new Data type [size];  
Size should not be negative or float/double

OR

Data type []ArrayName=new Data type[**size**];

OR

Data type[] ArrayName=new Data type[**size**];

Example:

int x[]={};//invalid

int arr[]={};//valid

int num[]={};//valid

int num[]={};//invalid

String names[]={};//valid

float per[]={};//valid

char Grade[] ={}; //valid

int ages[]={};//valid

int ages[]={};//valid

int ages[]={};//valid

A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int arr[]=new int[0];
        arr[0]=10;
    }
}
```

Select Command Prompt

```
C:\Users\Admin\Desktop\Java Task>java A1
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException
Exception: 0
    at A1.main(A1.java:4)

C:\Users\Admin\Desktop\Java Task>
```



A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int arr[] = new int[-1];
        arr[0] = 10;
    }
}
```

Command Prompt

```
Exception: 0
    at A1.main(A1.java:4)

C:\Users\Admin\Desktop\Java Task>javac A1.java

C:\Users\Admin\Desktop\Java Task>java A1
Exception in thread "main" java.lang.NegativeArraySizeException
    at A1.main(A1.java:3)
```

C:\Users\Admin\Desktop\Java Task>



A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int arr[] = new int[(int)2.5];
        arr[0] = 10;
    }
}
```

Ln 6, Col 2      100%      Windows (CRLF)      UTF-8

Type here to search

A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int arr[]=new int[2.5];
        arr[0]=10;
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac A1.java
A1.java:3: error: incompatible types: possible lossy conversion from double to int
        int arr[]=new int[2.5];
                           ^
1 error

C:\Users\Admin\Desktop\Java Task>
```



A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int arr[] = new int[true];
        arr[0] = 10;
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac A1.java
A1.java:3: error: incompatible types: boolean cannot be converted to int
        int arr[] = new int[true];
                           ^
1 error

C:\Users\Admin\Desktop\Java Task>
```



A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int rollno[] = new int[5];

    }
}
```



A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int rollno[] = new int[5];

    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>java A1

C:\Users\Admin\Desktop\Java Task>
```



A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int rollno[]=new int[5];
        System.out.println(rollno);
    }
}
```

Command Prompt

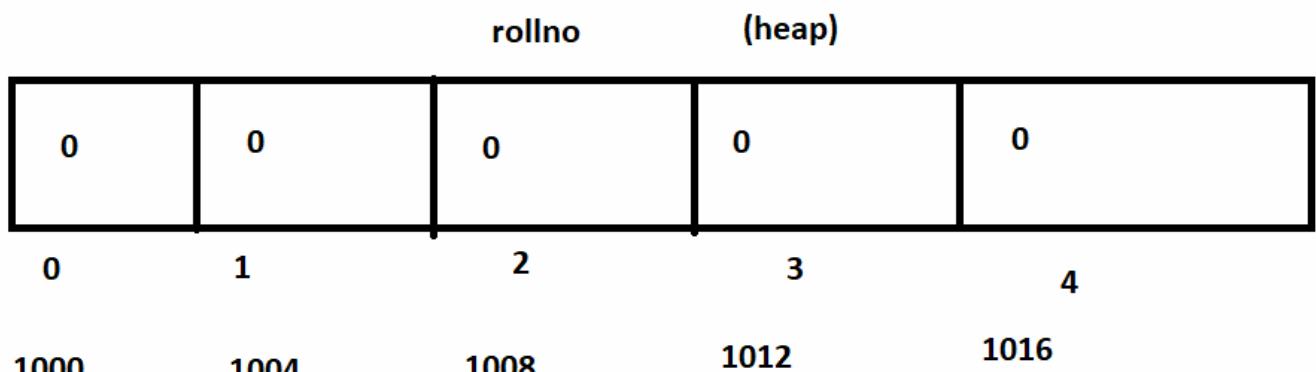
```
C:\Users\Admin\Desktop\Java Task>java A1

C:\Users\Admin\Desktop\Java Task>javac A1.java

C:\Users\Admin\Desktop\Java Task>java A1
[I@2a139a55

C:\Users\Admin\Desktop\Java Task>
```

int rollno[]=new int[5];  
OR  
int []rollno=new int[5];  
OR  
Int[] rollno=new int[5];



How to print value of the array

`System.out.println(arrayName[index]);`

The screenshot shows a Windows desktop environment. At the top, there is a taskbar with various icons. Below the taskbar, a Notepad window titled "A1 - Notepad" is open, displaying the following Java code:

```

class A1{
    public static void main(String args[]){
        int rollno[] = new int[5];
        System.out.println(rollno[6]);
    }
}

```

Below the Notepad window is a Command Prompt window titled "Command Prompt". The output from the command prompt is as follows:

```

[I@2a139a55
C:\Users\Admin\Desktop\Java Task>javac A1.java
C:\Users\Admin\Desktop\Java Task>java A1
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException
Exception: 6
        at A1.main(A1.java:4)

C:\Users\Admin\Desktop\Java Task>

```

A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int rollno[]=new int[5];
        System.out.println(rollno[-1]);
    }
}
```

Command Prompt

```
C:\Users\Admin\Desktop\Java Task>javac A1.java

C:\Users\Admin\Desktop\Java Task>java A1
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException
Exception: -1
    at A1.main(A1.java:4)

C:\Users\Admin\Desktop\Java Task>
```



A screenshot of a Windows desktop environment. At the top, there is a taskbar with various icons. Below the taskbar, a Notepad window titled "A1 - Notepad" is open, displaying Java code. A Command Prompt window is also open, showing the output of running the Java code. The desktop background is visible at the bottom.

```
class A1{
    public static void main(String args[]){
        int rollno[]=new int[5];
        System.out.println(rollno[0]);
        System.out.println(rollno[1]);
        System.out.println(rollno[2]);
        System.out.println(rollno[3]);
        System.out.println(rollno[4]);
    }
}
```

```
C:\Users\Admin\Desktop\Java Task>java A1
0
0
0
0
0
C:\Users\Admin\Desktop\Java Task>
```

How to Initialize array in java?

### 1. Initializing array using index

```
ArraName[index]=value;
rollno[0]=101;
rollno[1]=102;
rollno[2]=156;
rollno[3]=564;
rollno[4]=888;
```

```
class A1{
    public static void main(String args[]){
        int rollno[]=new int[5];
        rollno[0]=0101;
        rollno[1]=102;
        rollno[2]=156;
        rollno[3]=564;
        rollno[4]=888;
```

```
System.out.println(rollno[0]);
System.out.println(rollno[1]);
System.out.println(rollno[2]);
System.out.println(rollno[3]);
System.out.println(rollno[4]);

}

}
```

---

Q1. Write a java program to initialize 1d Array in java without using index and print it on the screen?

Length properties: if we want to know size of the array in java then we should use length properties

Syntax:

arrayName.length

```
class A1{
```

```
    public static void main(String args[]){
        int arr[]={10,20,30,40,50,60};
```

```
        System.out.println("Length of the Array
"+arr.length);
```

```
        System.out.println(arr[arr.length-2]);
```

```
        System.out.println("Array Element at index 0
: "+arr[0]);
```

```
        System.out.println("Array Element at index 1
: "+arr[1]);
```

```
    System.out.println("Array Element at index 2  
: "+arr[2]);
```

```
    System.out.println("Array Element at index 3  
: "+arr[3]);
```

```
    System.out.println("Array Element at index 4  
: "+arr[4]);
```

```
    System.out.println("Array Element at index 5  
: "+arr[5]);
```

```
}
```

```
}
```

---

```
import java.util.Scanner;  
class A1{  
    public static void main(String args[]){  
        int arr[]={10,20,30,40,50,60};
```

```
        System.out.println("Length of the Array  
"+arr.length);
```

```
System.out.println(arr[arr.length-2]);  
  
System.out.println("Array Element at index 0  
: "+arr[0]);  
  
System.out.println("Array Element at index 1  
: "+arr[1]);  
  
System.out.println("Array Element at index 2  
: "+arr[2]);  
  
System.out.println("Array Element at index 3  
: "+arr[3]);  
  
System.out.println("Array Element at index 4  
: "+arr[4]);  
  
System.out.println("Array Element at index 5  
: "+arr[5]);  
  
}  
}
```

---

Q2. write a java program to take array elements from the user and print it on the screen

```
import java.util.Scanner;
class A1{
    public static void main(String args[]){
        int arr[]={};
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Element Index of 0 : ");
        arr[0]=sk.nextInt();
        System.out.println("Enter Element Index of 1 : ");
        arr[1]=sk.nextInt();
        System.out.println("Enter Element Index of 2 : ");
        arr[2]=sk.nextInt();
        System.out.println("Enter Element Index of 3 : ");
        arr[3]=sk.nextInt();
```

```
System.out.println("Enter Element Index of 4  
: ");  
arr[4]=sk.nextInt();
```

```
System.out.println("Length of the Array  
"+arr.length);
```

```
System.out.println("Array Element at index 0  
: "+arr[0]);
```

```
System.out.println("Array Element at index 1  
: "+arr[1]);
```

```
System.out.println("Array Element at index 2  
: "+arr[2]);
```

```
System.out.println("Array Element at index 3  
: "+arr[3]);
```

```
System.out.println("Array Element at index 4  
: "+arr[4]);
```

```
}
```

```
}
```

---

How to take input from the user

```
import java.util.Scanner;
```

```
class A1{
```

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

```
        int arr[]=new int[10];
```

```
        Scanner sk=new Scanner(System.in);
```

```
        int i;
```

```
        for(i=0;i<arr.length;i++){//i=0 ,1 ,2, 3, 4,
```

```
            System.out.println("Enter Element Index of  
"+i+":");
```

```
            arr[i]=sk.nextInt();
```

```
        }//input
```

```
        System.out.println("Length of the Array
```

```
" +arr.length);
```

```
        System.out.println("Element of the Array : ");
```

```
for(i=0;i<arr.length;i++){//0, 1 2 3 4
    System.out.println(i+" Index Element
"+arr[i]);
}//output

}
```

---

Q2. Write a java Program to print reverse of the array element?

Array element: 1 2 3 4 5

Reverse element: 5 4 3 2 1

import java.util.Scanner;

class A1{

    public static void main(String args[]){

        int arr[]={1,2,3,4,5};

        Scanner sk=new Scanner(System.in);

        int i;

        for(i=0;i<arr.length;i++){//i=0 ,1 ,2, 3, 4,

            System.out.println("Enter Element Index of  
"+i+":");

            arr[i]=sk.nextInt();

```
//input  
  
System.out.println("Length of the Array  
"+arr.length);  
  
System.out.println("Reverse Element of the  
Array : ");  
for(i=0;i<arr.length;i++){//0, 1 2 3 4  
    System.out.println(i+" Index Element  
"+arr[i]);  
}//output  
  
}  
}
```

---

Q2. Write a java program to print alternate array elements and element starts with 0 ?

```
import java.util.Scanner;  
class A1{  
    public static void main(String args[]){  
        int arr[]={1,2,3,4,5};  
        for(int i=0;i<arr.length;i+=2){  
            System.out.println(arr[i]);  
        }  
    }  
}
```

```
Scanner sk=new Scanner(System.in);
int i;
for(i=0;i<arr.length;i++){//i=0 ,1 ,2, 3, 4,
System.out.println("Enter Element Index of
"+i+" : ");
arr[i]=sk.nextInt();
}//input
```

```
System.out.println("Length of the Array
"+arr.length);
```

```
System.out.println("Reverse Element of the
Array : ");
```

```
for(i=0;i<arr.length;i=i+2){//0, 1 2 3 4
System.out.println(i+" Index Element
"+arr[i]);
}//output
```

```
}
```

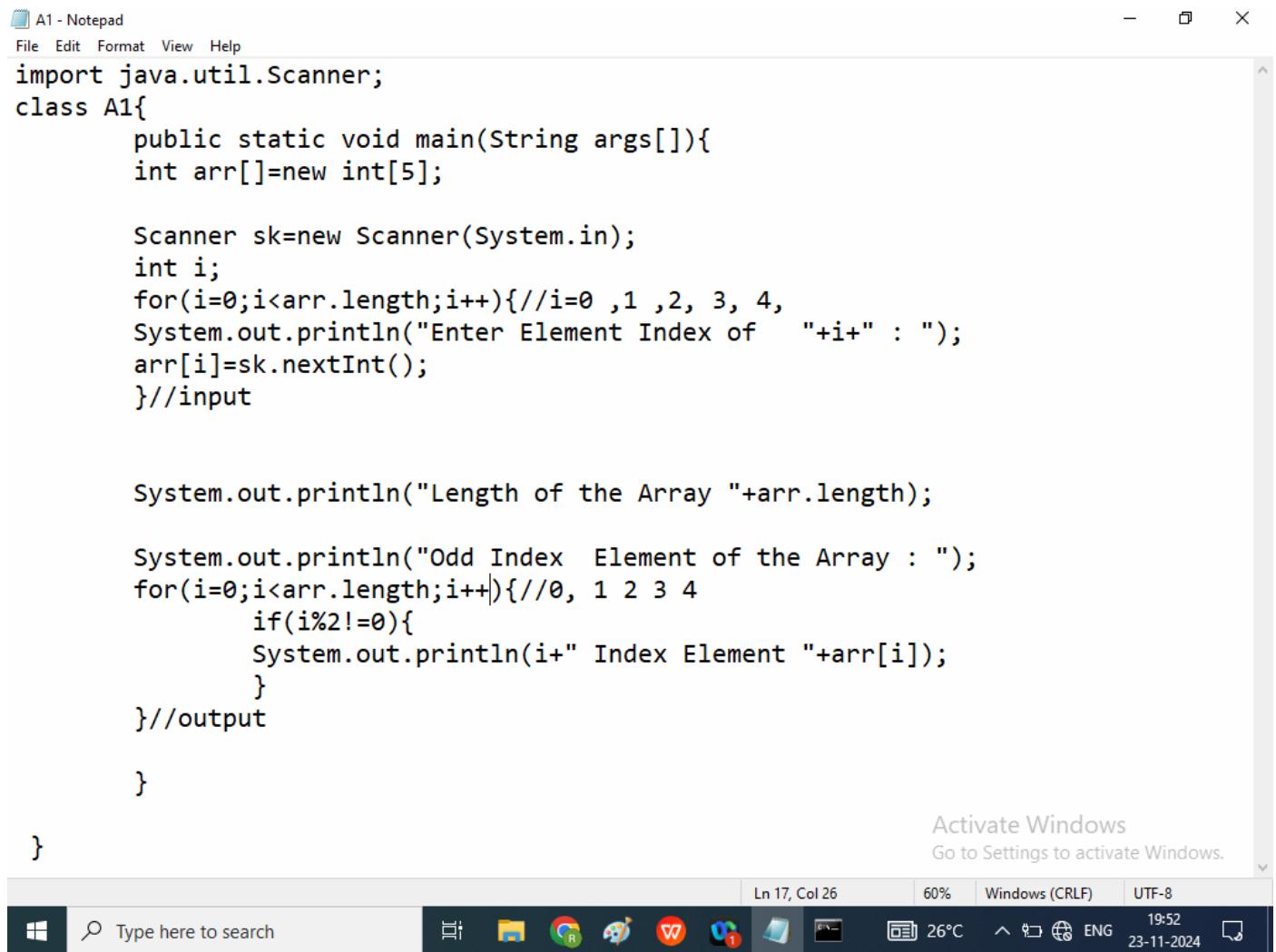
```
}
```

**Q2. Write a java program to print odd index of element of the array**

Array Element: 10 20 30 40 50  
0 1 2 3 4

Odd Index Element Are:

20 30



```
A1 - Notepad
File Edit Format View Help
import java.util.Scanner;
class A1{
    public static void main(String args[]){
        int arr[] = new int[5];

        Scanner sk = new Scanner(System.in);
        int i;
        for(i=0;i<arr.length;i++){//i=0 ,1 ,2, 3, 4,
            System.out.println("Enter Element Index of " + i + " : ");
            arr[i] = sk.nextInt();
        }//input

        System.out.println("Length of the Array " + arr.length);

        System.out.println("Odd Index Element of the Array : ");
        for(i=0;i<arr.length;i++){//0, 1 2 3 4
            if(i%2!=0){
                System.out.println(i + " Index Element " + arr[i]);
            }
        }//output
    }
}

Activate Windows
Go to Settings to activate Windows.
```

**Q3. Write a java program to print sum of all array elements?**

Array Elements Are : 10 20 30 40 50

```
import java.util.Scanner;
class A1{
    public static void main(String args[]){
        int arr[]=new int[5];
```

```
Scanner sk=new Scanner(System.in);
int i;
for(i=0;i<arr.length;i++){//i=0 ,1 ,2, 3, 4,
System.out.println("Enter Element Index of "+i+" : ");
arr[i]=sk.nextInt();
}//input
```

```
System.out.println("Length of the Array "+arr.length);
int sum=0;
```

```
for(i=0;i<arr.length;i++){//0, 1 2 3 4
    sum=sum+arr[i];
    System.out.println(i+" Index Element "+arr[i]);
```

```
//output
```

```
System.out.println("sum of all array elements :
"+sum);
```

```
System.out.println("Average of array elements :
"+sum/arr.length);
```

}

}

---

Q1. Write a java program to find smallest element from the Array?

Array Elements : 100 1 200 2 300 0 -2

Smallest Element of the Array: -2

```
class A1{  
    public static void main(String args[]){  
        int arr[]={100 ,1,200,2,300,0,-2};  
        int min=arr[0];//min=-2  
  
        for(int i=0;i<arr.length;i++){//i=7  
            if(arr[i]<min){  
                min=arr[i];  
            }  
        }  
        System.out.println("Smallest Element :  
        "+min);  
    }  
}
```

}

Q1. Write a java program to find Largest element from the Array?

Array Elements : 100 1 200 2 300 0 -2

Largest Element of the Array: 300

A1 - Notepad

File Edit Format View Help

```
class A1{
    public static void main(String args[]){
        int arr[]={100 ,1,200,2,300,0,-2};
        int max=arr[0];//max=300

        for(int i=0;i<arr.length;i++){//i=7
            if(arr[i]>max){
                max=arr[i];
            }
        }
        System.out.println("Largest Element : "+max);
    }
}
```

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Q3. Write a java program to print second largest element from the array?

Array Elements : 100 1 200 2 300 0 -2

Second Largest Element of the Array: 200

Q1. Write a java program to find second lowest element from the Array?

Array Elements : 100 1 200 2 300 0 -2

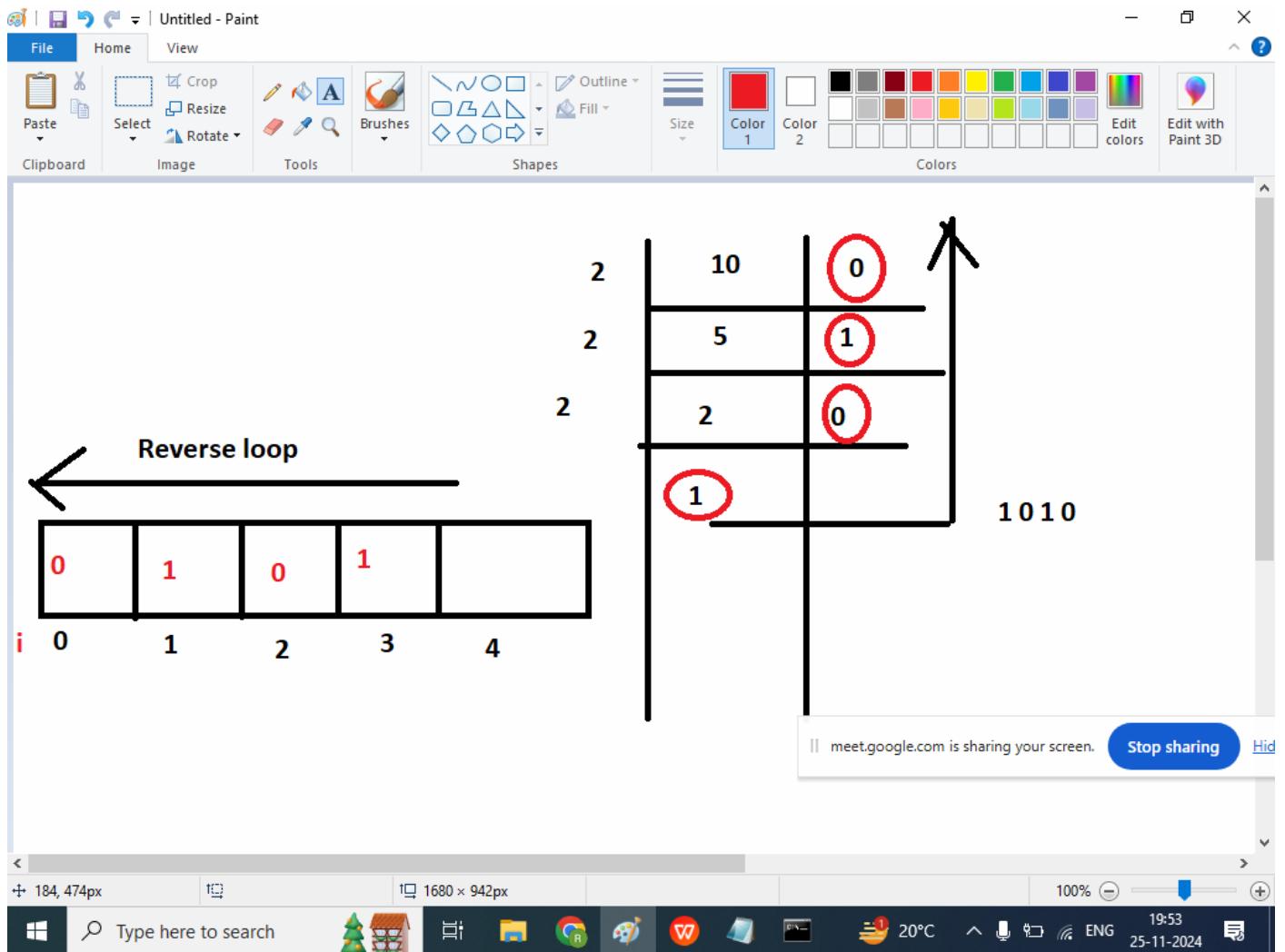
Second Lowest Element of the Array: 0

---

Q3. Write a java program to convert given number to binary Number?

Enter Any Number : 10

Binary Number : 1010



```

import java.util.Scanner;
class A1{
    public static void main(String args[]){
        Scanner sk=new Scanner(System.in);
        System.out.println("Enter Any Number ");
        int n=sk.nextInt(); //10
        int arr[]=new int[10];
        int i=0;
        while(n>0){ //n=1
            int r=n%2; //r=1
            arr[i]=r;
            i++;
            n=n/2;
        }
        //i=4
        System.out.println("Binary Number : ");
        for(i=i-1;i>=0;i--){
            System.out.print("\t"+arr[i]); //1010
        }
    }
}

```



# Q1. Write a java program to sort array in ascending order?

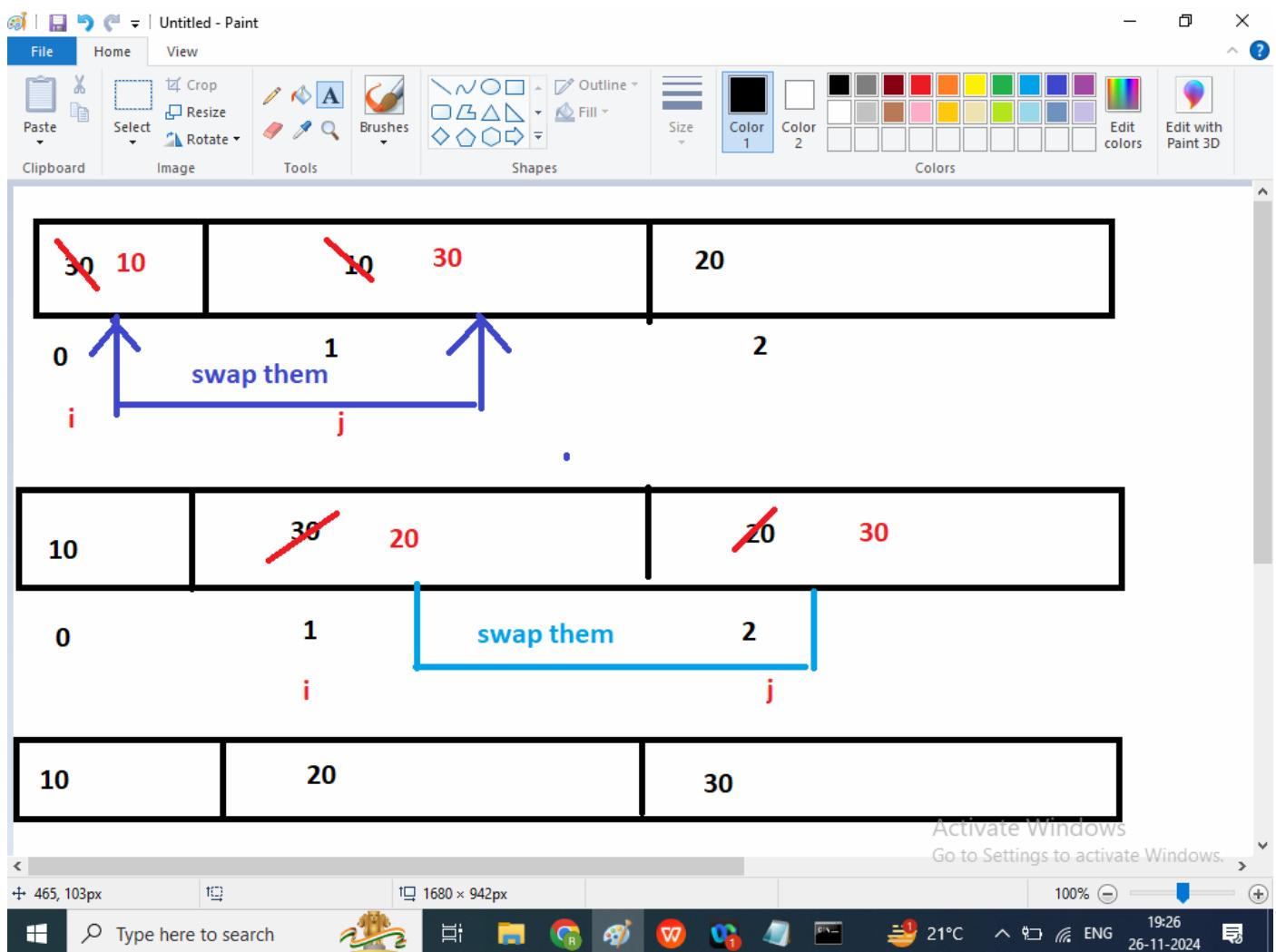
Array Elements: 30 10 20

Before Sorting :

30 10 20

After Sorting:

10 20 30



```
class A2{
    public static void main(String args[]){
        int arr[]={30,10,20,50,40,100,90,60,80,70};

        System.out.println("Before Sorting ");
        for(int i=0;i<arr.length;i++){
            System.out.print("\t"+arr[i]);
        }
    }
}
```

```

//bubble sort logic

for(int i=0;i<arr.length;i++){//i=3
    for(int j=i+1;j<arr.length;j++){//j=3
        if(arr[i]>arr[j]){
            int temp=arr[i];
            arr[i]=arr[j];
            arr[j]=temp;
        }
    }
}

System.out.println("\nAfter Sorting ");
for(int i=0;i<arr.length;i++){
    System.out.print("\t"+arr[i]);
}
}

}

```

---

**Q2.** Write a java program to sort array in descending order?

Array Elements: 30 10 20

Before Sorting :

30 10 20

After Sorting:

30 20 10

class A2{

    public static void main(String args[]){

        int arr[]={30,10,20,50,40,100,90,60,80,70};

        System.out.println("Before Sorting ");
        for(int i=0;i<arr.length;i++){

```
System.out.print("\t"+arr[i]);
}

//bubble sort logic

for(int i=0;i<arr.length;i++){//i=3
    for(int j=i+1;j<arr.length;j++){//j=3
        if(arr[i]<arr[j]){
            int temp=arr[i];
            arr[i]=arr[j];
            arr[j]=temp;

        }
    }
}
```

```
System.out.println("\nAfter Sorting ");
for(int i=0;i<arr.length;i++){
    System.out.print("\t"+arr[i]);
}
}
```

Q2. Write a java program to find second Largest Element from the Array?

```
class A2{
    public static void main(String args[]){
        int arr[]={30,10,10,20,50,40,100,100,90,60,80,70};

        System.out.println("Before Sorting ");
        for(int i=0;i<arr.length;i++){
            System.out.print("\t"+arr[i]);
        }

        //bubble sort logic

        for(int i=0;i<arr.length;i++){//i=3
            for(int j=i+1;j<arr.length;j++){//j=3
                if(arr[i]<arr[j]){
                    int temp=arr[i];
                    arr[i]=arr[j];
                    arr[j]=temp;
                }
            }
        }
    }
}
```

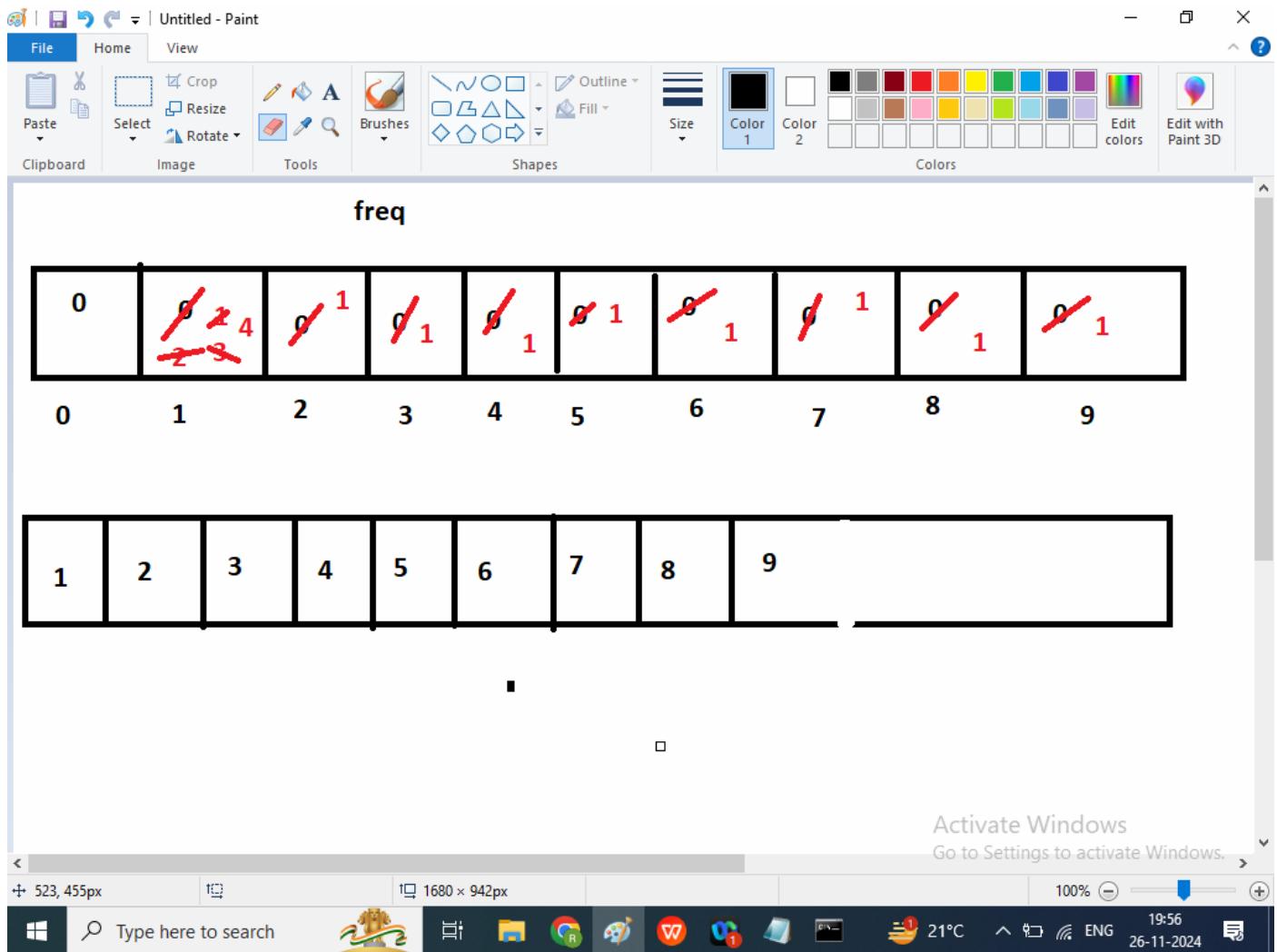
```
System.out.println("\nAfter Sorting ");
for(int i=0;i<arr.length;i++){
    System.out.print("\t"+arr[i]);
}

System.out.println("Largest Element : "+arr[0]);
System.out.println("Smallest Element :
"+arr[arr.length-1]);

System.out.println("Second Largest Element : "+arr[1]);
    System.out.println("Second Smallest Element :
"+arr[arr.length-2]);

}
```

---



```

class A2{
    public static void main(String args[]){
        int arr[]={3,1,1,2,5,4,1,1,9,6,8,7};

        System.out.println("Before Sorting ");
        for(int i=0;i<arr.length;i++){
            System.out.print("\t"+arr[i]);
        }

        int freq[]={0,0,0,0,0,0,0,0,0,0};
        for(int i=0;i<arr.length;//i=9
        int r=arr[i];
        freq[r]++; //freq[1]++
        }

        //bubble sort logic

        for(int i=0;i<arr.length;//i=3
            for(int j=i+1;j<arr.length;j++){//j=3
                if(arr[i]<arr[j]){
                    int temp=arr[i];
                    arr[i]=arr[j];
                    arr[j]=temp;
                }
            }
        }
    }
}

```

```
System.out.println("\nAfter Sorting ");
for(int i=0;i<arr.length;i++){
System.out.print("\t"+arr[i]);
}

System.out.println("Largest Element : "+arr[0]);
System.out.println("Smallest Element : "+arr[arr.length-1]);

System.out.println("Second Largest Element : "+arr[1]);
System.out.println("Second Smallest Element : "+arr[arr.length-2]);

}
}
```

---