System.out.print("Hi tell me your name");

System.out.print("My name is chaitanya");

--> **output** : Hi tell me your name My name is chaitanya

System.out.println("Hi tell me your name");

System.out.println("My name is chaitanya");

--> **output** : Hi tell me your name

      My name is chaitanya (because println will print output in nxt line)

-->Type of statements in java

In Java, there are several types of statements that can be used to perform different operations. Some of the most common types of statements in Java include:

Expression Statements: These statements are used to evaluate an expression and can include method calls, assignments, and other operations.

Declaration Statements: These statements are used to declare a new variable or constant and specify its type.

Control Flow Statements: These statements are used to control the flow of execution in a program, including if-else statements, switch statements, loops (for, while, do-while), and try-catch statements.

Jump Statements: These statements allow the program to jump to a specific part of the code, including break, continue, and return statements.

Assertion Statements: These statements are used to check assumptions made by the programmer and throw an error if the assertion fails.

Synchronized Statements: These statements are used to control access to shared resources in a multithreaded environment.

Labeled Statements: These statements are used to provide a label to a block of code, which can be used for easy navigation and readability.

Block Statements: These statements are used to group a set of statements together, which can be treated as a single unit for control flow or variable scoping.

--> Data Types in Java derived into two types

   1) Primitive Data Types

   2) Non-Primitive Data Types

Primitive Data types are derived into byte,short,int,long,float,double,boolean,char

Primitive data types imp types are int,long,float,double,boolean,char

String is reference data type

Primitive Data types	Reference/User Defined Data Types
Stores data	stores address
Can hold only 1 value	can hold more than 1 value
Less memory	more memory

data type	size	primitive/ reference	value
☆ boolean	1 bit	primitive	true or false
byte	1 byte	primitive	-128 to 127
short	2 bytes	primitive	-32,768 to 32,767
☆ int	4 bytes	primitive	-2 billion to 2 billion
long	8 bytes	primitive	-9 quintillion to 9 quintillion
float	4 bytes	primitive	fractional number up to 6-7 digits ex. 3.141592f
☆ double	8 bytes	primitive	fractional number up to 15 digits ex. 3.141592653589793
☆ char	2 bytes	primitive	single character/letter/ASCII value ex. 'f'
☆ String	varies	reference	a sequence of characters "He — worl

23:02 / 11:59:59 · 2 variables >

-->Variables and Data Types in Java:

Variables : Variables are containers for storing data values.

How to declare a variable in java?

Int x;

x= 18;

Or int x=18;

Double vs float

Default Type for Floating-Point Literals:

- Floating-point literals (e.g., **3.14**) are considered as **double** by default in Java. If you want to explicitly declare a **float** literal, you can append an 'f' or 'F' to the number (e.g., 3.14f).

Swapping of 2 strings :

```java
String x = "Chaitanya";
        String y = "Virat";
        String temp;
        temp = x;
        x = y;
        y = temp;
        System.out.println("Value of x is "+x);
        System.out.println("Value of y is "+y);
```

UserInput in Java:

We use scanner for occuring input from user

```java
Scanner scanner = new Scanner(System.in);
```

For this one we will use a utility package

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

scanners are used to read contents of file

```java
 public static void main(String[] args) {
        String a;
        Scanner scanner = new Scanner(System.in);
        System.out.println("Please enter your name?");
        a = scanner.nextLine();
        System.out.println("Enter your age");
        int b = scanner.nextInt();
```

```
        scanner.nextLine();
        System.out.println("what is your fav food");
        String c = scanner.nextLine();
        System.out.println("enter your favourite subject :");
        String d = scanner.nextLine();
        System.out.println("Hello"+ a);
        System.out.println("You are " + b +"yearsold");
        System.out.println("you like "+ c);
        System.out.println("your favorite subject is "+d);
    }
```

After using scanner.nextInt(); we need to use this method as

Scanner.nextLine(); because it will used to take our next line input, without writing this command we can't able to get next input.

Expressions in java : expressions is combination of operands and operations in java.

Operands are nothing but values,numbers,variables,quantity.

Operators are +,-,*,/ %

```
public static void main(String[] args) {
        int a=18;
        a++;
        System.out.println("a is "+a);
        double c = 15;
        c = 15/4;
        System.out.println("c is "+c);
        double d = 15;
        d = (double)15/4;
        System.out.println("d is "+d);
    }
```

Output :

a is 19

c is 3.0

d is 3.75

Gui: graphical user interface

```
We need to use are utility package as
import javax.swing.JOptionPane;
```

We will use to enter input by using

```
JOptionPane.showInputDialog("Enter your name:");
```

To display entered message we use

```
 JOptionPane.showMessageDialog(null, "Hello "+name);
```

Here JOptionpane is String data type to convert string data type we use ParseInt()

For Double we use parsedouble()

```java
public static void main (String[] args){
       String name = JOptionPane.showInputDialog("Enter your name:");
       JOptionPane.showMessageDialog(null, "Hello "+name);
       int age = Integer.parseInt(JOptionPane.showInputDialog("Enter your age
=:"));
       JOptionPane.showMessageDialog(null,"You are "+age+ "years old");
       Double height = Double.parseDouble(JOptionPane.showInputDialog("Enter
your height"));
       JOptionPane.showMessageDialog(null,"you are "+ height+"cm height");


   }
```

Math functions:

Max method is used to identify larger number.

Min method used to find smallest number.

Abs method is used to display absolute value of a number.

Sqrt()round()

Ceil,floor used to round a decimals.

```java
    double x = 3.14;
       double y = -10;
       double z = Math.max(x, y);
       System.out.println("Larger number is ="+z);
       double v = Math.min(x, y);
       System.out.println("smallest number is ="+v);
       double w = Math.abs(x);
```

```
        System.out.println("absolute number is"+w);
        double opp,adj,hyp;
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter Opposite side:");
        opp = scanner.nextDouble();
        System.out.println("Enter Adjacent side:");
        adj = scanner.nextDouble();
        hyp = Math.sqrt((opp*opp)+(adj*adj));
        System.out.println("Hypotenuse of given rt trianle is "+hyp);
        scanner.close();


    }
```

Random values in java :

For this we need to use utility package as

```
import java.util.Random;
```

```
We need to use are utility package as
import java.util.Random;

public static void main (String [] args){
        Random random = new Random();
        int x = random.nextInt();
        // here random will generate - 2 billion to + 2 billion
        int w = random.nextInt(7);
        // if we use bound as 7 it will generate from 0 to 7
        double y = random.nextDouble();
        //it will generate only from 0 to 1
        boolean z = random.nextBoolean();
        System.out.println("x is"+x);
        System.out.println("w is"+w);
        System.out.println("y is"+y);
        System.out.println("z is"+z);
    }
```

Output :

x is1418537660

w is4

y is0.32604087309639884

z istrue

If statements:

 Performs a block of code if its condition evaluates to be true

```java
// package conditional statements;

public class if1 {
    public static void main(String[] args){
        int a = 16;
        if(a>= 18){
            System.out.println(" you are adult since you have "+a+" years");
        }
        else if (a >=75)
        {
            System.out.println("You are a old one");
        }
        else if (a >= 13 & a<18)
    {
        System.out.println("you are a teenager");
    }
        else{
            System.out.println("you are not adult");
        }

    }

}
```

Switch Statements:

It is a statement that allows a variable to tested for equality against a list of values.

```java
public class switchs {
    public static void main(String[] args){
        String day = "Monday";
        switch(day){
            case "Sunday":System.out.println("Its sunday");
            break;
            case "Monday":System.out.println("Its Monday");
            break;
            case "Tuesday":System.out.println("Its Tuesday");
            break;
            case "Wednesday":System.out.println("Its Wednesday");
            break;
```

```java
                case "Thursday":System.out.println("Its Thursday");
                break;
                case "Friday":System.out.println("Its friday");
                break;
                case "Satuday":System.out.println("Its satarday");
                break;
                default:System.out.println("Please select a week day");
            }
        }
```

Three logical operators :

Used to connect 2 or more expressions

&& And both conditions must true

|| OR either condition must be true

! NOT reverse Boolean value of condition

```java
public class logicaloperators {
    public static void main(String [] args){
        int temp = 25;
        if(temp>30){
            System.out.println("It is hot outside");
        }
        else if(temp >= 20 && temp <=30){
            System.out.println("It is warm outside");
        }
        // forand both conditions must true

        else{
            System.out.println("It is cold outside");
        }

    }

}
```

```java
public class orusingif {
    public static void main(String [] args){
        Scanner scanner = new Scanner(System.in);
        System.out.println("You are playing a game! Press q or Q to quit");
```

```java
        String response = scanner.next();
        if(response.equals("q")|| response.equals("Q")){
            System.out.println("You quit the game!");
        }
        else{
            System.out.println("You are still in game!");
        }
    }

}
```

,

    "vmArgs": "--module-path \"C:/Program Files/Java/javafx-sdk-21/lib\" --add-modules javafx.controls,javafx.fxml"