**-IMPORTANT INSTRUCTION**

> public class first{}

at very start whatever your filename is, you have to name the class with same name too.

like in this case "first.java" was my filename so i wrote "public class first{}"

**-START SYNTAX**

public class first {

    public static void main(String[] args) {

       System.out.println("lo World bitchooooo");

this is code syntax

**-COMMENTS**

> // thats how you do comments

> /\* thats a multi line comment\*/

**-VARIABLES**

**-string**

> datatype variable\_name = value

Note (string “S” should be capital )

String name = "mohsin";

    System.out.println(name);

**-integer**

int i = 56;

     System.out.println(i);

**-float**

 float a = 5.99f;

       System.out.println(a);

**-boolean**

      boolean brown = true;

       System.out.println(brown);

**-multi line variable**

int w = 7, e=90, t=4, y=56;

       System.out.println(y);

**-char**

char gg = 's';

    System.out.println(gg);

**-printing out decimals**

  // float only prints few decimals

        float hh = 33.888787654f;

        System.out.println(hh);

        //while double prints more than few decimals

        double ggf = 33.8880787654d;

        System.out.println(ggf);

**-OPERATORS AND OPERANDS**

  int k =6, b=4;

        System.out.println("the sum of k & b is: ");

        System.out.println(k + b);

// to print the value in same line just remove 'ln'

        int ke =6, be=4;

        System.out.print("the sum of ke & be is: ");

        System.out.println(ke + be);

// subtraction

        int num1 =6, num2=4;

        System.out.print("the sub val of num1 & num2 is: ");

        System.out.println(num1 - num2);

        // **division**

        int num3 =10, num4=2;

        System.out.print("the divisal of num3 & num4 is: ");

        System.out.println(num3 / num4);

**// multiplication**

        int num5 =6, num6=4;

        System.out.print("the product of num5 & num6 is: ");

        System.out.println(num5 \* num6);

**// modulus**

        System.out.print("the modulus of num5 & num6 is: ");

        System.out.println(num5 % num6);

**// increment/decrement**

        System.out.println(num5++); //here num5 has become 7 but its not printed coz of sign

        System.out.println(++num5); //here num5 has become 8 and is printed coz it has

already became 7 and coz of sign its printed

        System.out.println(num5--); //here num5 has become 7 but its not printed coz of sign

        System.out.println(--num5); //here num5 has become 6 and is printed coz it has already became 7 and coz of sign its printed

**-ASSIGNMENT OPERATORS**

  int numb=16, numc=30;

        numb += 4;

        numc -= 6;

        numb \*= 2;

        numc /= 2;

        numb %= 15;

        System.out.println("new val of numb is: " + numb);

        System.out.println("new val of numc is: " + numc);

**-TAKING INPUT**

Scanner any = new Scanner(System.in);

         System.out.println("enter your value");

        String abc = any.nextLine();

         System.out.println(abc);

// to check length

          System.out.println(abc.length());

**-CONCATENATION**

// concatenation

    String bcc = "hahaha", cbb="funny";

          System.out.println(bcc + " " + cbb);

**-UPPER/LOWERCASE**

           System.out.println(abc.toUpperCase());

          System.out.println(abc.toLowerCase());

**-ADDING SPECIAL CHARACTERS**

            System.out.println("my name is \"mohsin\"");

            System.out.println("my name is \'mohsin\'");

            System.out.println("my name is mohsin\t");

            System.out.println("my name is mohsin\\");

**-STRING METHODS**

 String name\_updated = "Mohsin Sheikh";

            System.out.println(name\_updated);

            System.out.println(name\_updated.contains("sin"));

            System.out.println(name\_updated.startsWith("She"));

            System.out.println(name\_updated.endsWith("kh"));

            System.out.println(name\_updated.charAt(5));

            System.out.println(name\_updated.indexOf("he"));

**-MATHEMATICS IN JAVA**

int numb1 = 7, numb2 = 9;

        System.out.println(Math.max(numb1, numb2));

        System.out.println(Math.min(numb1, numb2));

        System.out.println(Math.sqrt(numb2));

        System.out.println(Math.abs(-98)); //it changes - to +

        System.out.println(Math.random());

        System.out.println(2+(10-2)\*Math.random()); //generating random no b/w two nos

**-IF-ELSE IN JAVA**

       if(now<18){

        System.out.println("sorry kid");

       }

       else{

        System.out.println("welcome king");

       }

//else if

if(now<18){

        System.out.println("sorry kid");

       }

       else if(now<22){

        System.out.println("just a teenager");

       }

       else{

        System.out.println("welcome king");

**-SWITCH STATEMENTS IN JAVA**

 switch(now){

        case 16:

        System.out.println("you are 16 yrs old");

        break; //break here is important as it stops next cases from printing

        case 22:

        System.out.println("you are 22 yrs old");

        break;

        case 36:

        System.out.println("you are 36 yrs old");

        break;

        default:  //default is like else statement

        System.out.println("none of the cases matched");

      }

**-LOOPS IN JAVA**

**-while loop**

 int kwq = 0;

    while(kwq<10){

      System.out.println(kwq);

      kwq += 1;

    }

**-do while loop**

 int j = 0;

    do {

      System.out.println(j);

      j += 1;

    } while (j > 100); //here the condition is false but as it is out it will execute atleast once

**-for loop**

for(int n=0; n<10; n++){

      System.out.println(n);

     }

**-ARRAYS IN JAVA**

int [] arr = {2,4,6,8};

    System.out.println(arr[1]); //calling certain elements in an array

    arr[1]= 7; //updates the no at index no 1

    System.out.println(arr[1]);

    System.out.println(arr.length); //it shows the length

    //classical way to uterate loop

    for(int d=0; d<arr.length; d++ ){  //showing all elements inn an array

      System.out.println(arr[d]);

    }

    //modern way of iterating the loop

    for(int kuch:arr){

      System.out.println(kuch);

    }

**-MULTI DIMENSIONAL ARRAY**

int [][] multi = {{2,4,6,8},{1,3,5,7}}; //each square bracket defines a dimension

    //two square bracket means it has 2 dimensions

    System.out.println(multi[1][2]);

**-STRING ARRAY IN JAVA**

    String [] ccx = {"Muhammad", "mohsin", "sheikh"};

    for(String value:ccx){

      System.out.println(value);

    }

**-TRY & CATCH**

try{

     //the below sout wont work coz len 4 dont exixt in ccx

     System.out.println(ccx[4]); //so if we run this it'll throw an error

     //coz of this error next code wont execute

    }  //so thats why we use try/catch

    catch(Exception f){ //here we have catch the error and stored it in f

      System.out.println(f);

    }

    System.out.println("lam sam"); //mow as we have resolved the error this line will execute

**-METHODS IN JAVA**

 /\*

     //we need to write below two lines at the top right under 'public class'

        static int sum (int a, int b){

          return(a+b);

        }

    \*/

    System.out.println(sum(3, 66));

**-ADDING POWER IN JAVA**

**-taking as input**

    Double pow2, pow3;

    System.out.print("enter your value ");

    Scanner val1 = new Scanner(System.in);

    pow2 = val1.nextDouble();

    System.out.print("enter the power you want to add ");

    Scanner val2 = new Scanner(System.in);

    pow3 = val2.nextDouble();

    Double x = Math.pow(pow2, pow3);

    System.out.println(x);

* **Applying power directly**

   Double power1 = Math.pow(4, 2);

System.out.println(power1);

**-CREATING A BASIC CALCULATOR**

     float inp\_1, inp\_2;

     System.out.println("enter first number");

     Scanner calc = new Scanner(System.in);

     inp\_1 = calc.nextFloat();

     System.out.println("enter second number");

     Scanner calc2 = new Scanner(System.in);

     inp\_2 = calc2.nextFloat();

     System.out.println("you have entered " + inp\_1 + " and " + inp\_2);

     String prompt = "Enter 0 for addition  1 for subtraction  2 for multiplication  3 for division 4 for adding power";

     System.out.println(prompt);

     int collecting = calc.nextInt();

     switch (collecting){

      case 0:

      System.out.println("adding thsese number ");

      System.out.print("the result is ");

      System.out.println(inp\_1 + inp\_2);

      break;

      case 1:

      System.out.println("subtracting thsese number ");

      System.out.print("the result is ");

      System.out.println(inp\_1 - inp\_2);

      break;

      case 2:

      System.out.println("multiplying thsese number ");

      System.out.print("the result is ");

      System.out.println(inp\_1 \* inp\_2);

      break;

      case 3:

      System.out.println("dividing thsese number ");

      System.out.print("the result is ");

      System.out.println(inp\_1 / inp\_2);

      break;

case 4:

      System.out.println("adding value 2 as power to value 1 ");

      System.out.print("the result is ");

      System.out.println(Math.pow(inp\_1, inp\_2));

      break;

      default:

      System.out.println("invalid");

     }