**16/03/2023**

**Methods .**

Method is a block of instruction used to execute a specific task.

**Syntax of writing a method :**

**Modifier return\_type method\_name(formal argumetns)**

**{**

**Statement;**

**}**

**Modifier :** modifier can be public or static .

Return type: return can be primitive type or non primitive type or void

Method name is a used defined name . conventions: if a method name is a single word then the entire word is written in a lower case . if the method name is a multiword then from the second word it should start with the upper case letter

Formal arguments: these are the variables used with in the method these act as a local variables .

**Syntax of a method\_call:**

**Method\_name(actual arguments);**

**Actual arguments** are the values passed to the formal arguments of methods . we should pass the actual arguments when we are calling a method with formal arguments .

**Calling method** a method which calls another method for execution is called as calling method

**Called method :** a method which is being called by another method for execution is know as called method.

*Write a java program to find the product of 2 numbers using method .*

*Write a java program to find the factorial of a give number using methods .*

**Return statement**

Return statements are used to return the value from calling function or calling method to called method. Return statements are always retured at the end of the block. When ever your return the value to the calling method the return type should be specified.

Ex from josh(tatte)

The above statements are valid only if the test method is returing some value . other wise it will generate compiled time error

Note for testforreturn

If the return type of the method is void it can have zero return statements or it should not have any return statements .

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**Array**

Array is a continuous block of memory which is used to store multiple values of same type or data type

Whenever we create a array we will get the address or the reference of the array in written in the we should store this address or reference inside a variable in order to access the values of arrays in future. The variable which stores reference or address of array is called array reference variable .

**Syntax**

Dataype[]variable;

(Or)

Datatype variable[];

Ex: (a)int[] a;

(b)double[]b;

(c)Boolean[]c;

These three array reference variable.

In the above example a , b , c are array reference variables .

Note : array reference variables can be stored as

1. Reference of array
2. Null(null is a key word in java which represents nothing)
3. If the array reference variable is initialized with null that means it is not referening to any array.

**Creating an array :**

We can create an arrya in 2 ways .

1) using decleration and initialization statements.

2) using new keyword

**Syntax for 1)**

**Datatype[] variable={value1,value2,value3….};**

**Ex:** int[]a={50,60,70,60};

**Method overloading:**

A class having more than one method with same name but with different formal arguments is called method overloading .

Note : for method overloading name of the method must be same but formal arguments should differ either in length type or order

***Write a java program to perform all the arthimetic operations using method overloading.(hw)***

**Type casting**

the process of converting one type of value into another type of value is called type casting. There are two types of type casting.

1. Primitive type casting
   1. Widening
   2. Narrowing
2. Non primitive type casting
   1. Up casting
   2. Down casting

1)primitive type casting:the process of converting data type into another primitive data type is called primitive type casing .

(a**) widening** :the process of converting the narrow range type into wider range data type is called widening .

Char < int < long < float < double

smaller range datatype ---->larger range datatype

note : in case of widening ie when we are converting from smaller ranger datatype to larger range datatype there is no possibility of data loss . therefore it is automatically done by the computer hence it is called as implisite type casting or auto widening.

Class a

{

Char ch=’h’;

Syso(ch);

Int b = ch

Syso(b);

}

Class b

{

Int a =10;

Double b =a ;

Syso(b);

}

(b**)narrowing:** the process of converting larger range type into smaller range dataype is called narrowing.

Char < int < long < float < double

smaller range datatype <----larger range datatype

**note:** in case of narrowing there is a possibility of data loss therefore it is automatically by the

compiler . narrowing must be explicitly done by the programmer with the help of cast operator.

Class a

{

Int a = 100;

Char ch = (char) a ;

Syso(ch) o/p = d because int to character

}

Class b

{

Double d = 10.5

Int i = (int)d;

Syso(i) o/p = 10 point 5 will be removed when converting.

**cast operator**

Syntax (datatype)operand;

Value/variable/expressing

**Note:** By calling a method with formal argument .

* 1. The length of actual argument and formal argument must be same
  2. The type of actual argument and formal argument should be same or there can be actual argument which can be widened into formal argument type

Class a

{

Public satic void main(string[]args)

{

Test()

Test(10,’a’);

Test(10.5);

}

Public static void test()

{

Syso(“from test()”);

}

Public static void tes(int a , int b )

{

Syso(“from test() with two arguments “);

}

Public static void test(double d)

{

Syso(“from test() with an argument “);

}  
}

***Write a java program to declare an integer array and access the values***

Class a

{

Int [4] a ={5,10,15,20}

Syso(a);

Syso(a[0]); o/p = 5

Syso(a[1]); o/p = 10

}

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**Creating an array** : we can creat array in two ways

1. Using decleration and initizilation statements
2. Using new kewword.

**Finding length of an array :** length or size of an array will always be same as number of values stored inside it we can fetch the length of an array using a predefined variable called length .. we can use length variable with the help of array reference variable as shown below

Class b

{

Public static void main ( string[]args)

}

Int[]a=[10,20,30,40,50}

Syso(“length of array is “+a.length)

}

}

**Creating array using new** : new is a keyword in java which is used to create array as well as object of the class.

Note: when we create array new keyword initially the default value of given datatype will be stored inside the array

Syntax: Datatype[] variable= new datatype[size];

Ex: int[]a=new int[5];

Default value for positive datatype

Int=0

Char=null character

Double= 0 0

Boolean = false

In the above example since the datatype used is in the default value of int zero will be stored inside the array

**Assigning or accessing for array :** we can assign or access values from the array using index

Note: index of the array always starts from zero . it ends at length of array -1

Syntax:

Array reference variable[ index ] = value ;

A[0] = 25;

A[1]= 30;

A[3]= 40;

Accessing the value of an array

Syntax

Array reference variable [index]

Syso(a[0]); -🡪 25

Syso(a[1]); -🡪30

Syso(a[2]); -🡪0

Syso(a[3]); -🡪40

Store the value in different variable then access ,

Int b = a {1},

Syso(b); -🡪30

***Write a java program and store 5 integer values and access them (fiveintigevaluesinanarray)***

***Write a java program to print even numbers in an array . (* *evenoroddinarrays)***

***Write a java program to print odd numbers present in an array (oddnoinarrays)***

***Write a java program to print a and display the appropriate message whether it is present or not (tbd)***

***Write a java program to check how many times a character A is present in the array (tbd)***

***Write a java program to generate first 10 odd numbers and store the values in the array and print all the values from that array . (firsttenoddnumbersfromarray)## (tbd)***

**Passing an array to a method :**

***Design a method which accepts an integer array and returns sum of all the numbers in an array (HW)***

***(AcceptsArrayAndReturnsSum)***

***Write a java program to add 2 numbers using methods . the value should be given from main method to argument method (sumofagivennumberbymethod)***