**Day-02**

**25-02-2025**

**=================**

Memory Statement:

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 datatype name-of-data = value;

**Identifiers:**

**=======**

a name

can be used to name any entity within the program

Ex: variables, classes, objects, method etc.

Identifier Rules/Naming Conventions:

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1) Identifier should include only:

 alphabets

 digits

 Underscore sign (\_)

 dollar sign ($)

2) Identifier never start with digit

but allowed to begin/start with either alphabet or \_ or $

Ex: int 9a = 99; ==> invalid representation ==> syntax error

int a = 99;

int \_9ab = 77; ==> valid

3) Java keywords are always write in lowercase.

And java keywords never be use as an identifier.

4) Identifiers are case sensitive.

class Identifiers{

 public static void main(String[] args)

 {

 //int 9a = 99;

 // System.out.println(9a); Syntax error

 int a = 99;

 int \_9a = 77;

 int $ab = 101;

 // int void = 121; void ==> keyword

 int Void = 121; // Void ==> not a keyword

 System.out.println(a);

 System.out.println(\_9a);

 System.out.println($ab);

 System.out.println(Void);

 }

}

**Variables:**

**=======**

-> Variable is a name

which can be used to store the value of any type.

-> The variable definition consisting of:

 1) Declaration

 2) Assignment

 3) Initialization

-> Variable Declaration describe:

 1) Type of the variable

 2) Name of the variable

Syntax:

 datatype identifier;

Ex: int a;

-> Variable assignment describe:

 the assignment of value to the variable

Syntax:

 identifier = value;

Ex: int a; // declaration

a = 121; // assignment

-> Variable initialization:

 when we can declare the variable and assignment of the variable within the same line of the program is called as "Initialization".

Syntax:

 datatype variable-name = value;

Ex: int a = 100;

class Variables{

 public static void main(String[] args)

 {

 int a; // variable declaration

 a = 99; // assignment

 System.out.println(a);

 char ch = 'R'; // initialization

 System.out.println(ch);

 }

}

-> The variables can be defined in two ways:

 1) Compile time variable definition/Variable with fixed value representation

 2) Run time variable definition

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**Input Statement:**

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 -> Input Statement can be used to take/access the input. -> During the execution of the program, we can process the input using keyboard that is called as "Run time variable definition".

 -> When we want to define the run-time variable, we need to use "Scanner" object which is belonging Scanner class.

 -> Class -> collection of data and methods

 for every class, we can create one or more than one object.

 -> Object is the reference of the class.

Ex: House on a sight ==> Real object

House plan on a sheet ==> Imaginary object -> class

 -> Scanner class is a pre-defined class in java has defined in the java package called as "util".

Java ==> packages ==> classes ==> data and methods

 -> When we want to use "Scanner" class for the run time variable definition, we need to import "Scanner" class from "util" package.

Syntax:

 import java.util.Scanner;

 -> The import statement can always write above the class definition only.

 -> After the importing of the "Scanner" class, we should create the object for the Scanner class within the main() method.

 Syntax:

 Scanner Scanner-Object-Name = new Scanner(System.in);

 -> After the creation of the Scanner object, we should use that object for assigning a value to the declared variable.

 using pre-defined methods of Scanner class:

 byte ==> nextByte()

 short ==> nextShort()

 integer ==> nextInt()

 long ==> nextLong()

 float ==> nextFloat()

 double ==> nextDouble()

 boolean ==> nextBoolean()

 char ==> next() etc.,

 Syntax:

 variable-name = Scanner-object-name. scanner-method();

import java.util.Scanner;

class RunTimeVariable{

 public static void main(String[] args)

 {

 Scanner scan = new Scanner(System.in);

 int a; // declaration

 System.out.println("Enter the value for the given variable:");

 a = scan.nextInt();

 System.out.println(a);

 }

}

Dynamic Program Example:

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import java.util.Scanner;

class SumOfTwoNumbers{

 public static void main(String[] args)

 {

 Scanner s = new Scanner(System.in);

 int a, b;

 System.out.println("Enter value for a :");

 a = s.nextInt();

 System.out.println("Enter value for b:");

 b = s.nextInt();

 int sum = a + b;

 System.out.println("The Sum of two numbers = "+sum);

 }

}

**Output Statement:**

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-> Output Statement can be used to display anything on the screen.

-> To define the output statement, we have three different methods:

 1) println() ==> print line

 2) print()

 3) printf() ==> printed format.

Here the formats of the data are:

 integer ==> %d

 long ==> %l

 float ==> %f

 double ==> %lf etc.,

-> All the above three methods are pre-defined methods in java

have defined in "lang" package of the java library.

Note:

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 to use println(), print() or printf() within the program, no need to import the lang package.

-> println() can give new line with every definition.

-> print() can print all definitions within the same line.

import java.util.Scanner;

class SumOfTwoNumbers{

 public static void main(String[] args)

 {

 Scanner s = new Scanner(System.in);

 int a, b;

 System.out.println("Enter value for a :");

 a = s.nextInt();

 System.out.println("Enter value for b:");

 b = s.nextInt();

 System.out.println(a);

 System.out.println(b);

 System.out.print(a);

 System.out.print(b+"\n");

 System.out.printf("%d\n",a);

 System.out.printf("%d\n",b);

 System.out.println("The value of a = "+a);

 System.out.print("The Value of b = "+b+"\n");

 System.out.printf("The Value of sum = %d\n",a+b);

 }

}