DAY – 5

# JAVA:

****MISCELLANEOUS:****

The Miscellaneous concepts in java are Java var keyword, wrapper classes, Enum (Enumerations), final keyword, Annotations, Serialization, lambda Expressions, Streams

****RANDOM METHOD IN JAVA:****

Java provides multiple ways to generate random numbers, useful in gaming etc.;

1. Using Math.random():

Returns a random double value between 0.0 and 1.0.

double randomValue = Math.random(); // generates random decimal (0.0 to 1.0)

System.out.println(randomValue); O/P: 0.56221432

1. Using java.util.Random;

More flexible and provides random integers, doubles, longs etc.;

* random.nextInt();
* random.nextInt(10);
* random.nextDouble();
* random.nextBoolean();

****For-each:****

For each loop in java is used to iterate over collections, arrays, and streams in a more readable and concise way.

****LABELS:****

Labels in java are used to mark a specific location in code, mainly to control the flow inside loops.

Syntax

* A label is just an identifier followed by a colon (:).
* It is placed before a loop or a block of code.

LabelName:

for( ; ; ) {

//loop body

}

****ENUMS IN JAVA:****

* ENUM (Enumeration) is a class in java, by using this we can define constant values.
* In Enum, it consists of a predefined set of constants and values that are fixed but can’t be changed.

enum Day

{

SUNDAY, MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY

}

* Here the **Day** is an Enum class
* Enum values are public, static, and final by default.
* Built-in methods: values (), ordinal (), name ()
  + Values () => It returns all constants present in the Enum.
  + Ordinal () => It returns the Enum constant position.

****METHODS IN JAVA:****

* In Java, methods are blocks of code that perform a specific task.
* They are used to write reusable code, reduce redundancy, and improve readability.

Types:

* + Pre-defined methods
  + User- defined methods

****MODIFIERS IN JAVA:****

* Modifiers are keywords used to change the behavior of classes, methods, variables, and constructors.
* They control the access level, functionality, and other properties of these components.

Types:

* + Access modifiers
  + Non- access modifiers

****PARAMETER PASSING MECHANISM IN JAVA:****

* In Java, parameter passing refers to how values are sent to methods when they are called.
* Types:
  + Pass by value
  + Pass by reference

****RECURSION IN JAVA:****

* A Recursive method is a method that calls itself to solve a smaller part of a problem. This process continues until it reaches a base case.
* Key Concepts:
  + **Base Case:** The condition where the recursion stops. Without it, recursion will go on infinitely.
  + **Recursive Call:** The function calls itself with a smaller or simpler input.

****VARIABLE LENGTH ARGUMENTS IN JAVA:****

* Varargs allow a method to accept multiple arguments of the same type without specifying the exact number.
* It is represented using ...

Public void methodName (dataType ... variableName)

{

//method body

}

* ... => represents a variable number of arguments
* variableName => Acts like an array to access the values.
* If no argument is passed, it acts as an empty array.
* Only one varargs parameter per method is allowed.
* Varargs must be the last parameter.
* It is used when you don’t know the exact number of inputs.

****DEBUGGING TOOLS IN JAVA:****

* Eclipse IDE
* Net Beans IDE
* JDB (Java Debugger)
* IntelliJ IDEA
* Visual Studio Code (VS Code)