DAY-23

# JAVA

## JAVA NEW VERSIONS:

### JAVA 8:

In the Java 8 version, certain topics are introduced. They are:

* Lambda Expressions: This enables concise function definitions.
* Streams API: It allows functional-style operations on collections.
* Optional: It helps to avoid NullPointerException.
* Date-Time API: It is a modern replacement for the java.util.Date.

### JAVA 9:

In the Java 9 version, it focused on modularity and tooling.

* Module system (Project Jigsaw): Breaks applications into reusable modules
* JShell: It is used for quick testing and learning.

### JAVA 10:

In the Java 10 version, type inference is introduced.

* Var keyword: It simplifies variable declarations by inferring types.

### JAVA 11:

In the Java 11 version, it is released with the API enhancements like:

* New HttpClient API: It simplifies HTTP communication.
* String methods: In this version, some useful methods () are added like isBlank( ), lines (), repeat ().

### JAVA 12 TO 16:

From Java 12 to 16 versions, certain features are introduced. They are:

* Switch Expressions
* Text blocks
* Records

### JAVA 17:

Sealed Classes

Pattern Matching

### JAVA 18 TO 20:

Virtual Threads

Scoped values

Record patterns

### JAVA 21:

This version is very used for modern, scalable applications:

Virtual Threads

Sequenced collections

Pattern Matching for switch

String templates

## JAVA NEW VERSIONS:

### OBJECTS & CLASSES:

* Each class should perform one thing only.
* Class and object names should clearly describe their purpose only
* Keep the data private and expose only necessary methods.
* Avoid large and complex classes.

### DATA CONTAINERS / STRUCTURES:

* Choose the right container for the task like choosing the Map for key-value pairs
* Use the getters and setters for immutable structures.