DAY-16

# JAVA:

## FUNCTIONAL PROGRAMMING:

* Where programs are constructed by planning and composing functions.
* The main objective of functional programming is to make the code more concise, less complex, more predictable, and easier to test compared to the legacy style of coding.

ADVANTEGES:

Simplicity

Suitable for concurrent programs

### LAMBDA EXPRESSION:

* It is a new and important feature of java that was included in JAVA SE 8
* It provides a clear and concise way to represent one method interface in an expression.
* It helps to iterate, filter, and extract data from the collection.
* It is used to provide the implementation of an interface that has a functional interface.
* It saves a lot of code.
* Java lambda expression is treated as a function, so the compiler doesn’t create a **.class** file.
* It consists of 3 components:
  + Argument-List
  + Arrow token
  + Body

### FUNCTIONAL INTERFACE:

* An interface that has contains exactly one abstract method is known as Functional Interface.
* It is also known as Single Abstract method Interfaces or SAM Interfaces.

@functionalinterface is used to indicate that an interface is intended to be a functional Interface.

BUILT IN JAVA FUNCTIONAL INTERFACES:

1. Runnable
2. ActionListener
3. Callable

TYPES OF FUNCTIONAL INTERFACES:

1. Consumer:

It represents an operation that accepts a single input argument and returns no results.

1. Predicate:

It represents a predicate (Boolean-valued function) of one argument.

1. Function

It represents a function that accepts one argument and produces a result.

1. Supplier:

It represents a supplier of results.

INVALID FUNCTIONAL INTERFACE:  
A Functional Interface can extend another interface only if it doesn’t have any abstract method.