

DAY-3

13 June 2023 17:17

JAVA

CORE JAVA

PROGRAMMING LANGUAGE

WHAT IS LANGUAGE ?

LANGUAGE IS A MEDIUM TO COMMUNICATE BETWEEN TWO ENTITIES

WHAT IS PROGRAMMING LANGUAGE ?

THE LANGUAGE WHICH IS USED TO INSTRUCT A COMPUTER TO PERFORM A SPECIFIC TASK IS KNOWN AS PROGRAMMING LANGUAGE

HOW MANY TYPES OF PROGRAMMING LANGUAGES ARE THERE ?

- THERE ARE THREE TYPES OF PROGRAMMING LANGUAGES, THEY ARE

1. LOW LEVEL LANGUAGE
2. MID LEVEL LANGUAGE
3. HIGH LEVEL LANGUAGE

LOW LEVEL LANGUAGE

- A LANGUAGE WHICH IS UNDERSTANDABLE BY A MACHINE IS KNOWN AS LOW LEVEL LANGUAGE OR MACHINE LEVEL LANGUAGE
 - EXAMPLE : BINARY LANGUAGE

HIGH LEVEL LANGUAGE

- A LANGUAGE WHICH IS EASILY UNDERSTANDABLE, READABLE, INSTRUCTABLE BY A PROGRAMMER IS KNOWN AS HIGH LEVEL
 - EXAMPLE : JAVA, C#, PYTHON, PHP ETC

JAVA

WHAT IS JAVA ?

- JAVA IS A **PROGRAMMING LANGUAGE** AND A **PLATFORM**
- IT IS A HIGH LANGUAGE , ROBUST, OBJECT ORIENTED AND SECURE PROGRAMMING LANGUAGE

PLATFORM : ANY HARDWARE OR SOFTWARE ENVIRONMENT IN WHICH A PROGRAM RUNS , IS KNOWN AS PLATFORM , SINCE JAVA HAS A RUNTIME ENVIRONMENT (JRE) AND API, IT IS A PLATFORM

HISTORY OF JAVA

- JAVA WAS DEVELOPED BY SUN MICROSYSTEM (WHICH IS NOW THE SUBSIDIARY OF ORACLE) IN THE YEAR 1995
- JAMES GOSLING IS KNOWN AS FATHER OF JAVA
- JAMES GOSLING, MIKE SHERIDAN AND PATRICK NAUGHTON INITIATED THE JAVA LANGUAGE PROJECT IN JUNE 1991. THE SMALL TEAM OF SUN ENGINEERS CALLED **GREEN TEAM**.
- INITIALLY DESIGNED FOR SMALL EMBEDDED SYSTEMS ELECTRONIC APPLIANCES LIKE SET-UP BOXES
- FIRSTLY, IT WAS CALLED **GREEN TALK** BY JAMES GOSLING , AND THE FILE EXTENSION WAS .gt
- AFTER THAT, IT WAS CALLED **OAK** AND WAS DEVELOPED AS A PART OF GREEN PROJECT

WHY JAVA NAMES OAK ?

- **OAK** IS A SYMBOL OF STRENGTH AND CHOSEN AS A NATIONAL TREE OF MANY COUNTRIES LIKE THE USA, FRANCE, GERMANY, ROMANIA ETC
- IN 1995 , OAK WAS RENAMED AS "**JAVA**" BECAUSE IT WAS ALREADY A TRADEMARK **OAK TECHNOLOGIES**

WHY JAVA PROGRAMMING NAMED AS "JAVA" ?

- THE TEAM GATHERED TO CHOOSE A NEW NAME. THE SUGGESTED WORDS WERE "DYNAMIC" , "REVOLUTIONARY", "SILK" , "JOLT" , "DNA" ETC
- ACCORDING TO JAMES GOSLING . "**JAVA**" WAS ONE OF THE TOP PRIORITIES ALONG WITH **SILK** . SINCE JAVA WAS SO UNIQUE , MOST OF THE TEAM MEMBERS PREFERRED JAVA THAN OTHER NAMES
- IN 1995, TIME MAGAZINE CALLED **JAVA ONE OF THE 10 BEST PRODUCTS OF 1995**.

APPLICATION

ACCORDING TO SUN, 3 BILLION DEVICES RUN JAVA. THERE ARE MANY DEVICES WHERE JAVA IS CURRENTLY USED, SOME OF THEM ARE AS FOLLOWS :

- DESKTOP APPLICATIONS MEDIA PLAYER, ANTI-VIRUS ETC
- WEB APPLICATIONS SUCH AS IRCTC ETC
- ENTERPRISE APPLICATION SUCH AS BANKING APPLICATIONS
- MOBILE
- EMBEDDED SYSTEM
- SMART CARDS
- ROBOTICS
- GAMES ETC

TYPES OF APPLICATIONS

THERE ARE MAINLY 4 TYPES OF APPLICATION THAT CAN BE CREATED USING JAVA PROGRAMMING

1. STANDALONE APPLICATION
2. WEB APPLICATIONS
3. ENTERPRISE APPLICATION
4. MOBILE APPLICATION

JAVA PLATFORMS /EDITIONS

- **JAVA SE (JAVA STANDARD EDITION)**
- **JAVA EE (JAVA ENTERPRISE EDITION)**
- **JAVA ME (JAVA MICRO EDITION)**

CORE JAVA (JAVA SE) + SELENIUM = TEST ENGINEER

CORE JAVA(JAVA SE) + J2EE = JAVA DEVELOPER

JAVA = CORE JAVA + J2EE

JAVA VERSION HISTORY

MANY JAVA VERSIONS HAVE BEEN RELEASED TILL NOW . THE CURRENT STABLE RELEASE OF JAVA IS SE 18

- **JDK ALPHA AND BETA (1995)**
- **JDK 1.0 (23RD JAN 1996)**
- **JDK 1.1 (19TH FEB 1997)**
 - EVENT HANDLING MODEL
 - INNER CLASSES
 - JAVA BEANS
 - JDBC
 - RMI REFLECTION
 - JIT COMPILER
- **J2SE 1.2 (8TH DEC 1998)**
 - VERSION : **PLAYGROUND**
 - SWING GRAPHICAL API
 - JAVA PLUGIN
 - COLLECTION FRAMEWORK
- **J2SE 1.3 (8TH DEC 2000)**
 - VERSION : **KESTREL**
 - JNDI
 - JPDA
 - SYNTHETIC PROXY CLASSES
- **J2SE 1.4 (8TH MAY 2002)**
 - VERSION : **"MERLIN"**
 - REGULAR EXPRESSION
 - ASSERT KEYWORD
 - EXCEPTION HANDLING
 - NEW I/O
 - LOGGING API

- JAXP, JCE, JSSE, JAAS
- **J2SE 5.0 (30TH SEP 2004)**
 - VERSION : **TIGER**
 - GENERICS
 - ANNOTATIONS
 - AUTOBOXING AND UNBOXING
 - ENUMERATIONS
 - VARARGS (VARIABLE ARGUMENTS)
 - ENHANCED FOR LOOP (FOR EACH LOOP)
 - STATIC
 - IMPORT
 - CONCURRENCY UTILITY INTRODUCED
- **JAVA SE 6 (11TH DEC 2006)**
 - VERSION : **MUSTANG**
 - SCRIPTING LANGUAGE
 - PERFORMANCE IMPROVEMENT
 - JDBC 4.0 (JSR 221)
 - JAVA COMPILER AP
 - PLUGGABLE ANNOTATION PROCESS
 - GC ALGORITHMS

ORACLE - 2010

- **JAVA SE 7.0 (28TH JULY 2011)**
 - VERSION : **DOLPHIN**
 - JVM FOR DYNAMIC LANGUAGE
 - STRINGS IN SWITCH
 - AUTOMATIC RESOURCE MANAGEMENT
 - DIAMOND OPERATOR
 - UNDERSCORE IN NUMERICAL LITERALS
 - IMPROVED EXCEPTION HANDLING
 - FORK/JOIN FRAMEWORKS
- **JAVA SE 8.0 (28TH JULY 2014)**
 - LAMBDA EXPRESSION
 - STREAM API
 - FUNCTIONAL INTERFACE
 - DEFAULT METHODS
 - SIGNED INTEGER ARITHMETIC
 - NEW DATE AND TIME API
- **JAVA SE 9.0 (21ST SEP 2017)**
 - JAVA PLATFORM MODULE SYSTEM
 - PLATFORM AND JVM LOGGING
 - J SHELL - REPL TOOL
 - INTERFACE PRIVATE METHODS
 - IMPROVEMENTS IN STREAM API
 - MULTI RELEASE JAR FILES
 - STACK WALKING
 - JAVA DOC'S UPDATE
- **JAVA SE 10 (20TH MARCH 2018)**
 - LOCAL VARIABLE INTERFACE
 - GARBAGE COLLECTOR INTERFACE
 - PARALLEL FULL GC FOR G1
 - THREAD LOCAL HANDSHAKES
- **JAVA SE 11 (SEP 2018)**
 - HTTP CLIENT API

- STRING API CHANGES
- EXECUTING JAVA FILES WITH A SINGLE COMMAND
- NESTED BASED ACCESS CONTROL
- **JAVA SE 12(MAR 2019)**
 - COMPACT NUMBER FORMATING
 - SUPPORT FOR UNICODE 11
- **JAVA SE 13 (SEP 2019)**
 - DYNAMIC CSC ARCHIEVE
 - UNCOMMIT UNUTILIZED MEMORY
 - DOM AND SAX FACTORIES
- **JAVA SE 14 (SE MAR 2020)**
 - JRE EVENTS STREAMING
 - PACKAGING TOOL
- **JAVA SE 15**
 - TEXT BLOCKS
 - SEALED CLASSES
 - Z GARBAGE COLLECTOR
- **JAVA SE 16**
 - UNIX-DOMAIN SOCKET CHANNELS
 - STRONGLY ENCAPSULATED JDK INTERNALS BY DEFAULT
 - ZGC CONCURRENT THREAD PROCESSING
 - ELASTIC METASPACE