**Introduction to Advanced Java**

Table of Contents

[Core Java v/s Advance Java 2](#_Toc78757846)

[Java Editions 2](#_Toc78757847)

[Java Enterprise Edition 3](#_Toc78757848)

[Java Full Stack Developer 3](#_Toc78757849)

[What is Full Stack? 3](#_Toc78757850)

[What are these full stack technologies? 3](#_Toc78757851)

[1. Front End Technologies 4](#_Toc78757852)

[2. Back End Development Technologies 4](#_Toc78757853)

[3. Build Tools 4](#_Toc78757854)

[4. Database Technologies 4](#_Toc78757855)

[5. Integrated Development Environment (IDE) 4](#_Toc78757856)

[6. Server 4](#_Toc78757857)

[7. E.T.C 4](#_Toc78757858)

[J2EE Versions 5](#_Toc78757859)

[J2EE to Jakarta EE 5](#_Toc78757860)

[Don’t get confused 5](#_Toc78757861)

[What actually is JEE? 5](#_Toc78757862)

[What are Specifications? 5](#_Toc78757863)

[So, is JEE a specification or a JavaEE Development Kit? 5](#_Toc78757864)

[What is enterprise application? 5](#_Toc78757865)

[What does these specifications include? 6](#_Toc78757866)

[How to build something then? 6](#_Toc78757867)

# Core Java v/s Advance Java

* We all continuously talk about **Core Java** and **Advance java**.
* However, these bifurcations are **not done** by Oracle.
* These bifurcations are done in order to make **learning easier**.
* The official versions of Java as per **Oracle** are known as **Editions**.

# Java Editions

There are 5 editions of Java:

* 1. **Java Card – Smart Card Edition**

Java Card refers to a software technology that allows Java-based applications (applets) to be run securely on **smart cards** and similar **small memory footprint devices**. Java Card is the **tiniest** of Java platforms targeted for **embedded devices**.

* 1. **Java ME – Java Micro Edition**

Java Platform, Micro Edition or Java ME is a computing platform for development and deployment of portable code for **embedded and mobile devices** (**micro-controllers**, **sensors**, **gateways**, mobile phones, personal digital assistants, **TV set-top boxes**, **printers**)

* 1. **Java SE – Java Standard Edition**

Java Platform, Standard Edition (Java SE) is a computing platform for development and deployment of portable code for desktop and server environments.

**Core Java is a sub set of Java SE**

* 1. **Java MP – Java Micro Profile**

Java MicroProfile is a baseline platform definition that optimizes Enterprise Java for a **microservices architecture** and delivers application portability across multiple MicroProfile runtimes.

* 1. **Java EE – Java Enterprise Edition**

Java Platform, Enterprise Edition (**Java EE**) is a set of specifications, extending Java SE with specifications for enterprise features such as **distributed computing** and **web services**

**Advance Java is a sub set of Java EE**

# Java Enterprise Edition

* It is an **enterprise platform** which is mainly used to develop **web and enterprise applications**.
* It is built on the top of the Java SE platform.
* It includes topics like
  1. Servlets
  2. Java Server Pages
  3. Web Services
  4. Java Persistence APIs
  5. Hibernate Framework
  6. Spring Framework
     + Spring Core
     + Spring MVC
     + Spring JDBC
     + Spring AOP
     + Spring Security
     + Spring Boot

# Java Full Stack Developer

A **java full stack** web **developer** is a **developer** with extensive knowledge and expertise in **full stack** tools and frameworks that work with **Java**.

## What is Full Stack?

Full stack web developers are those who work with full stack technologies.

## What are these full stack technologies?

Every technology that is used for web development is a part of a stack. But more importantly, three layers are considered as a stack. They are:

1. The **presentation** layer - the front-end development,
2. The **logic** layer - the back-end development, and
3. The **database** layer - working with databases.

The full stack developers can work with all of these layers, and usually tend to specialize in one or more.

In case of Java, the knowledge of following technologies makes a **Full Stack Java developer**:

### Front End Technologies

* 1. HTML
  2. CSS
  3. JavaScript

### Back End Development Technologies

* 1. Java Platform Standard Edition – OOP, JDBC
  2. **Java Platform Enterprise Edition – Servlets, JSP, Hibernate, Spring**

### Build Tools

* 1. ANT
  2. **Maven**
  3. Gradle

### Database Technologies

* 1. **SQL**
  2. **MySQL DB**
  3. **Oracle DB**
  4. No SQL – Mongo DB
  5. PostgreSQL

### Integrated Development Environment (IDE)

* 1. **Eclipse**
  2. Netbeans
  3. IntelliJ Idea
  4. Visual Studio Code

### Server

* 1. **Tomcat**
  2. Glassfish
  3. JBoss
  4. Wildfly etc

### E.T.C

Java has been in business for quite some time as such it has lots of frameworks & libraries for specific uses, and almost every language there is, can be integrated with Java.

## J2EE Versions

* J2EE 1.2 (December 12, 1999)
* J2EE 1.3 (September 24, 2001)
* J2EE 1.4 (November 11, 2003)
* Java EE 5 (May 11, 2006)
* Java EE 6 (December 10, 2009)
* Java EE 7 (May 28, 2013) but April 5, 2013 according to spec document
* Java EE 8 (August 31, 2017)
* Jakarta EE 8 (September 10, 2019) - fully compatible with Java EE 8
* Jakarta EE 9 (November 22 2020) - javax.\* to jakarta.\* namespace change.

### J2EE to Jakarta EE

* Java EE was maintained by Oracle under the Java Community Process.
* On September 12, 2017, Oracle announced that it would submit Java EE to the Eclipse Foundation.
* The Eclipse named this top-level project as Eclipse Enterprise for Java (EE4J).
* As Oracle owns “Java” trademark, the Eclipse Foundation was forced to change the name.
* The Eclipse foundation renamed the Java EE platform to Jakarta EE.

### Don’t get confused

Java 2EE, J2EE, JEE, and Jakarta EE**are all different names for the same thing: a set of enterprise specifications that extend Java SE.**

## What actually is JEE?

JEE consists of specifications only

### What are Specifications?

Specifications mean rules or contract.

### So, is JEE a specification or a JavaEE Development Kit?

JEE is a set of rules and contract laid down by Oracle/Sun of services required for any enterprise application

### What is enterprise application?

An enterprise application (EA) is a large software system platform designed to operate in a corporate environment spanned across **multiple systems** and **huge geographical area**.

It includes **online shopping** and **payment processing**, **interactive product catalogs**, **computerized billing systems**, security, content management, **IT service management**, **business intelligence**, human resource management, manufacturing, process automation, enterprise resource planning etc etc etc…

### What does these specifications include?

These specifications include ---

Servlet API, JSP(Java server page) API, Security, Connection pooling , EJB (Enterprise Java Bean), JNDI (Naming service -- Java naming & directory i/f), JPA (java persistence API), JMS (java messaging service), Java Mail, Java Server Faces , Java Transaction API, Webservices support (SOAP/REST) etc...

### How to build something then?

JEE specifications are implemented by JEE Server vendors. These servers are known as JEE compliant Web Servers. Here is a list of popular Web Servers available

1. **Apache Tomcat**
2. Apache Tomee
3. Oracle / Sun --- reference implementation --- Glassfish
4. Red Hat -- JBoss (wild fly)
5. Oracle / BEA – weblogic
6. IBM -- Websphere