JAVA API

What is Java?

- **Java is an object-oriented programming language that runs on almost all electronic devices. Java is platform-independent because of Java virtual machines (JVMs).**

- **It follows the principle of "write once, run everywhere.‖** When a JVM is installed on the host operating system, it automatically adapts to the environment and executes the program's functionalities.

- To install Java on a computer, the developer must download the JDK and set up the Java Runtime Environment (JRE).

As previously noted, a Java download consists of two files:
- JDK
- JRE

The JDK file is key to developing APIs in Java and consists of:
- The compiler
- The JVM
- The Java API

WHAT IS JAVA API AND THE NEED FOR JAVA APIS?

Java application programming interfaces (APIs) are predefined software tools that easily enable interactivity between multiple applications

Compiler

A Java compiler is a predefined program that *converts the high-level, user-written code language to low-level, computer-understandable, byte-code language during the compile time.*

JVM

A JVM processes the byte-code from the compiler and provides an output in a user-readable format.

Java APIS

Java APIs are integrated pieces of software that come with JDKs. *APIs in Java provides the interface between two different applications and establish communication.*

- APIs are important software components bundled with the JDK.

- *APIs in Java include classes, interfaces, and user Interfaces.*

- They enable developers to integrate various applications and websites and offer real-time information.

- The following image depicts the fundamental components of the Java API.
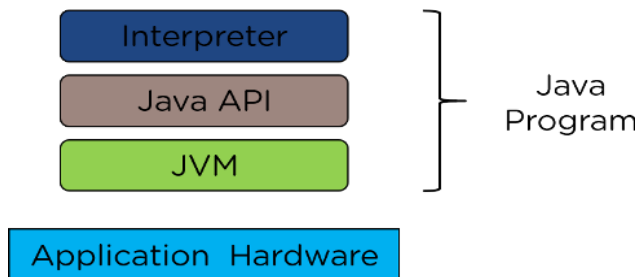
Three types of developers use Java APIs based on their job or project:
1. Internal developers

2. Partner developers
3. Open developers

Internal Developers

Internal developers use internal APIs for a specific organization. Internal APIs are accessible onlyby developers within one organization.
Applications that use internal APIs include:
- B2B
- B2C
- A2A
- B2E

Examples include Gmail, Google Cloud VM, and Instagram.

Partner Developers

Organizations that establish communications develop and use partner APIs. These types of APIsare available to partner developers via API keys.
Applications that use partner APIs include:

- B2B
- B2C

Examples include Finextra and Microsoft (MS Open API Initiative),

Open Developers

Some leading companies provide access to their APIs to developers in the **open-source** **format**. These businesses provide access to APIs via a key so that the company can ensure thatthe API is not used illegally.
The application type that uses internal APIs is:
B2C
Examples include Twitter and Telnyx. THE NEED FOR JAVA APIS
Java developers use APIs to:

Streamline Operating Procedures

Social media applications like Twitter, Facebook, LinkedIn, and Instagram
provide users with multiple options on one screen. Java APIs make this functionality possible.

Improve Business Techniques

Introducing APIs to the public leads many companies to release private data to generate new ideas,fix existing bugs, and receive new ways to improve operations.
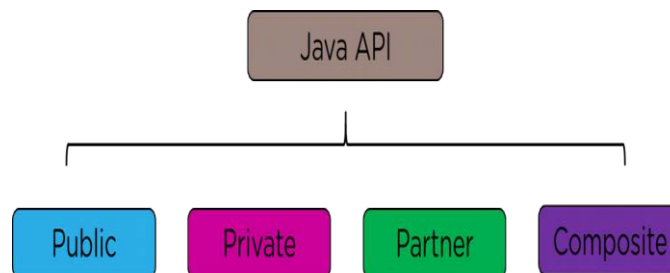
Create Powerful Applications

Online banking has changed the industry forever, and APIs offer customers the ability to managetheir finances digitally with complete simplicity.
TYPES OF JAVA APIS
There are four types of APIs in Java:
* Public
* Private
* Partner
* Composite

Public
Public (or open) APIs are Java APIs that come with the JDK. They do not have strict restrictionsabout how developers use them.

Private

Private (or internal) APIs are developed by a specific organization and are accessible to onlyemployees who work for that organization.
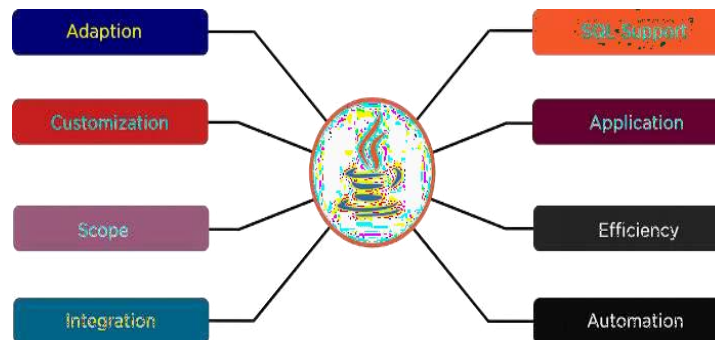
Partner

Partner APIs are considered to be third-party APIs and are developed by organizations for strategicbusiness operations.

Composite

Composite APIs are micro services, and developers build them by combining several serviceAPIs. THE ADVANTAGES OF APIS
Some of the main advantages of using Java APIs include:

Extensive SQL Support

APIs in Java enable a wide range of SQL support services in user applications through a component-based interface

Scope

Java APIs easily make websites, applications, and information available to a wide range of usersand audiences.

Customization

Java APIs enable developers and businesses to build applications that personalize the user interfaceand data.

Adaptability

Java APIs are highly flexible and adaptable because they can easily accept feature updates andchanges to frameworks and operating environments.

Application

APIs in Java provide effortless access to all of an application's major software components andeasily deliver services.

Efficiency

Java APIs are highly efficient because they enable rapid application deployment. Also, the data thatthe application generates is always available online.

Automation

APIs allow computers to automatically upload, download, update and delete data automaticallywithout human interaction.

Integration

Java APIs can integrate into any application and website and provide a fluid user experiencewith dynamic data delivery.