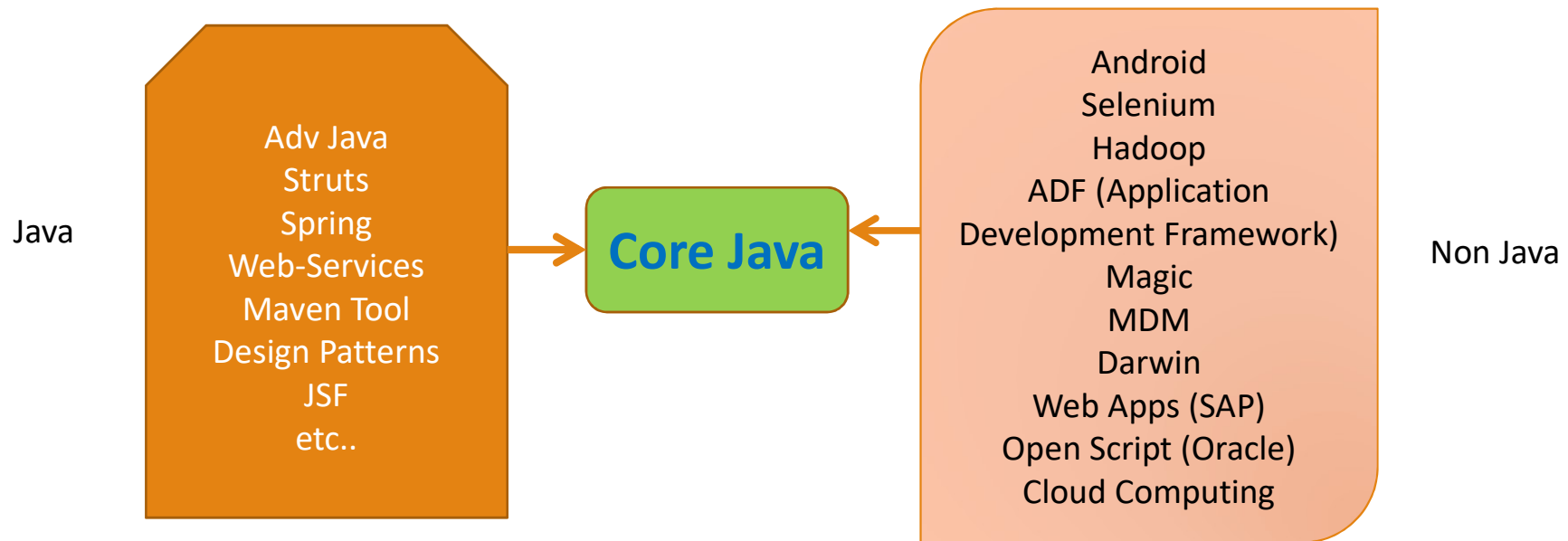


Core Java

Why Core Java?

❖ Now a days most of the technology depends on core java.



What is Java?

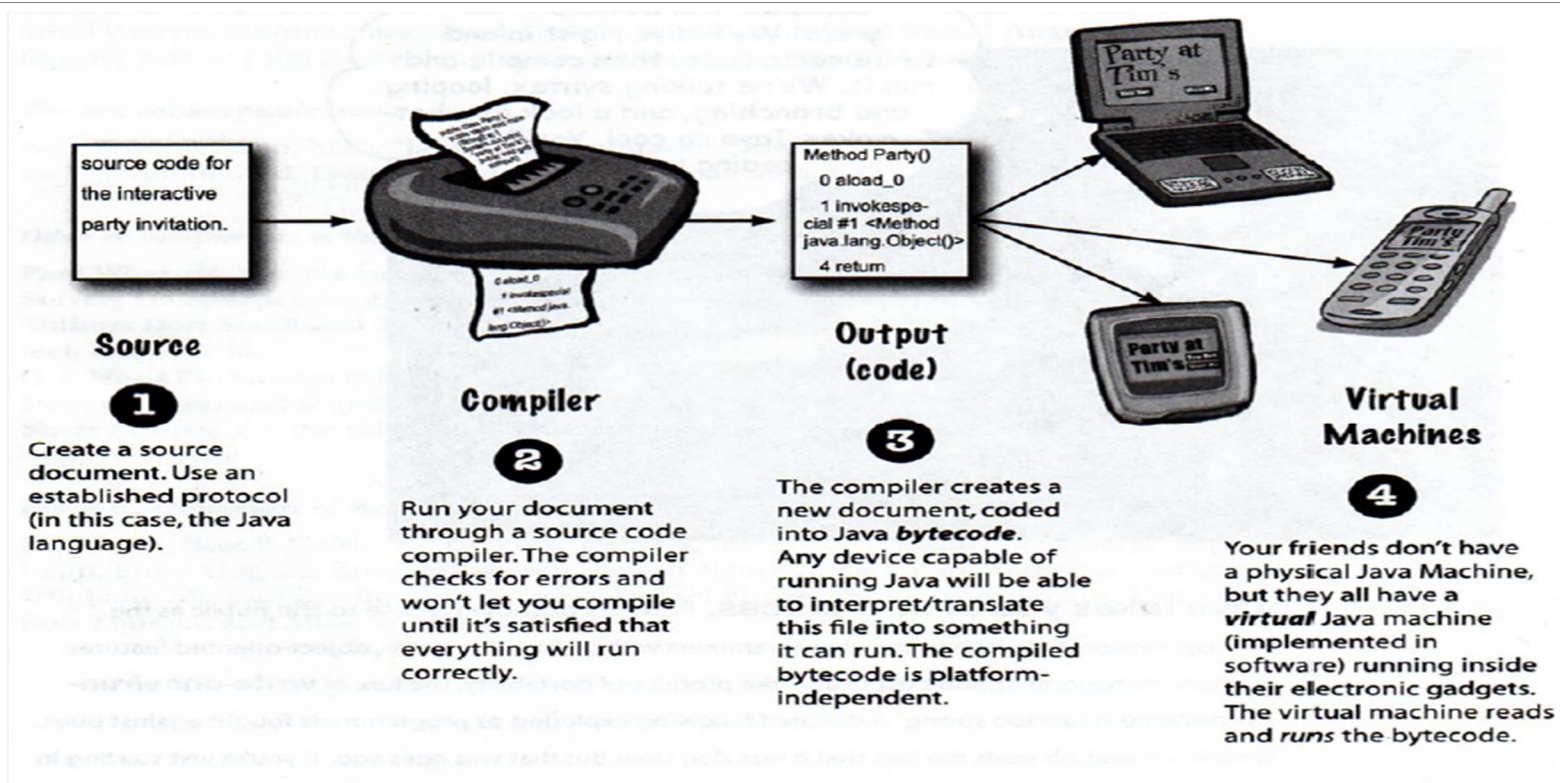


- ❖ Java is a high-level, general-purpose programming language developed by a small team, headed by James Gosling and Patrick Naughton at Sun Microsystems in 1991. It is currently owned by Oracle Corporation.
- ❖ It was designed to be small, simple, and portable across platforms and operating systems.
- ❖ It was initially developed for consumer devices. Later it has become a popular platform to develop enterprise applications.
- ❖ Java 16 is the latest version of Java as of March 2021.

Power of Java

- ❖ Java software runs on more types of consumer and embedded devices, smart cards, ATMs, thin clients, PCs, servers, and mainframes than any other software.
- ❖ Today's six million Java developers are one of the largest communities of software developers.
- ❖ The Java economy includes 2.5 billion smart cards, 800 million PCs shipped with Java, 1.85 billion Java Powered phones , and over 180 telecom providers who deploy Java technology based content/services.

WORA : The goal is to write an application which run anywhere.



Features of Java

Object Oriented

Secure

- Execution inside Virtual Machine
- No pointers

Simple

- High-level
- Easy to learn

Java

Architecture Neutral
and Portable

- Platform Independent
- Write Once, Run Anywhere

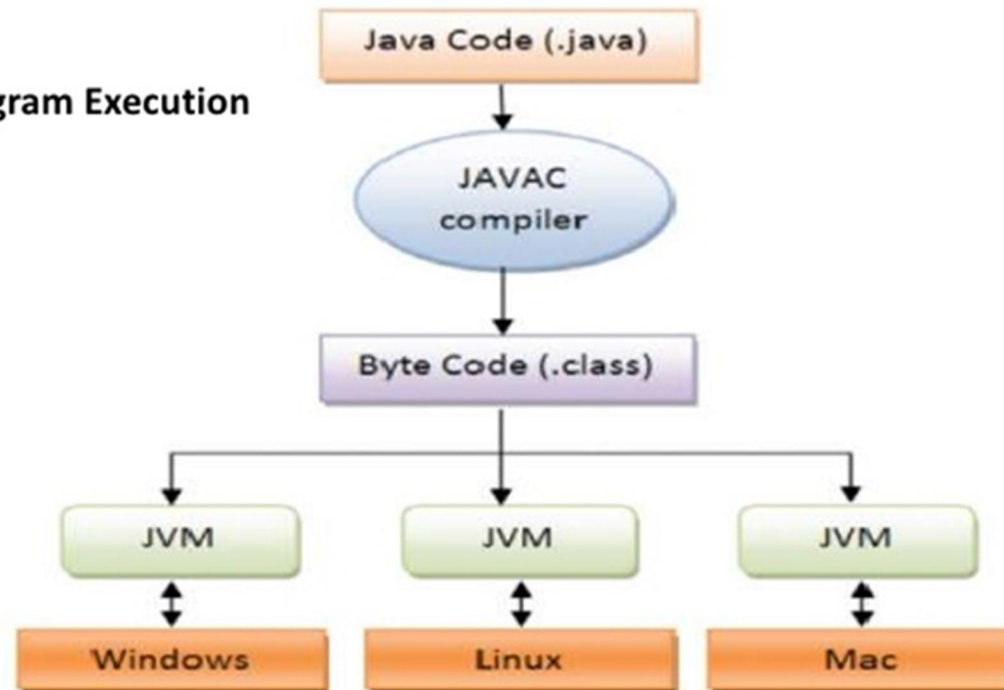
Multi-threaded

Robust

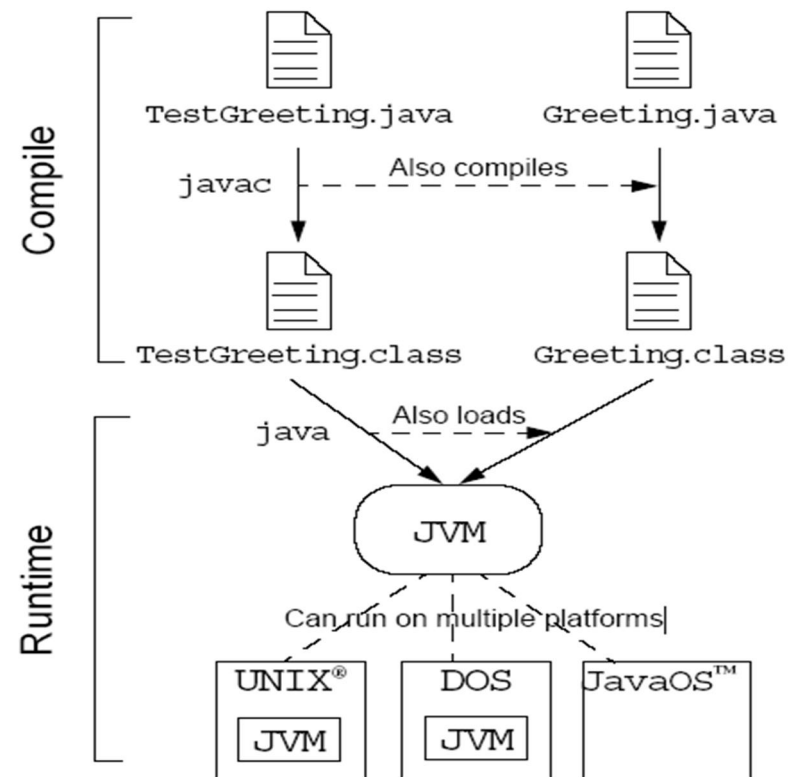
- Improved Memory Management
- Exception Handling Mechanism
- Type Checking Mechanism

How **Java** works?

JAVA Program Execution



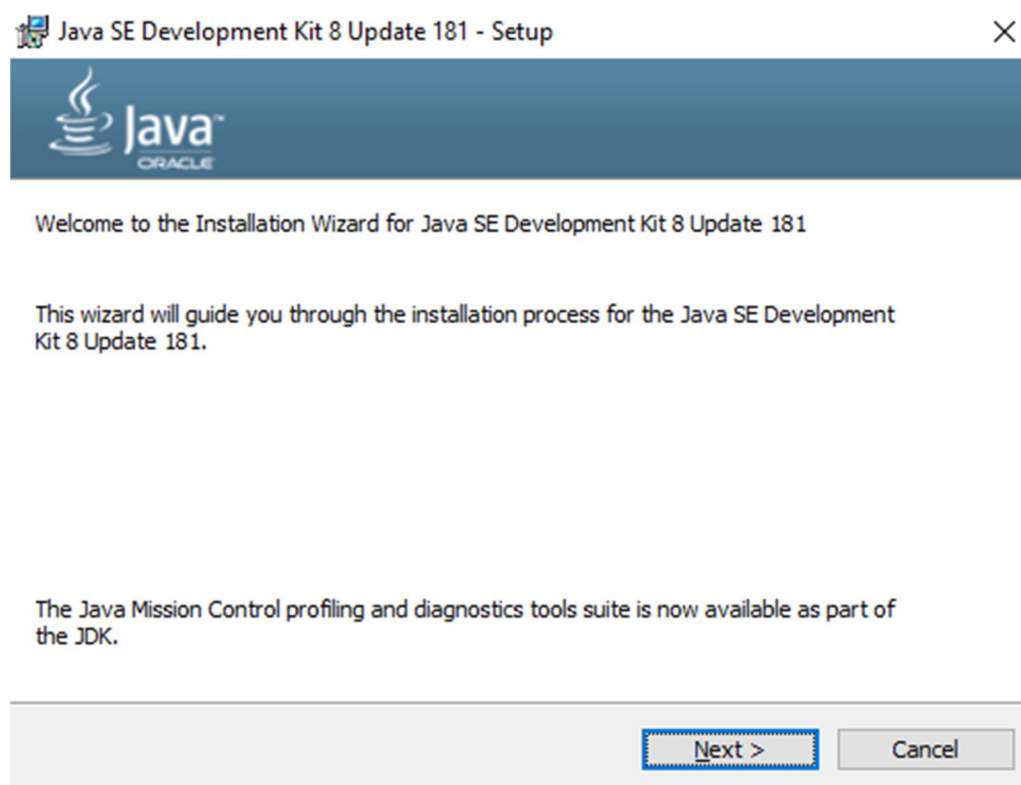
How **Java** works?



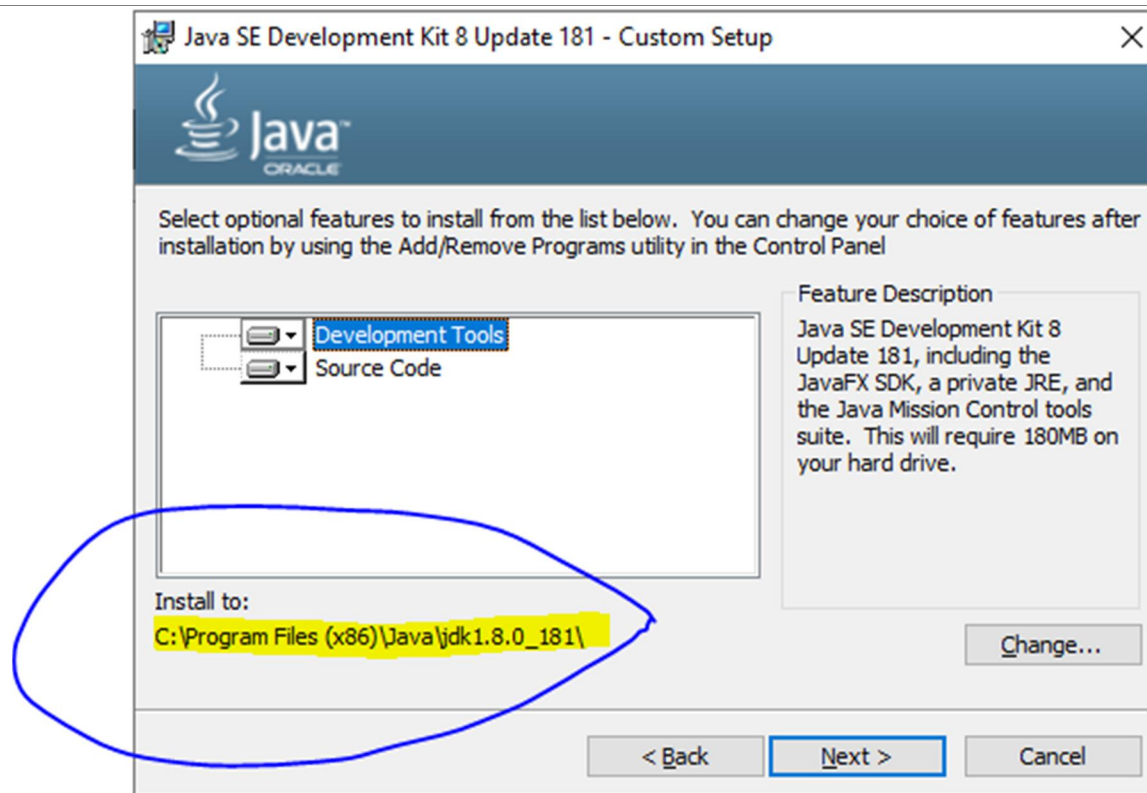
Environment Setup - Windows

- ❖ Before we proceed further it is important that we set up the java environment correctly.
- ❖ Java SE is freely available from the link [Download Java](https://www.oracle.com/in/java/technologies/downloads/) (https://www.oracle.com/in/java/technologies/downloads/).
- ❖ So you download a version based on your operating system.
- ❖ Follow the instructions to download java and run the **.exe** to install Java on your machine.
- ❖ Once you installed Java on your machine, you would need to set environment variables to point to correct installation directories.

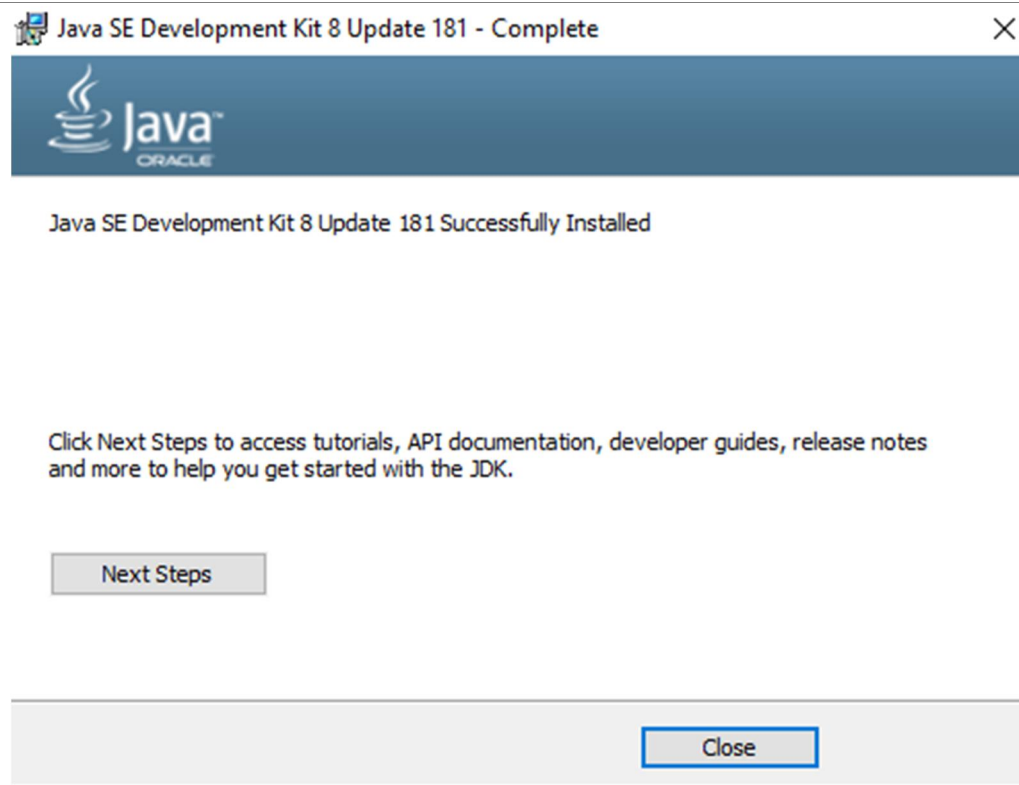
Environment Setup - Windows



Environment Setup - Windows



Environment Setup - Windows



Environment Setup - Windows

Setting up the path for windows:

Assuming you have installed Java in *C:\Program Files (x86)\Java\jdk1.8.0_181* directory:

- ❖ Right-click on 'My Computer' and select 'Properties'.
- ❖ Click on the 'Environment variables' button under the 'Advanced system settings' tab.
- ❖ Now alter the 'Path' variable so that it also contains the path to the Java executable. Example, if the path is currently set to 'C:\WINDOWS\SYSTEM32', then change your path to read 'C:\WINDOWS\SYSTEM32; *C:\Program Files (x86)\Java\jdk1.8.0_181\bin*'.

Environment Setup - Windows



About

Your PC is monitored and protected.

[See details in Windows Security](#)

Device specifications

Device name	DESKTOP-LDH9208
Processor	Intel(R) Core(TM) i3-6006U CPU @ 2.00GHz 2.00 GHz
Installed RAM	8.00 GB (7.89 GB usable)
Device ID	685FC018-334B-43BE-9407-94A8A432A878
Product ID	00327-30454-97643-AAOEM
System type	64-bit operating system, x64-based processor
Pen and touch	No pen or touch input is available for this display

Copy

Rename this PC

This page has a few new settings

Some settings from Control Panel have moved here, and you can copy your PC info so it's easier to share.

Related settings

[BitLocker settings](#)

[Device Manager](#)

[Remote desktop](#)

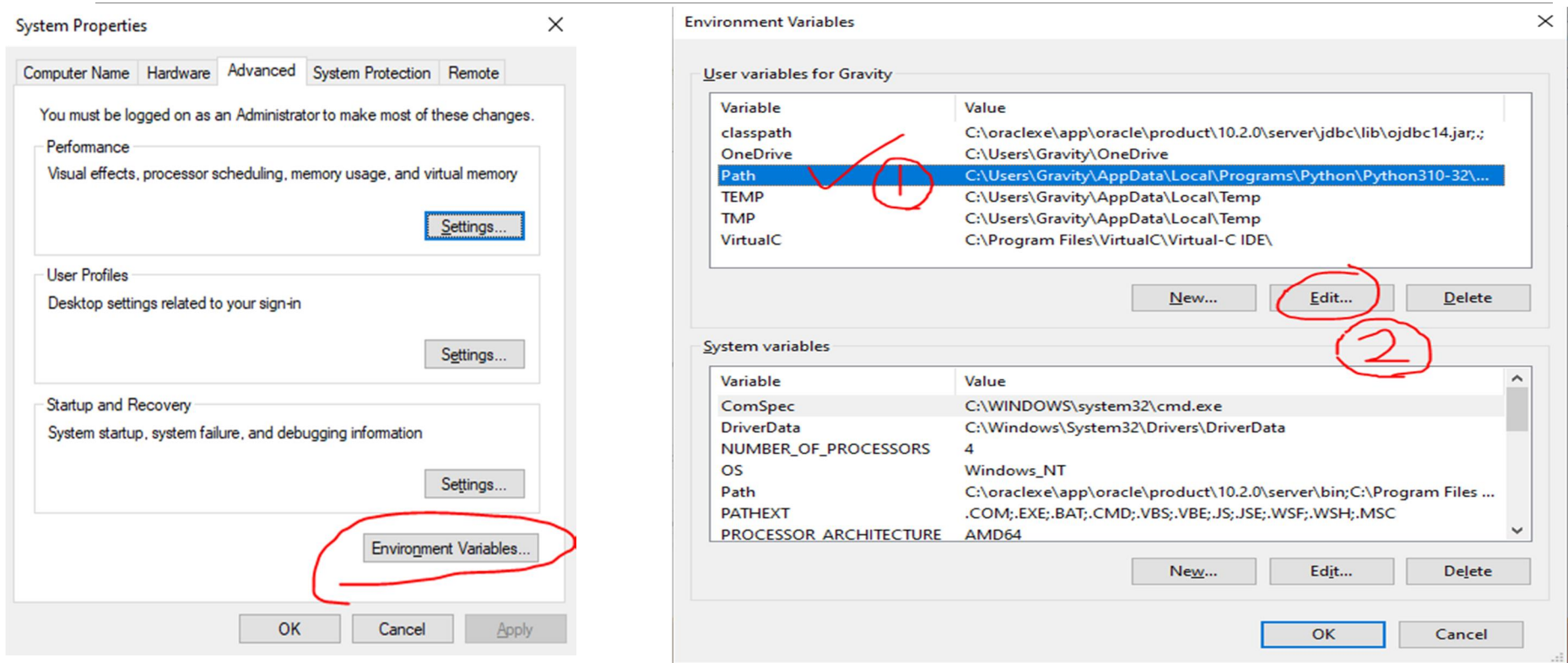
[System protection](#)

[Advanced system settings](#)

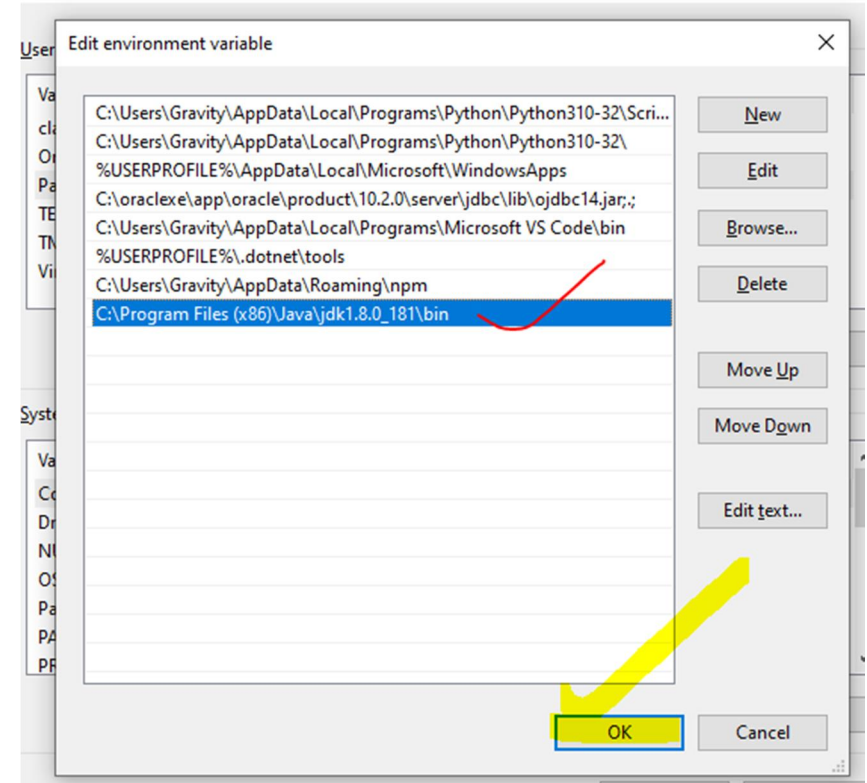
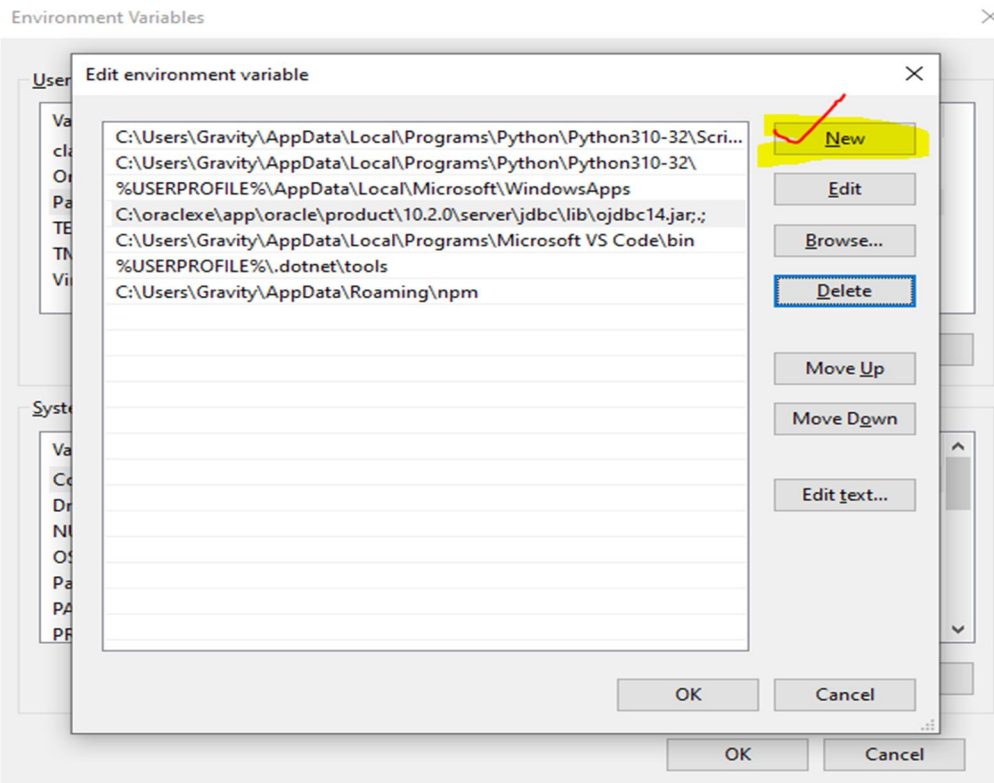
[Rename this PC \(advanced\)](#)

Help from the web

Environment Setup - Windows



Environment Setup - Windows



Popular Java Editors : IDEs

To write your java programs you will need a text editor. There are even more sophisticated IDE available in the market. But for now, you can consider one of the following:

- ❖ **Notepad** : On Windows machine you can use any simple text editor like Notepad (Recommended for us).
- ❖ **Eclipse** : is also a java IDE developed by the eclipse open source community and can be downloaded from <http://www.eclipse.org/>.
- ❖ **Netbeans** : is a Java IDE that is open source and free which can be downloaded from <http://www.netbeans.org/index.html>.
- ❖ **Online Editors.**

Basic difference C and Java

Why Java is Important

- **Two reasons :**
 - Trouble with **C/C++** language is that they are not portable and are not platform independent languages.
 - Emergence of World Wide Web, which demanded portable programs
- **Portability** and **security** necessitated the invention of Java

Basic difference C and Java

C Language:

- Major difference is that C is a **structure oriented language** and Java is an **object oriented language** and has mechanism to define classes and objects.
- Java does not support an explicit **pointer** type
- Java does not have **preprocessor**, so we cant use #define, #include and #ifdef statements.
- Java does not include structures, unions and enum data types.
- Java does not include keywords like goto, sizeof and typedef.
- Java adds labeled break and continue statements.
- Java adds many features required for object oriented programming.

Basic difference C++ and Java

C++ language

Features removed in java:

- Java doesn't support **pointers** to avoid **unauthorized** access of **memory locations**.
- Java does not include structures, unions and enum data types.
- Java does not support **operator over loading**.
- Preprocessor plays less important role in C++ and so **eliminated** entirely in java.
- Java does not perform **automatic** type conversions that result in loss of **precision**.

Basic difference C++ and Java

- Java does not support **global variables**. Every method and variable is declared within a **class** and forms part of that class.
- Java does not allow **default arguments**.
- Java does not support inheritance of **multiple** super classes by a sub class (i.e., **multiple inheritance**). This is accomplished by using '**interface**' concept.
- It is not possible to declare **unsigned integers** in java.
- In java objects are passed by **reference** only. In C++ objects may be passed by **value** or **reference**.