Here is the complete **Java Installation and Basics Guide for Windows** — you can copy this content into a .docx file in Microsoft Word or Google Docs.

# ****Java Installation and Setup Guide for Windows****

## ****1. Download Java JDK****

Visit the official Oracle JDK download page:  
🔗 <https://www.oracle.com/java/technologies/javase-downloads.html>

Choose the latest Java SE version (e.g., Java SE 21 or higher).

Click on the "Windows" tab.

Download the **Windows x64 Installer** (.exe file).

Accept the license agreement before downloading.

## ****2. Install Java JDK****

Locate and double-click the downloaded .exe file.

Click **Next** in the installation wizard.

Choose the installation path (the default is usually fine).

Click **Next** to start the installation.

Wait for the installer to finish and click **Close** when done.

## ****3. Set Up Environment Variables****

### a. Set JAVA\_HOME

Open **Start Menu** → search for **Environment Variables** → click **Edit the system environment variables**.

In the System Properties window, click **Environment Variables**.

Under **System variables**, click **New**:

**Variable name:** JAVA\_HOME

**Variable value:** C:\Program Files\Java\jdk-XX  
(Replace XX with the version number you installed)

### b. Update PATH Variable

In the same **System variables** section, scroll and find the **Path** variable.

Click **Edit** → **New** → Add:

%JAVA\_HOME%\bin

Click **OK** on all dialogs to apply changes.

## ****4. Verify Java Installation****

Open **Command Prompt**.

Type the following and press **Enter**:

java -version

javac -version

You should see the installed version displayed.  
If both commands work, Java is set up correctly.

# ****Java Basics****

## ****What is Java?****

Java is a high-level, class-based, object-oriented programming language developed by **Sun Microsystems** (now owned by Oracle). It is widely used for building applications across platforms due to its **"write once, run anywhere"** capability, enabled by the **Java Virtual Machine (JVM)**.

## ****Core Java Components****

**JDK (Java Development Kit):** Contains tools like compiler (javac) and debugger, along with the JRE.

**JRE (Java Runtime Environment):** Provides the runtime libraries needed to run Java applications.

**JVM (Java Virtual Machine):** Executes compiled Java bytecode on any platform.

## ****Basic Java Program Structure****

public class HelloWorld {

public static void main(String[] args) {

System.out.println("Hello, World!");

}

}

### Explanation:

public class HelloWorld: Declares a class named HelloWorld.

public static void main(String[] args): Entry point of any Java program.

System.out.println(...): Prints output to the console.

## ****Key Java Concepts****

### ****Object-Oriented Programming (OOP)****

Java follows four key OOP principles:

**Encapsulation** – Hiding data using classes and access modifiers.

**Inheritance** – Reusing code through parent-child class relationships.

**Polymorphism** – Overriding or overloading methods for flexible code.

**Abstraction** – Hiding implementation details and showing only functionality.

## ****Java Compilation and Execution****

Save your Java code in a file named HelloWorld.java.

Open **Command Prompt** and navigate to the folder.

Compile the code:

javac HelloWorld.java

Run the program:

java HelloWorld

You should see:

Hello, World!

## ****Common Java File Types****

| **File Type** | **Purpose** |
| --- | --- |
| .java | Source code file |
| .class | Compiled bytecode file |
| .jar | Java Archive file for deployment |

## ****Useful Resources****

Official Java Tutorials: <https://docs.oracle.com/javase/tutorial>

Java API Docs: <https://docs.oracle.com/en/java/javase/>

Practice Coding: <https://www.hackerrank.com/domains/tutorials/10-days-of-java>