

# Java

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# Agenda

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- Java Introduction
- Download and install Java
- Download and install Eclipse IDE
- Java Variables
- Java Data Types
- Java Operators

# What is Java?

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- Java is a popular programming language, created in 1995.
- It is owned by Oracle, and more than **3 billion** devices run Java.
- It is used for:
  - Mobile applications (specially Android apps)
  - Desktop applications
  - Web applications
  - Web servers and application servers
  - Games
  - Database connection
  - And much, much more!

# Why Use Java?

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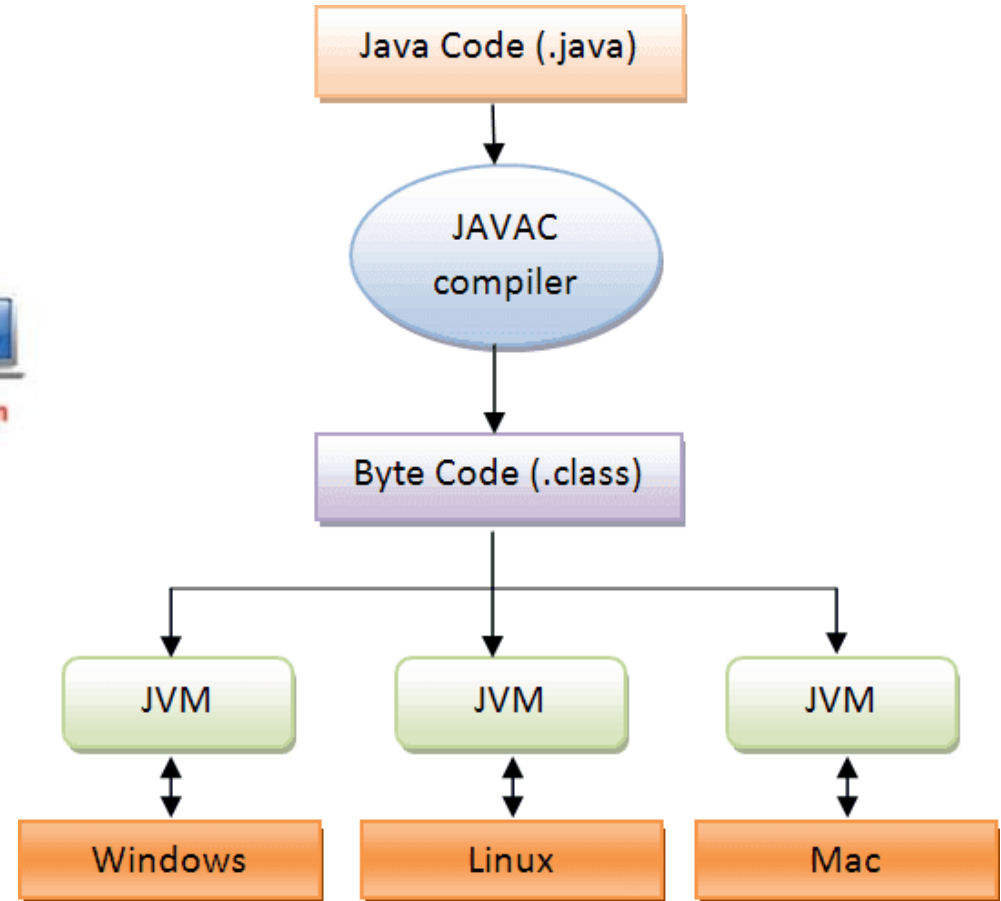
- Java works on different platforms (Windows, Mac, Linux etc.)
- It is one of the most popular programming language in the world
- It is easy to learn and simple to use
- It is open-source and free
- It is secure, fast and powerful

# JDK, JRE and JVM

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- **JDK (Java Development Kit)**
- JDK contains everything that will be required to *develop and run* Java application.
- **JRE (Java Runtime Environment)**
- JRE contains everything required to *run* Java application which has already been compiled. It doesn't contain the code library required to develop Java application.
- **JVM (Java Virtual Machine)**
- JVM is a virtual machine which works on top of your operating system to provide a recommended environment for your compiled Java code. JVM only works with bytecode. Hence you need to compile your Java application(.java) so that it can be converted to bytecode format (also known as the .class file).
- Which then will be used by JVM to run an application. JVM only provide the environment needed to executed Java Bytecode.

# JDK, JRE and JVM



# Download & Install Java

## 1) Download Link

- [http://download.oracle.com/otn-pub/java/jdk/9.0.4+11/c2514751926b4512b076cc82f959763f/jdk-9.0.4\\_windows-x64\\_bin.exe](http://download.oracle.com/otn-pub/java/jdk/9.0.4+11/c2514751926b4512b076cc82f959763f/jdk-9.0.4_windows-x64_bin.exe)



**Java SE Downloads**

Java Platform (JDK) 9

NetBeans with JDK 8

**Java Platform, Standard Edition**

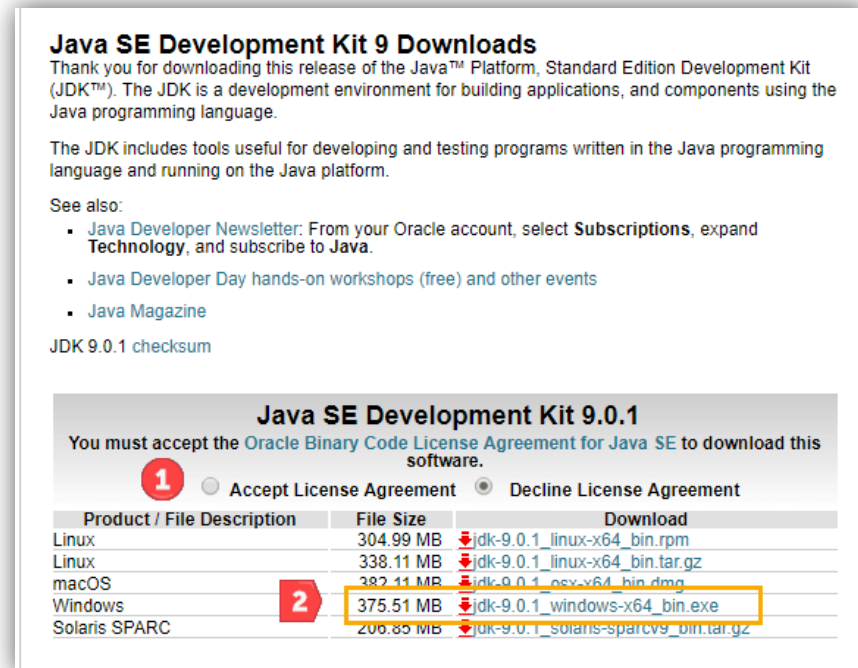
**Java SE 9.0.1**  
Java SE 9.0.1 includes important bug fixes. Oracle strongly recommends that all Java SE 9 users upgrade to this release.  
[Learn more](#)

- Installation Instructions
- Release Notes
- Oracle License
- Java SE Licensing Information User Manual
- Third Party Licenses
- Certified System Configurations
- Readme

**JDK**  
[DOWNLOAD](#)

**Server JRE**  
[DOWNLOAD](#)

**JRE**  
[DOWNLOAD](#)



**Java SE Development Kit 9 Downloads**

Thank you for downloading this release of the Java™ Platform, Standard Edition Development Kit (JDK™). The JDK is a development environment for building applications, and components using the Java programming language.

The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.

See also:

- [Java Developer Newsletter](#): From your Oracle account, select **Subscriptions**, expand **Technology**, and subscribe to **Java**.
- [Java Developer Day hands-on workshops \(free\) and other events](#)
- [Java Magazine](#)

JDK 9.0.1 checksum

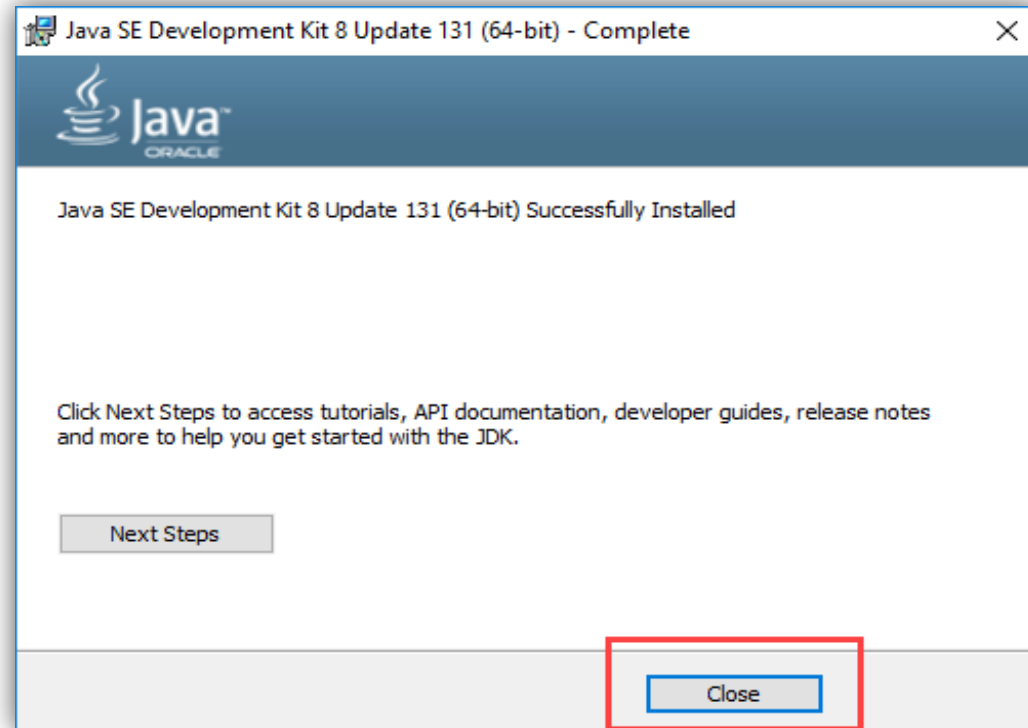
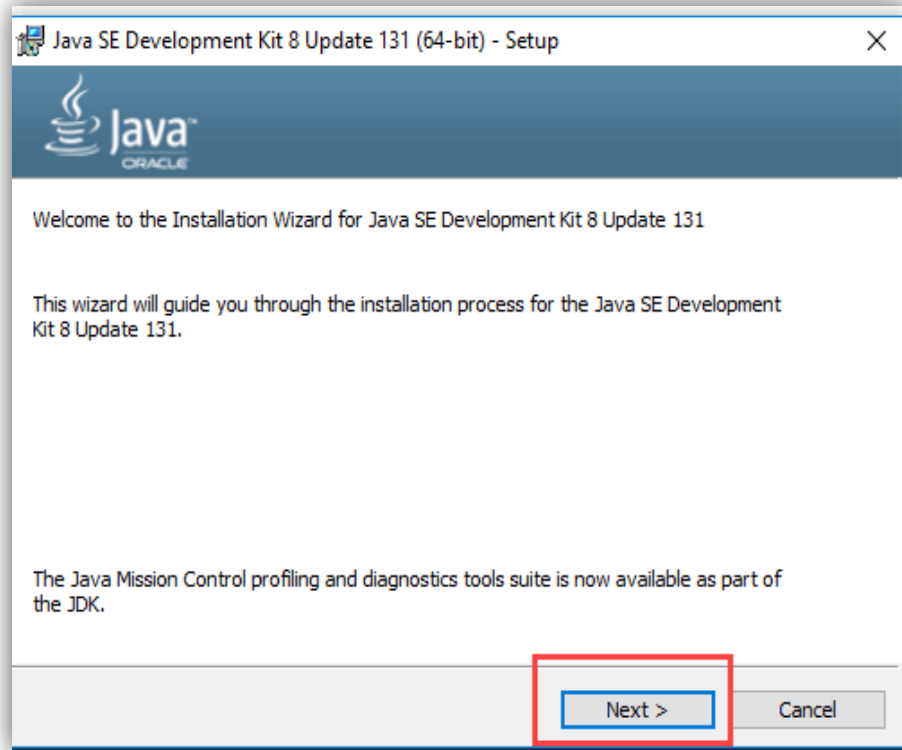
**Java SE Development Kit 9.0.1**

You must accept the [Oracle Binary Code License Agreement for Java SE](#) to download this software.

**1** ☒ Accept License Agreement ☐ Decline License Agreement

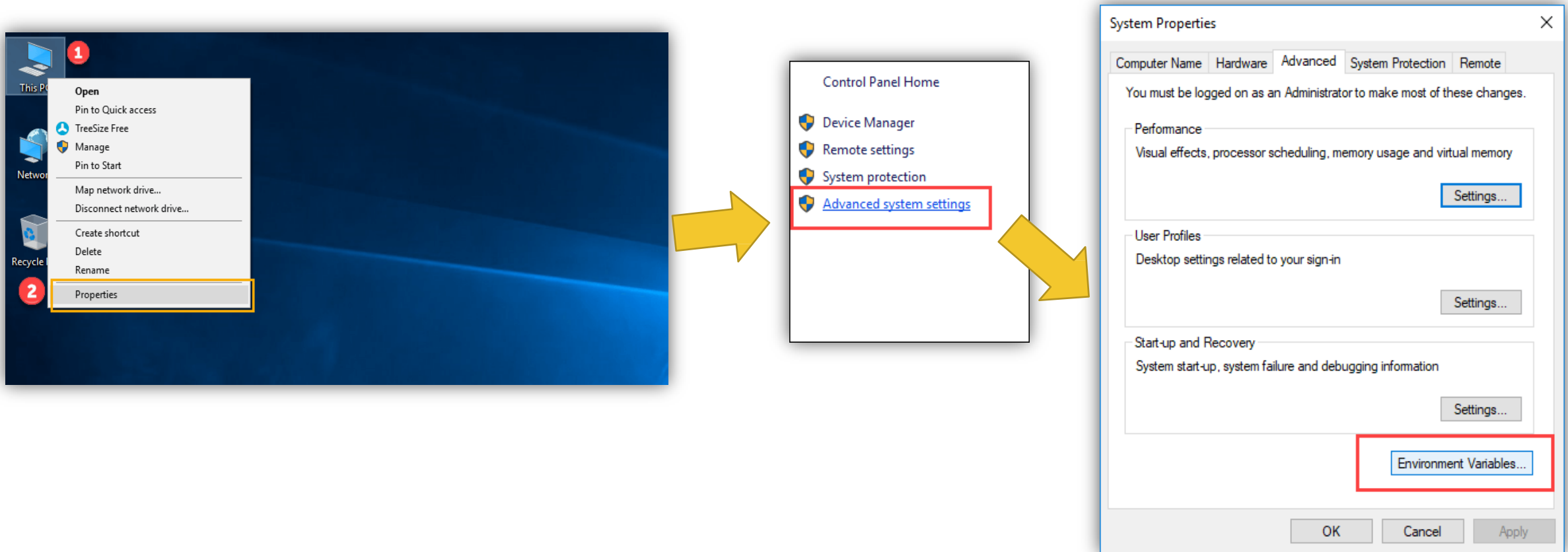
Product / File Description	File Size	Download
Linux	304.99 MB	<a href="#">jdk-9.0.1_linux-x64_bin.rpm</a>
Linux	338.11 MB	<a href="#">jdk-9.0.1_linux-x64_bin.tar.gz</a>
macOS	382.11 MB	<a href="#">jdk-9.0.1_osx-x64_bin.dmg</a>
Windows	375.51 MB	<a href="#">jdk-9.0.1_windows-x64_bin.exe</a>
Solaris SPARC	206.85 MB	<a href="#">jdk-9.0.1_solaris-sparcv9_bin.tar.gz</a>

2) Once the download is complete, run the exe for install JDK. Click Next





# Java Environment Setup



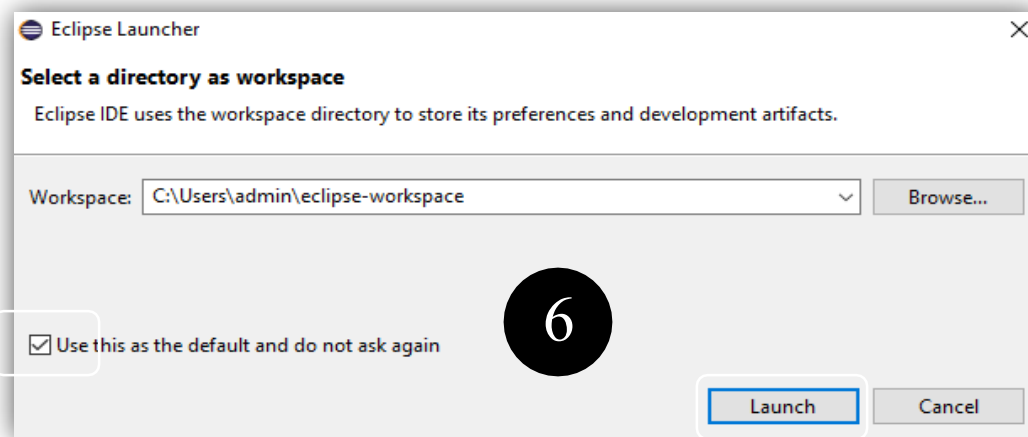
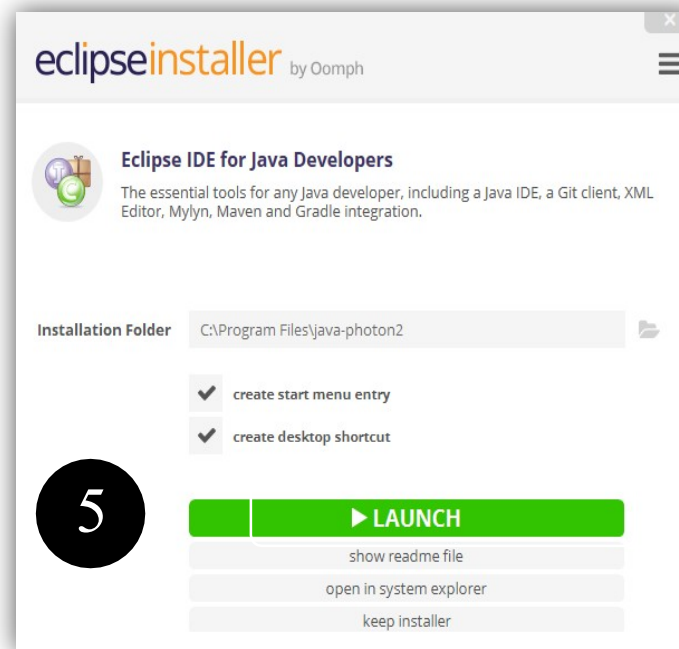
# Eclipse IDE

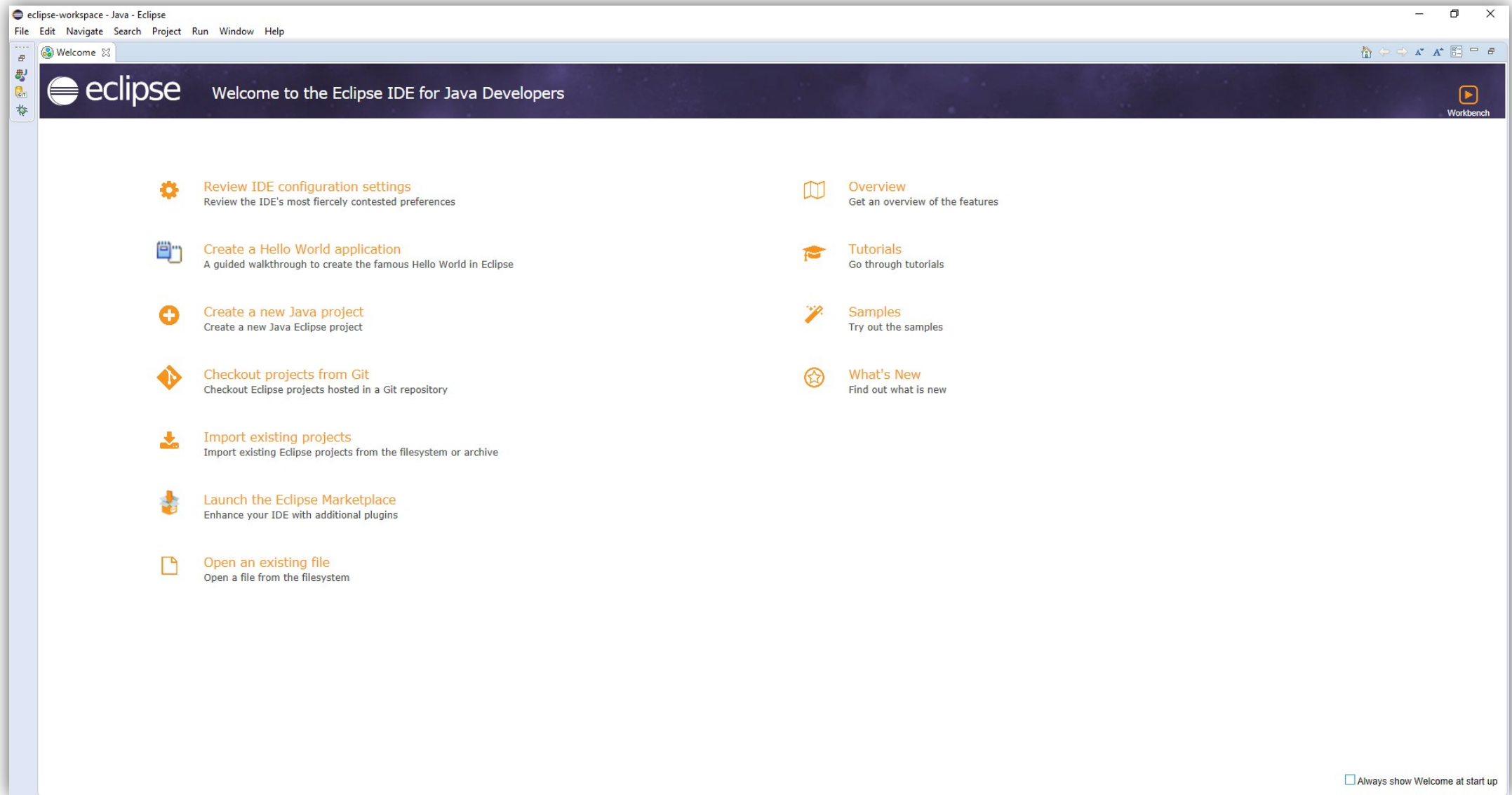
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- <https://www.eclipse.org/downloads/download.php?file=/oomph/epp/photon/R/eclipse-inst-win64.exe>

# Download and Start Eclipse IDE





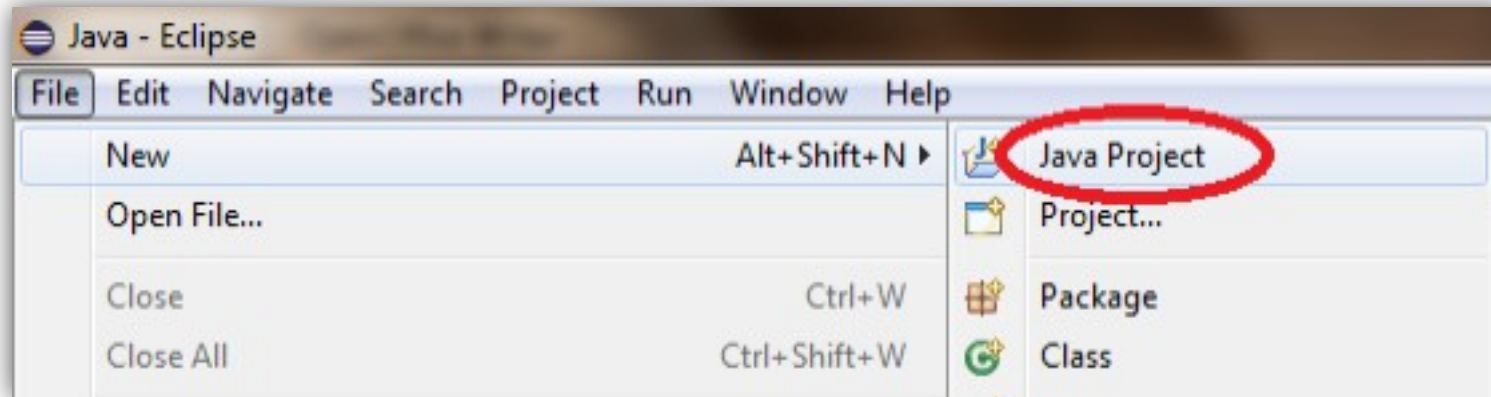


# Create a Java Project

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- To create a new Java project in Eclipse

Go to **File** → **New** → **Java Project** → **Specify Project Name**  
→ **Finish**

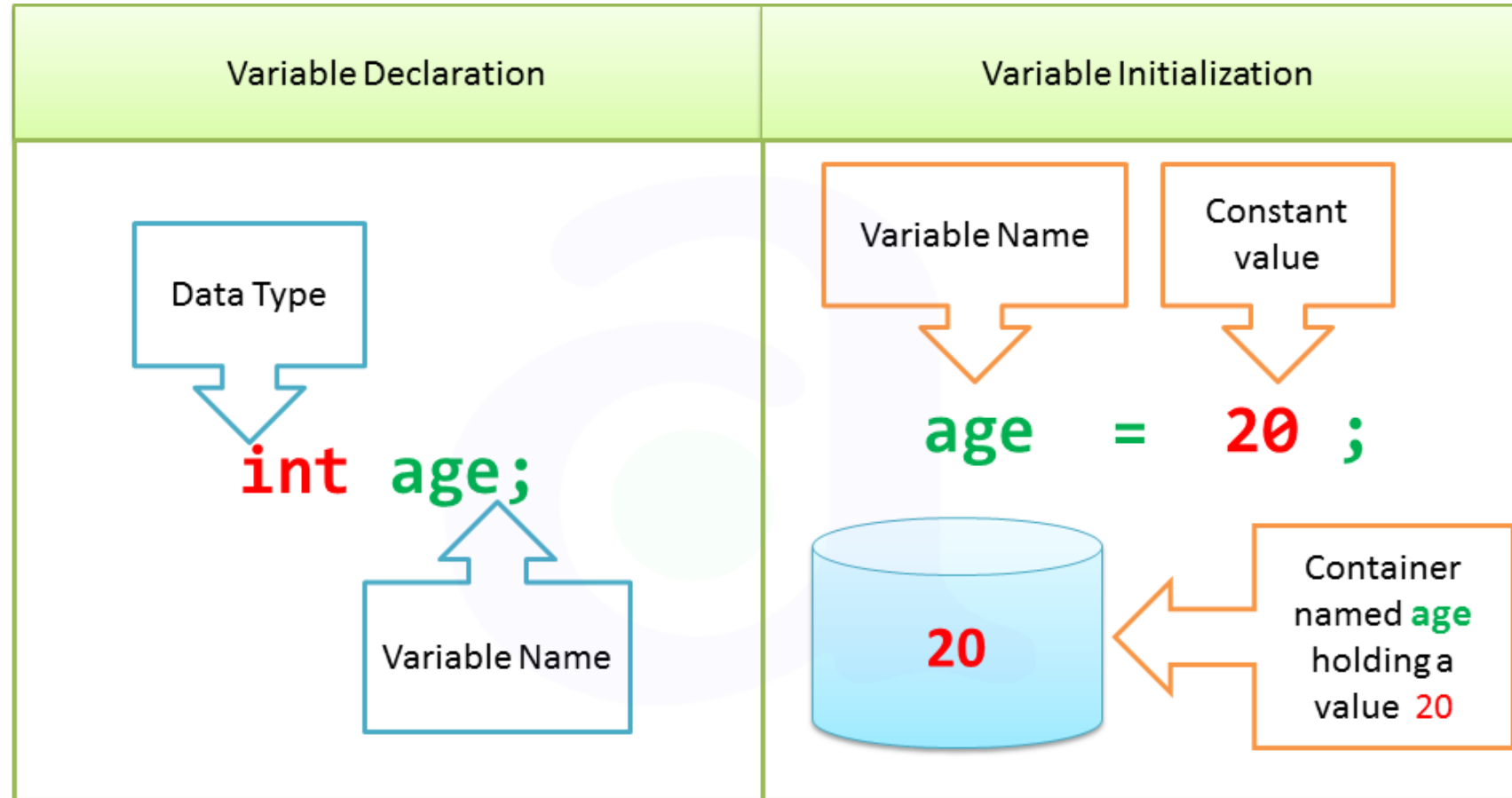


# Java Variables

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- **What is a Variable?**
- A variable is a container which holds value.
- Every variable is assigned a **data type** which designates the type and quantity of value it can hold.
- In order to use a variable in a program you need to perform 2 steps
  - Variable Declaration
  - Variable Initialization

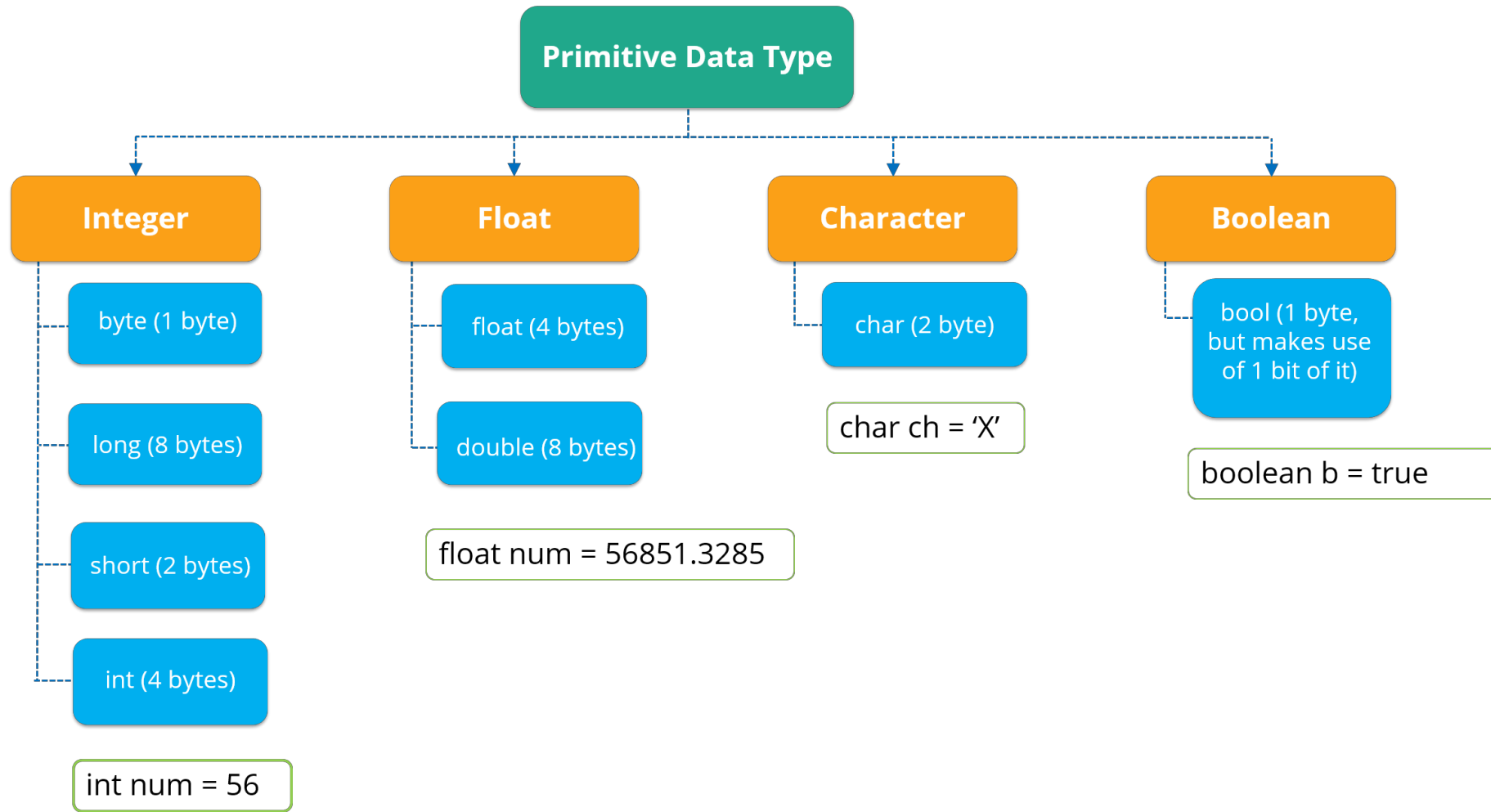
# Java Variables(Cont..)



`int` variable Declaration and Initialization



# Java Data Types



# Java Operators

Category	Operator	Name/Description	Example	Result
Arithmetic	+	Addition	3+2	5
	-	Subtraction	3-2	1
	*	Multiplication	3*2	6
	/	Division	10/5	2
	%	Modulus	10%5	0
	++	Increment and then return value	X=3; ++X	4
		Return value and then increment	X=3; X++	3
	--	Decrement and then return value	X=3; --X	2
		Return value and then decrement	X=3; X--	3
Logical	&&	Logical “and” evaluates to true when both operands are true	3>2 && 5>3	False
		Logical “or” evaluates to true when either operand is true	3>1    2>5	True
	!	Logical “not” evaluates to true if the operand is false	3!=2	True
Comparison	==	Equal	5==9	False
	!=	Not equal	6!=4	True
	<	Less than	3<2	False
	<=	Less than or equal	5<=2	False
	>	Greater than	4>3	True
	>=	Greater than or equal	4>=4	True
String	+	Concatenation(join two strings together)	“A”+”BC”	ABC

# Assignment

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1. Write a Java program to print 'Hello' on screen and then print your name on a separate line.
  - Expected Output :
  - Hello
  - Your name
2. Write a Java program to print the sum of two numbers.
  - Test Data: 4 + 36
  - Expected Output : 50
3. Write a Java program to swap two numbers.
4. Write a Java Program to swap two numbers without using third variable.

# Links to download Java 8 and Eclipse

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[Link](#) to download java and eclipse