Java

Agenda

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

What is Java?

- 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!

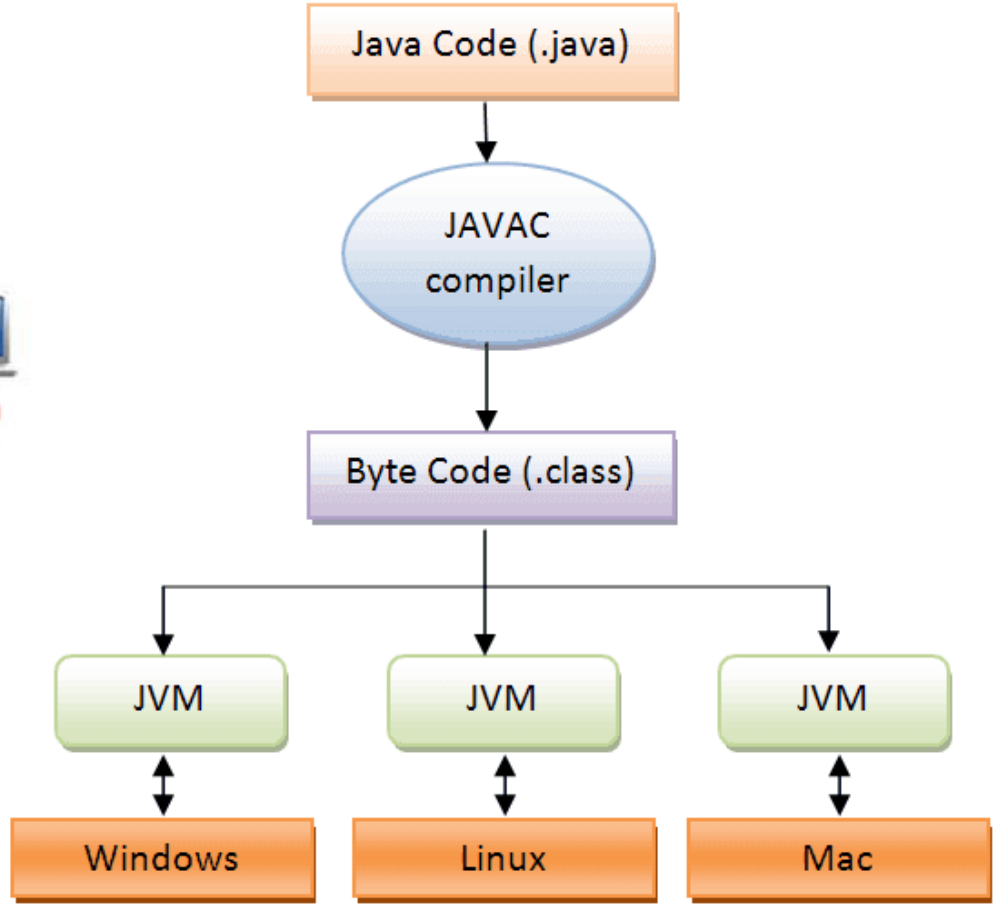
Why Use Java?

- 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

- **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.

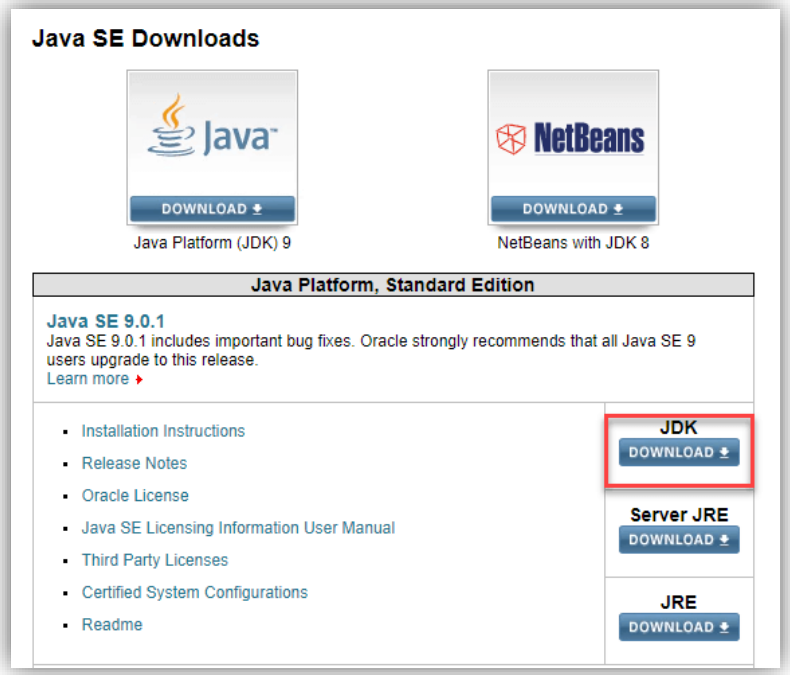
JDK, JRE and JVM

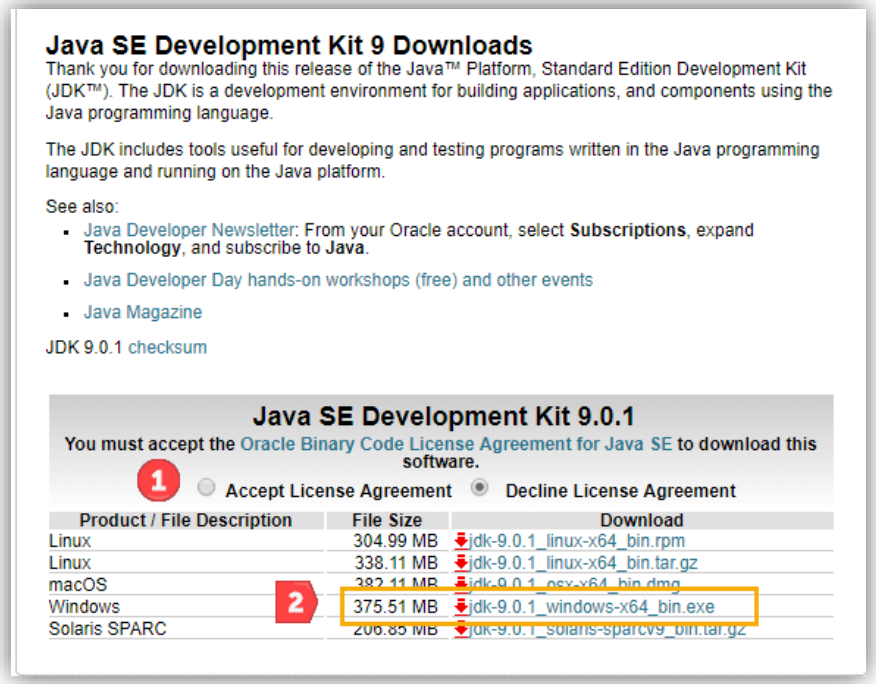


Download & Install Java

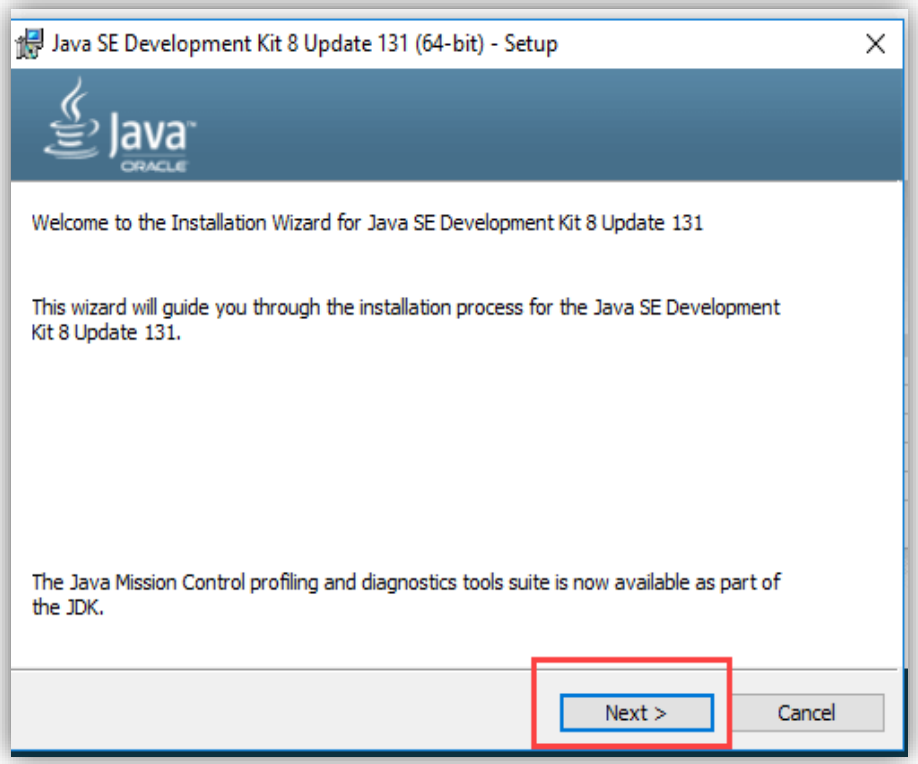
1) Download Link

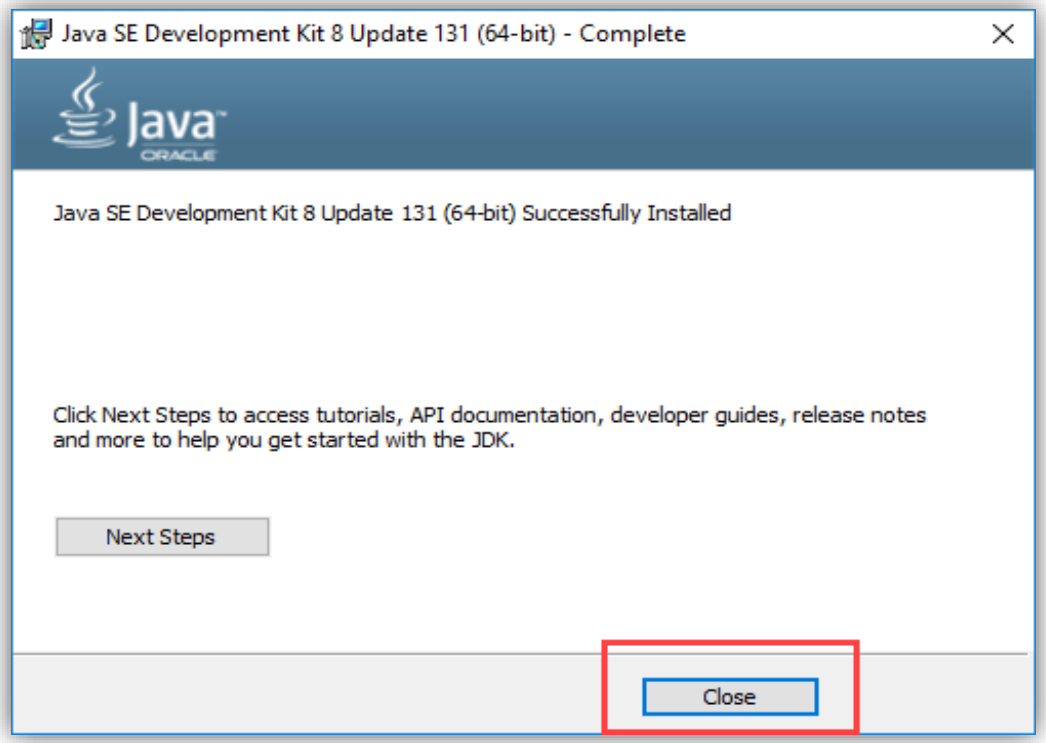
- http://download.oracle.com/otn-pub/java/jdk/9.0.4+11/c2514751926b4512b076cc82f959763f/jdk-9.0.4_windows-x64_bin.exe



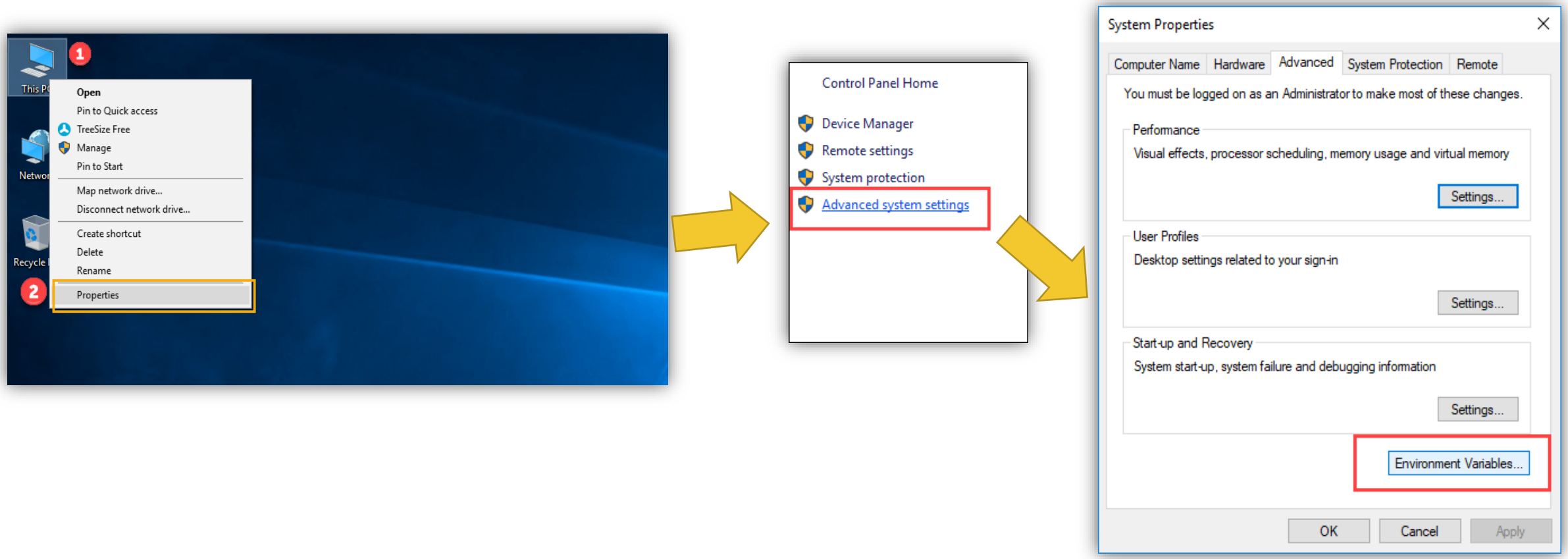


2) Once the download is complete, run the exe for install JDK. Click Next





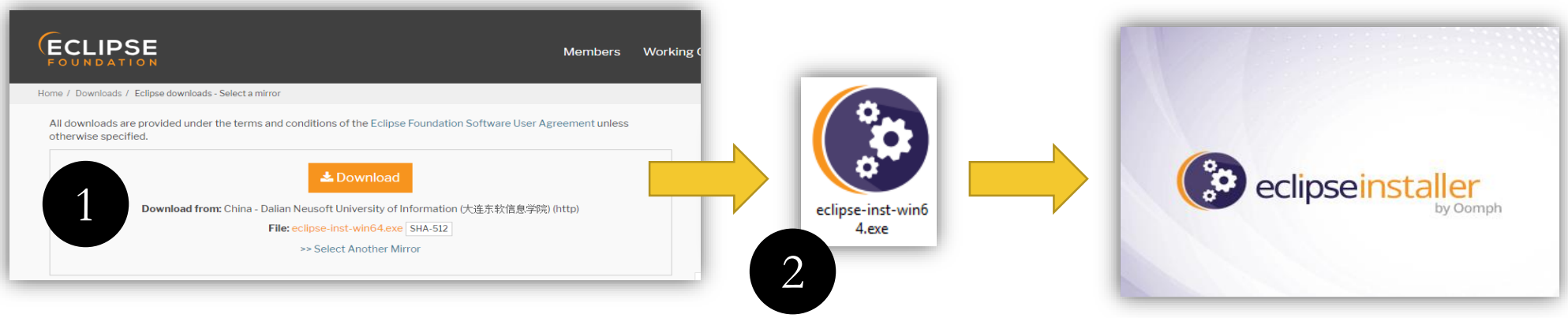
Java Environment Setup

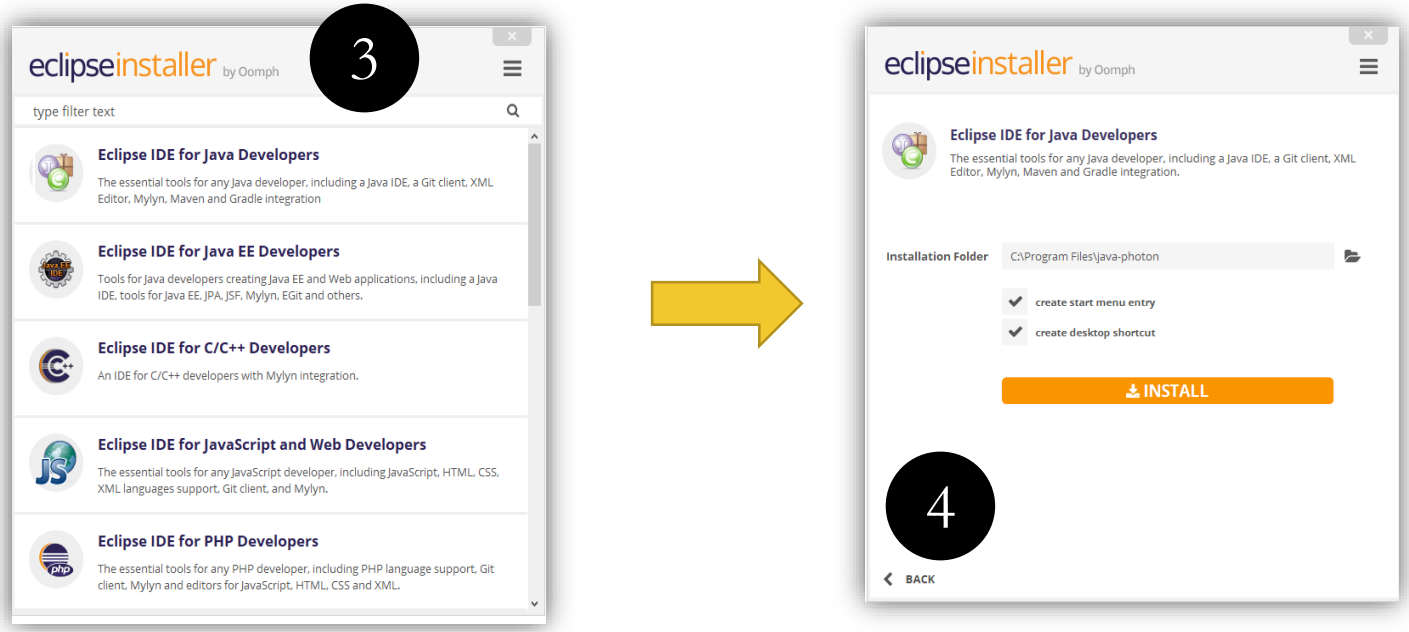


Eclipse IDE

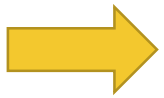
- https://www.eclipse.org/downloads/download.php?file=/oomph/epp/photon/R/eclipse-inst-win64.exe

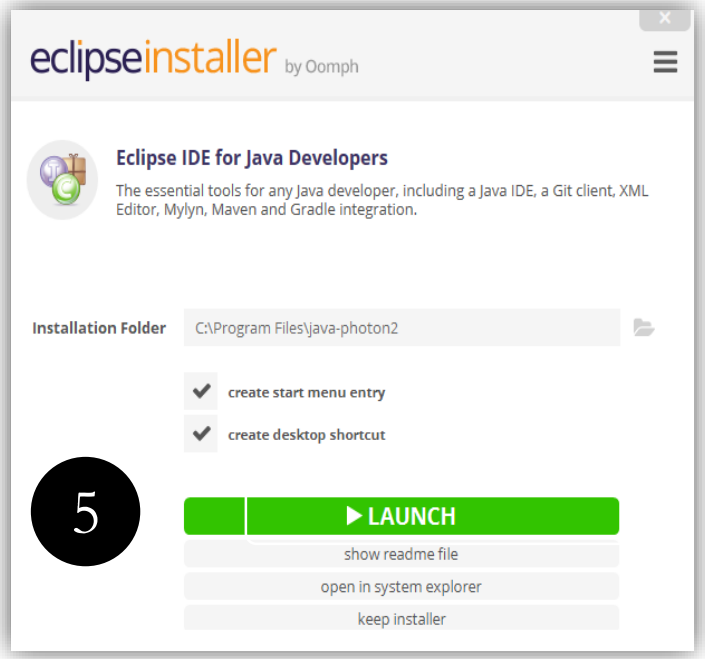
Download and Start Eclipse IDE

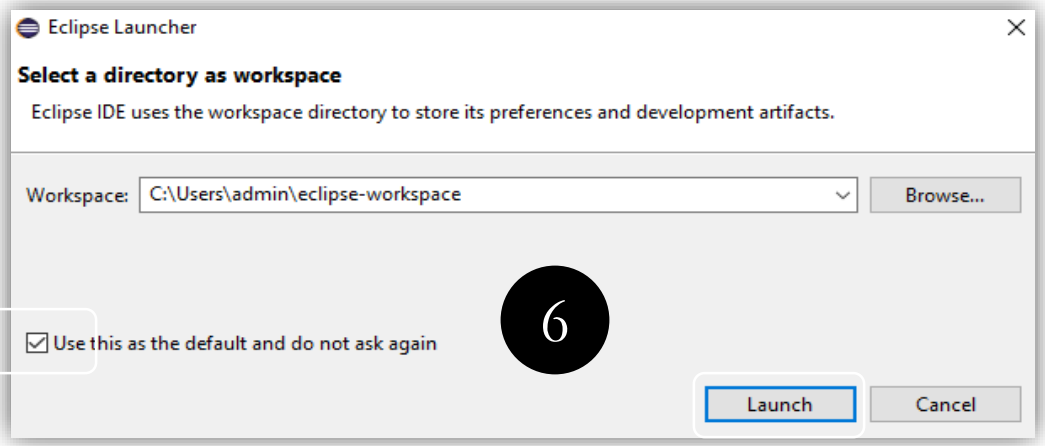


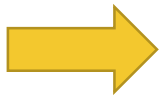


eclipseinstaller by Oomph
Eclipse IDE for Java Developers
The essential tools for any Java developer, including a Java IDE, a Git client, XML Editor, Mylyn, Maven and Gradle integration.
Installation Folder
C:\Program Files\java-photon2
create start menu entry
create desktop shortcut
INSTALLING
Cancel Installation

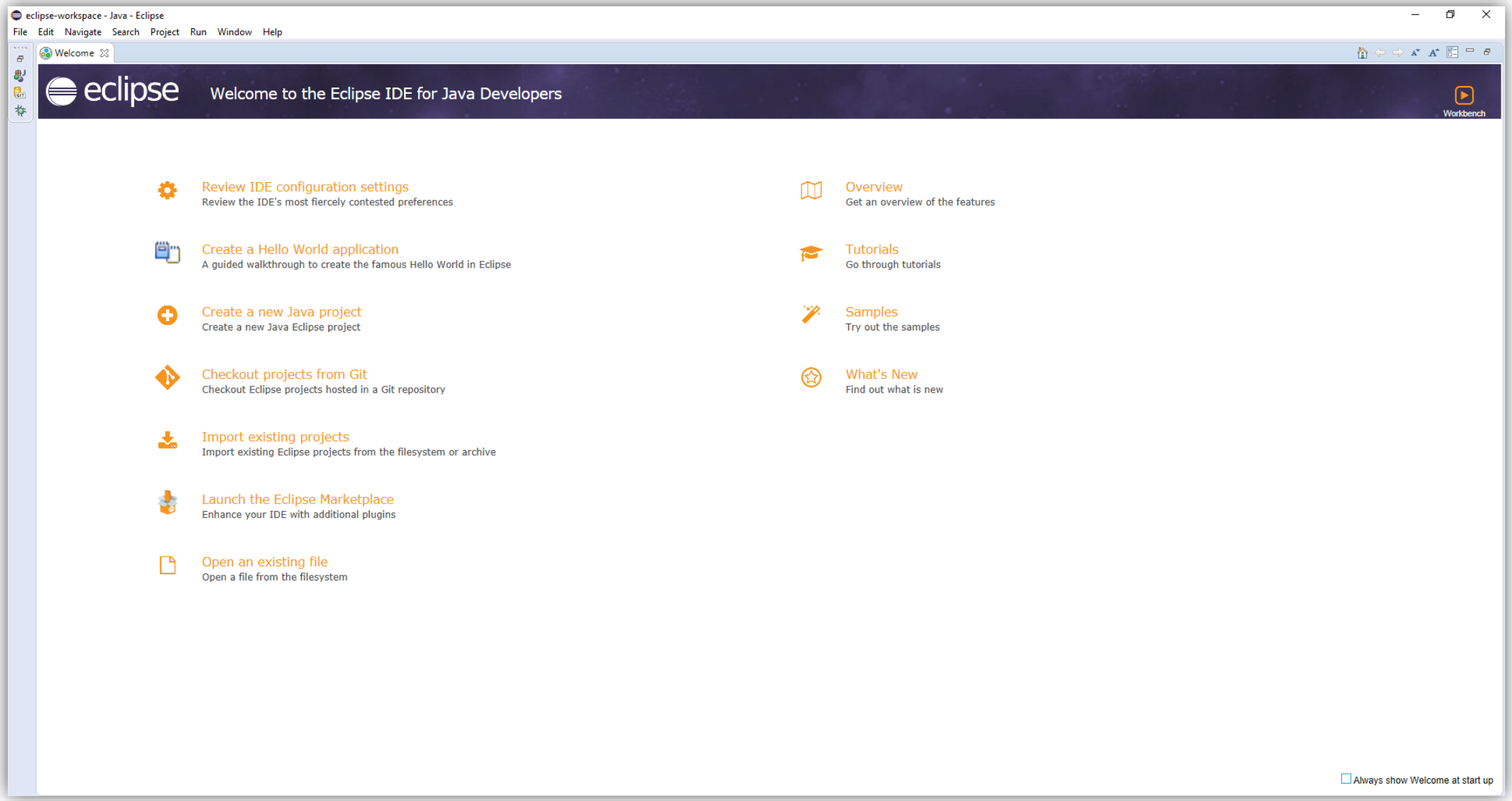



eclipseinstaller by Oomph
Eclipse IDE for Java Developers
The essential tools for any Java developer, including a Java IDE, a Git client, XML Editor, Mylyn, Maven and Gradle integration.
Installation Folder
C:\Program Files\java-photon2
create start menu entry
create desktop shortcut
5
LAUNCH
show readme file
open in system explorer
keep installer


Eclipse Launcher
Select a directory as workspace
Eclipse IDE uses the workspace directory to store its preferences and development artifacts.
Workspace:
C:\Users\admin\eclipse-workspace
Browse...
6
Use this as the default and do not ask again
Launch
Cancel



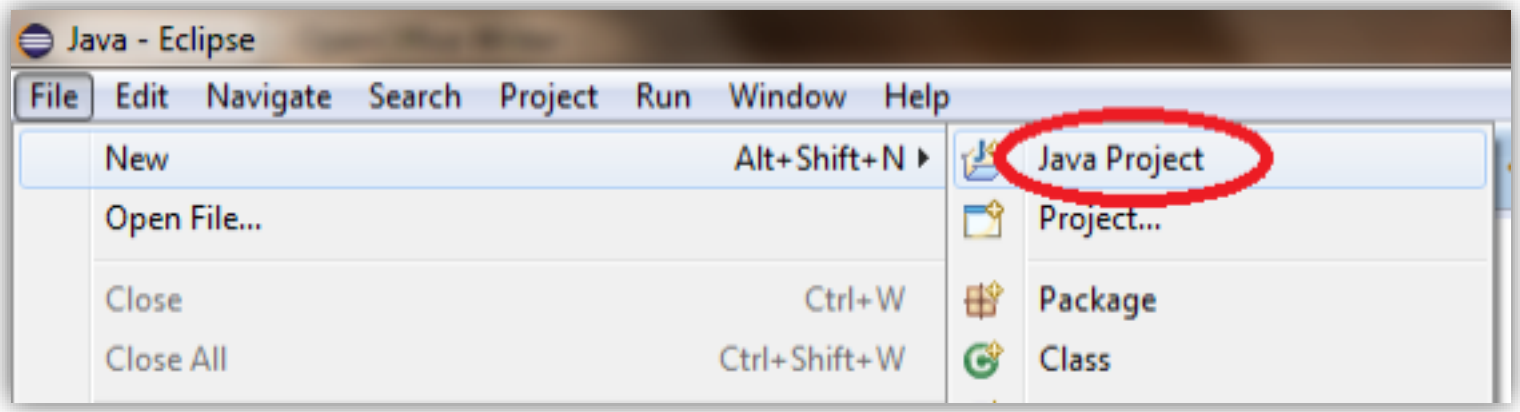
eclipse
Photon
June 2018


eclipse-workspace - Java - Eclipse
File Edit Navigate Search Project Run Window Help
Welcome
eclipse
Welcome to the Eclipse IDE for Java Developers
Workbench
Review IDE configuration settings
Review the IDE's most fiercely contested preferences
Create a Hello World application
A guided walkthrough to create the famous Hello World in Eclipse
Create a new Java project
Create a new Java Eclipse project
Checkout projects from Git
Checkout Eclipse projects hosted in a Git repository
Import existing projects
Import existing Eclipse projects from the filesystem or archive
Launch the Eclipse Marketplace
Enhance your IDE with additional plugins
Open an existing file
Open a file from the filesystem
Overview
Get an overview of the features
Tutorials
Go through tutorials
Samples
Try out the samples
What's New
Find out what is new
Always show Welcome at start up

Create a Java Project

- To create a new Java project in Eclipse

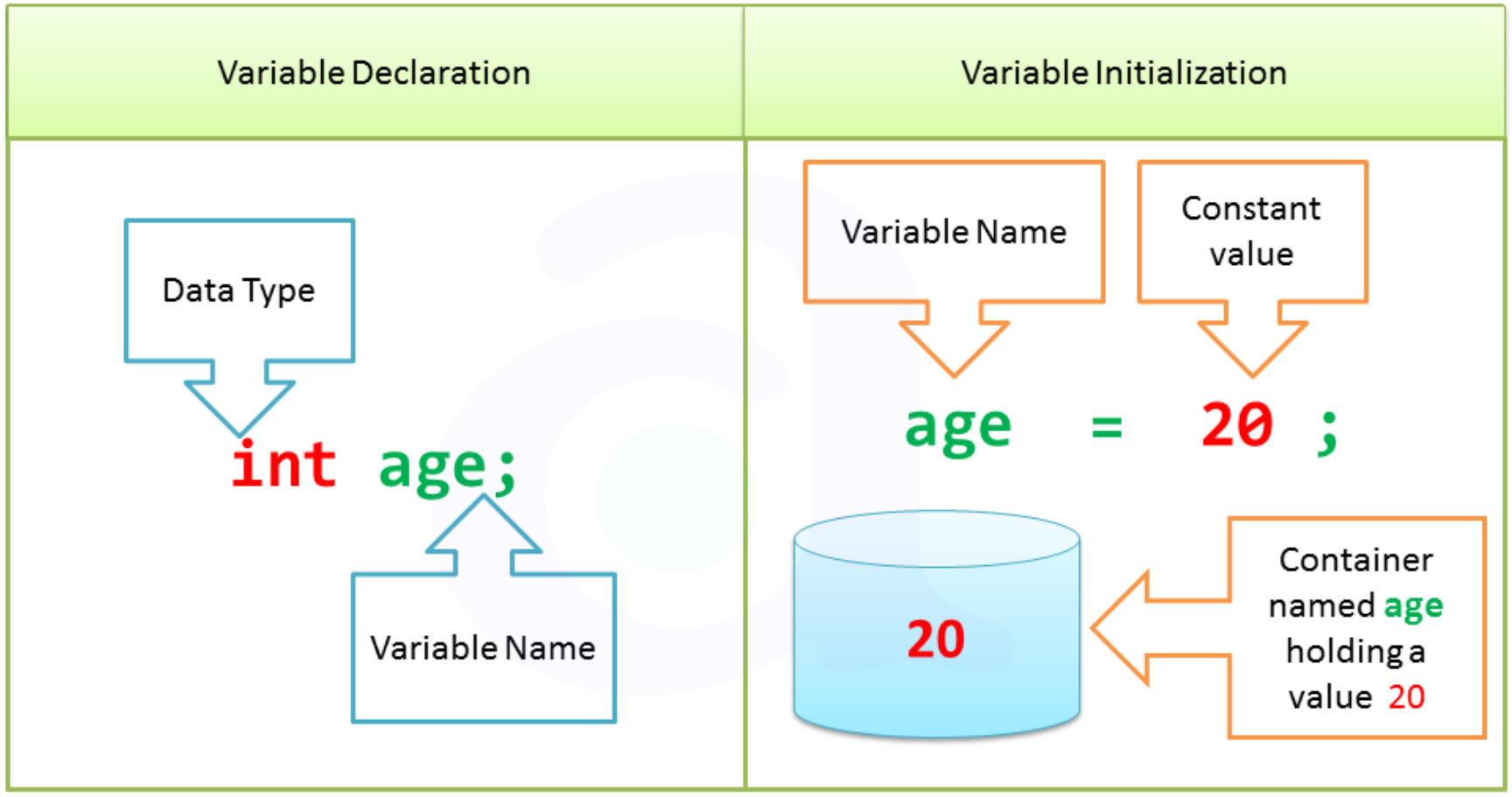
Go to **File → New → Java Project → Specify Project Name → Finish**



Java Variables

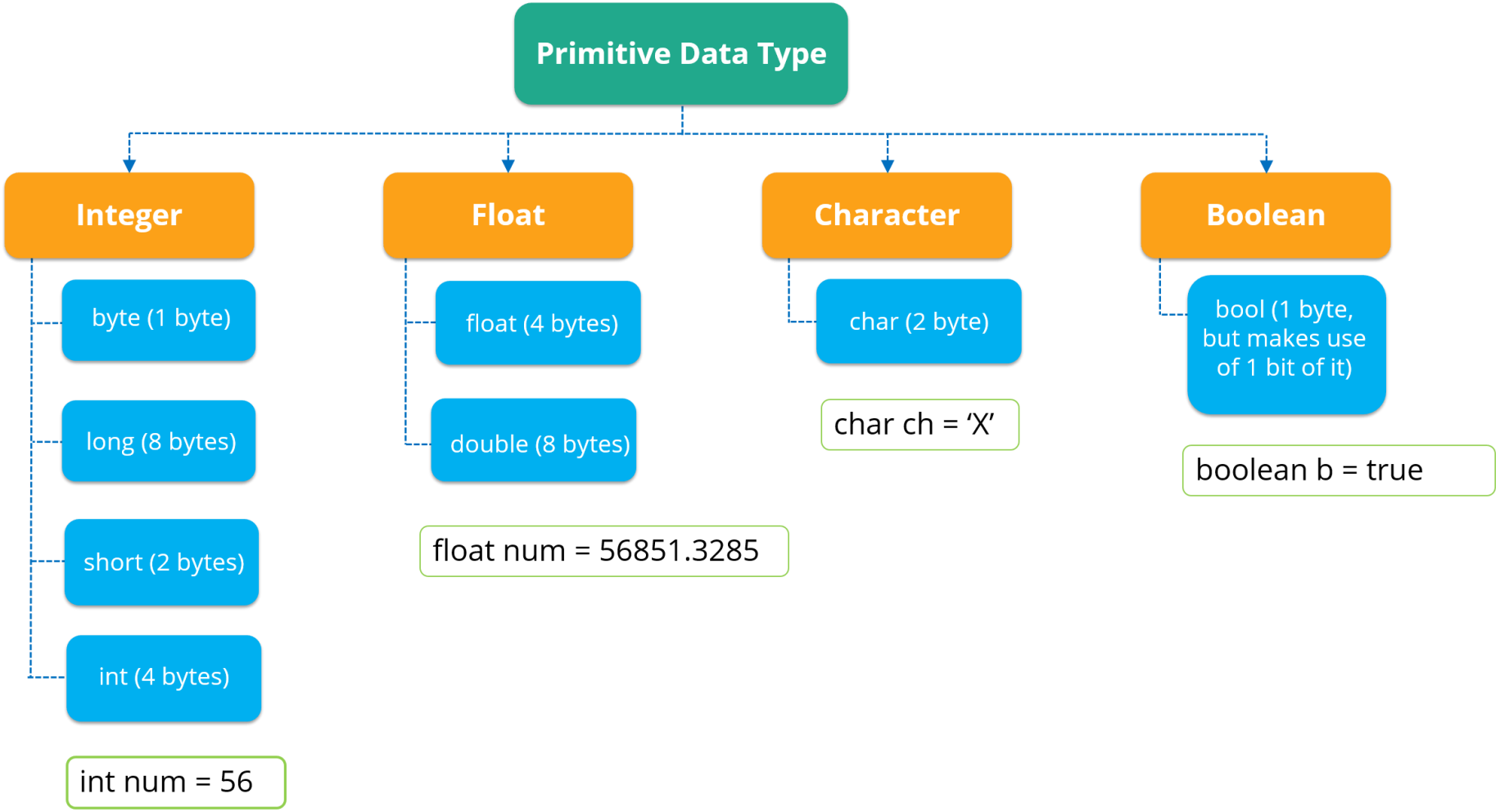
- **What is a Variable?**
- A variable is a container which holds value.
- Every variable is assigned a **data type** which designates the type and quantity of value it can hold.
- In order to use a variable in a program you to need to perform 2 steps
  - Variable Declaration
  - Variable Initialization

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

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.