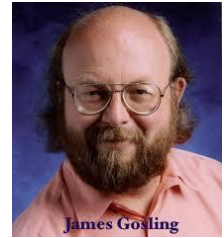


Java Background:

Java was developed by James Gosling, who is known as the father of Java, in 1995. James Gosling and his team members started the project in the early '90s. The history of Java starts with the Green Team. Java team members (also known as Green Team), initiated this project to develop a language for digital devices such as set-top boxes, televisions, etc. However, it was suited for internet programming. Later, Java technology was incorporated by Netscape.



The java old name was called **Oak** and was developed as a part of the Green project. **Oak** is a symbol of strength and chosen as a national tree of many countries like the U.S.A., France, Germany, Romania, etc. In 1995, **Oak** was renamed as "**Java**" because it was already a trademark by **Oak Technologies**.

Currently, Java is used in internet programming, mobile devices, games, e-business solutions, etc. Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of the underlying computer architecture. The syntax of Java is similar to C and C++.

JDK 1.0 (Java Development Kit) released in January 23, 1996. After the first release of Java, there have been many additional features added to the language. Now Java is being used in Windows applications, Web applications, enterprise applications, mobile applications, cards, etc. Each new version adds the new features in Java. The latest version of Java is Java 15 or JDK 15 released on September, 15th 2020.

There some primary goals in the creation of the Java language:

- ❖ It should use the object-oriented programming methodology.
- ❖ It should allow the same program to be executed on multiple operating systems.
- ❖ It should contain built-in support for using computer networks.
- ❖ It should be designed to execute code from remote sources securely.

What is Net Bean?

NetBeans IDE is a free, open source, integrated development environment (IDE) that enables you to develop desktop, mobile and web applications. The IDE supports application development in various languages, including Java, HTML5, JAVA and C++. ... It is the first IDE that provides support for JDK 7, Java EE 7, and JavaFX 2. The NetBeans IDE, can be extended by third party developers.

NetBeans runs on Windows, mac OS, Linux and Solaris. NetBeans began in 1996 as Xelfi (word play on Delphi), NetBeans 12.0 was released on 4 June 2020. NetBeans IDE is the official IDE for Java 8. With its editors, code analyzers, and converters, you can quickly and smoothly upgrade your applications to use new Java 8 language constructs, such as lambdas, functional operations, and method references.

OOP Background:

Alan Kay put together the definitive idea of Object Orientation (as we understand it today) in the early 70s. That idea included the language Smalltalk which had Classes, multiple Instances of those Classes, and everything happening through message passing between objects of one class and another.

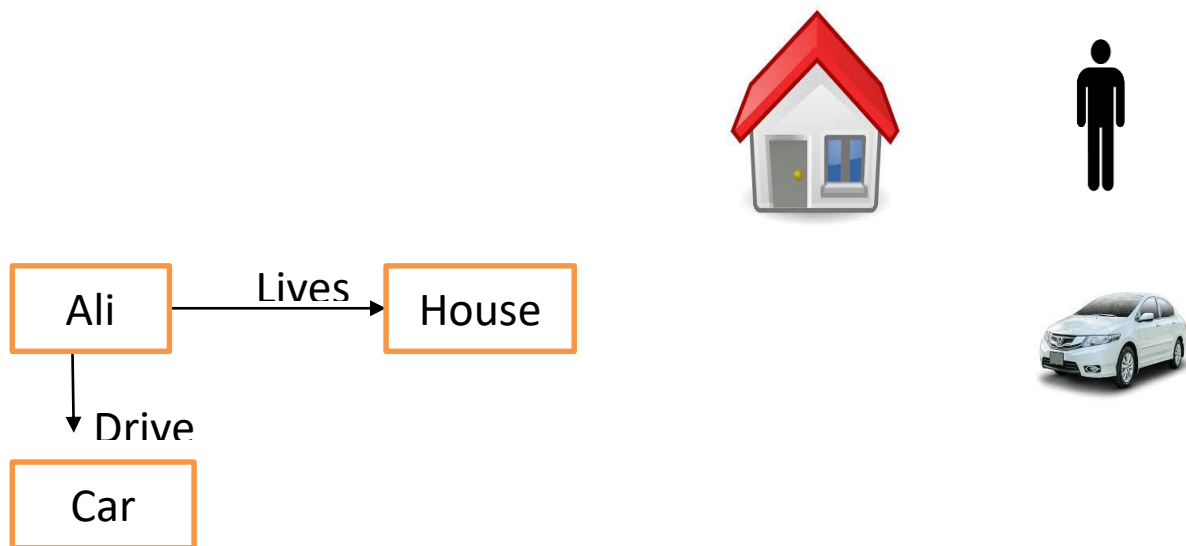
OOP stands for Object-Oriented Programming. Procedural programming is about writing procedures or functions that perform operations on the data, while object-oriented programming is about creating objects that contain both data and functions. OOP has four (4) main pillar are an *abstraction, encapsulation, inheritance, and polymorphism*.

Actually, SIMULA 1 (1962) and Simula 67 (1967) is the earliest object-oriented languages. The work on the Simula languages was done by Ole-John Dahl and Kristen Nygaard at the Norwegian Computing Center in Oslo, Norway. While most of the advantages of OOP were available in the earlier Simula languages, it wasn't until C++ became entrenched in the 1990s that OOP began to flourish.

What is an Object Orientation?

It is a technique in which we visualize our programming problem in the form of object and their interactions as happens in real life.

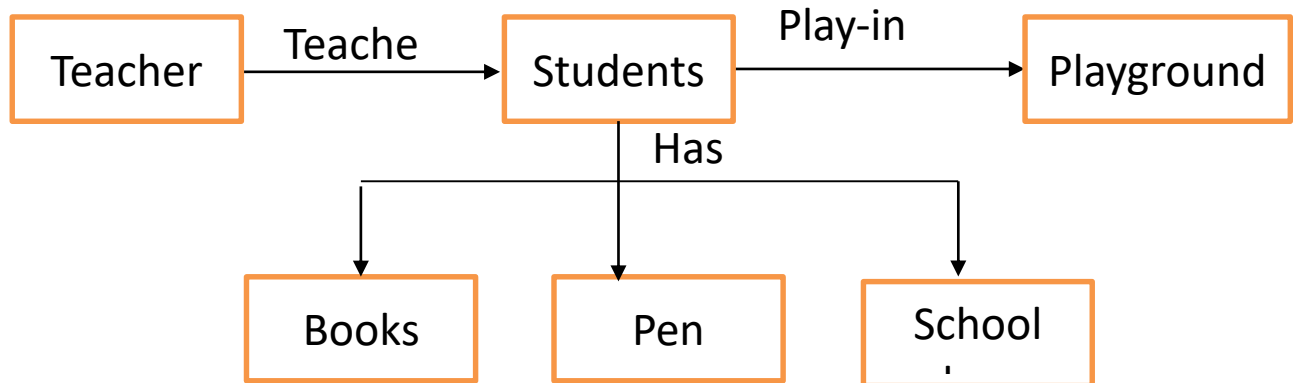
We have different objects around us our real life that interact with each other to perform different operations.



What is Model?

A model is an abstraction of something real or conceptual. We need model to understand an aspect of reality.

Object Oriented Model (A school model)



Advantages of Object Orientation

1. We can easily develop an object oriented model for a problem
2. Everyone can easily understand an object oriented model.
3. We can easily implement an object oriented model for a problem using any object oriented language like C++ and Java its features like classes, inheritance and virtual function and so on.

What is an object and types?

1. Something tangible (Ali, House , School)
2. Everyone can easily understand an object oriented model.
3. Something conceptual or intangible (goodwill , date and time)

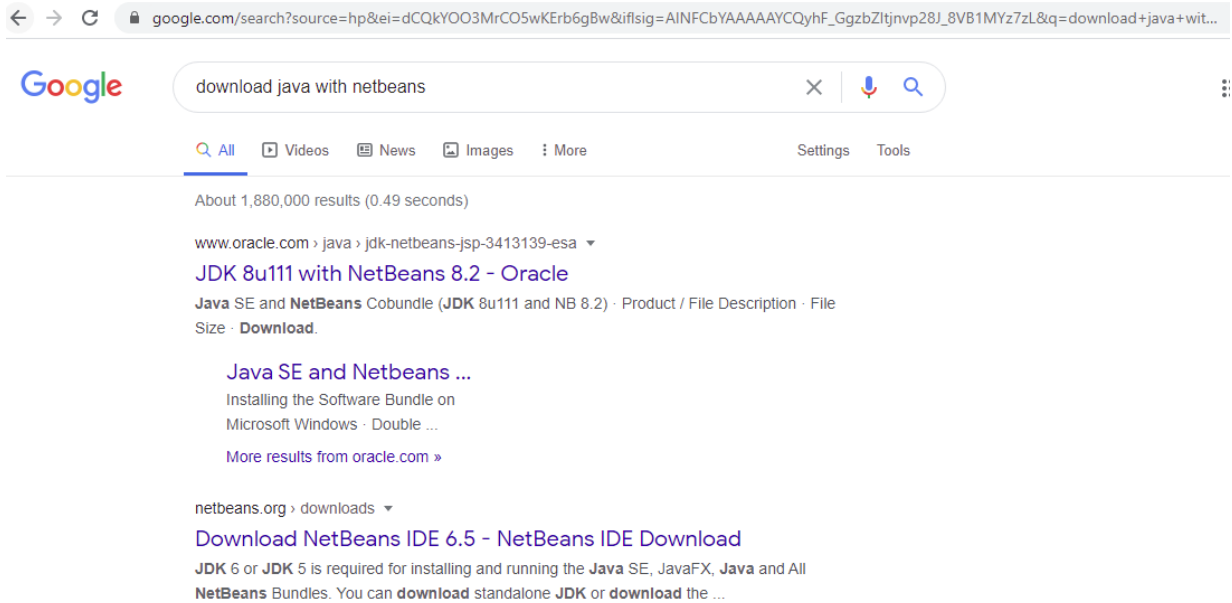
Object has

1. Some stat or properties or attributes or characteristics
2. Well define behaviour (Operations or methods or functions)

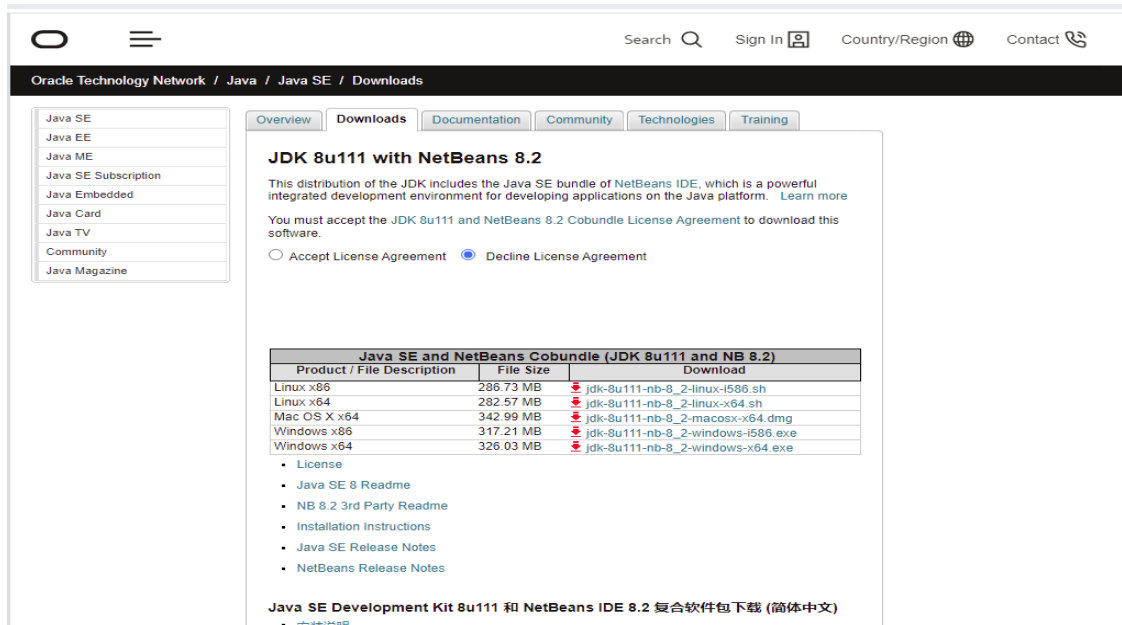
To install Net Bean IDE on a windows computer:

Setup & Installation

1. Type on Google **download Java with net bean**

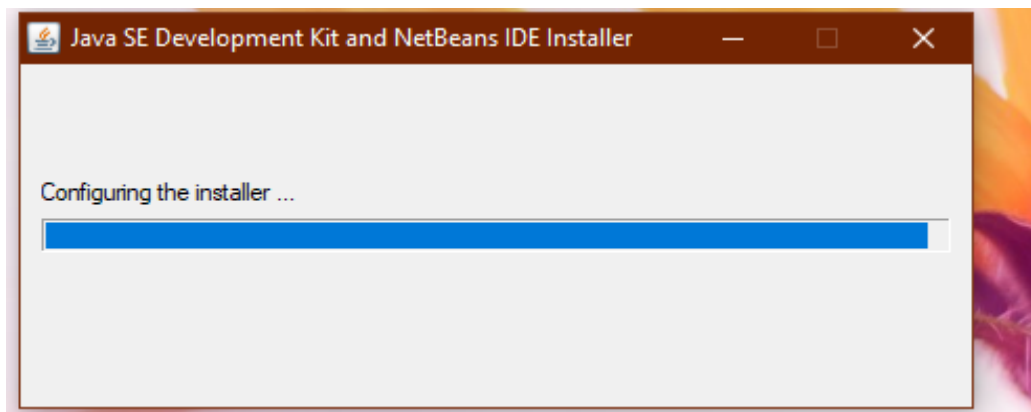


2. Click the download link, and select download **JDK 8U111 with NetBeans 8.2 – Oracle** then view this screen.

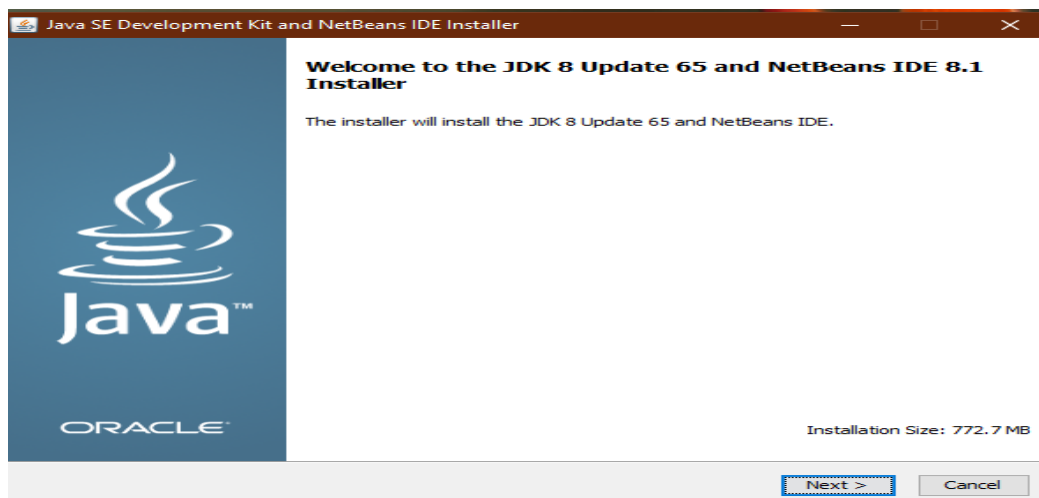


3. We select Accept license Agreement and select Windows **x86 jdk-8u65-nb-8_1-windows-i586.exe**

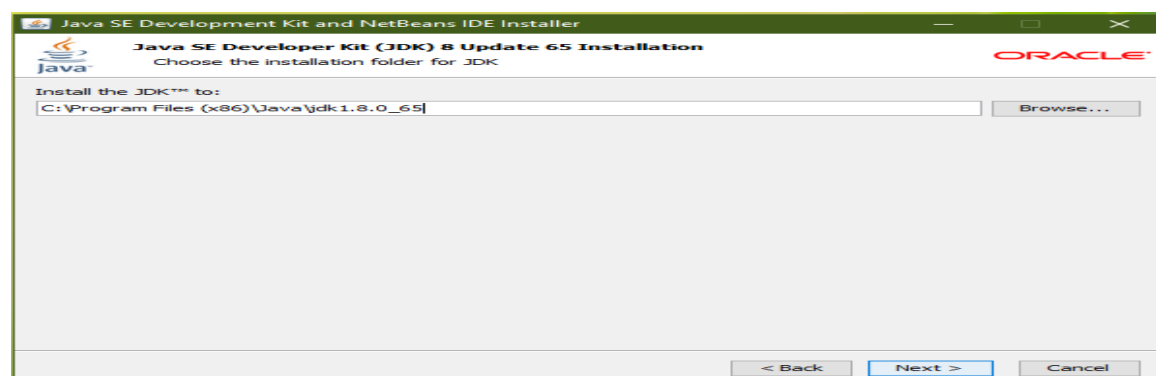
4. After the download completes, run the *jdk-8u65-nb-8_1-windows-i586.exe* Setup application



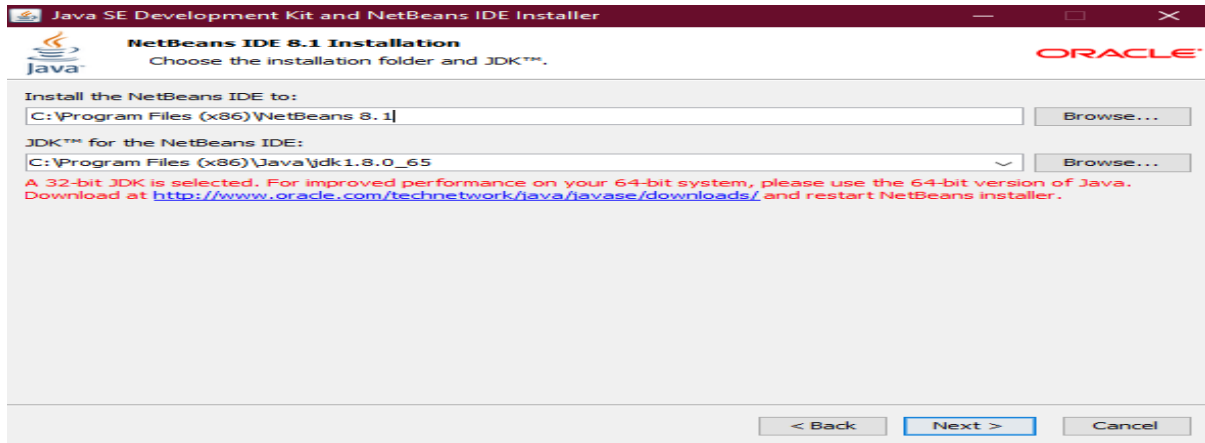
5. Application file on your computer then to begin the installation process. If you have previous version of Net Beans installed on your computer, you may be prompted to delete the older version before continuing.
6. You will see setup screen and then Click Next.



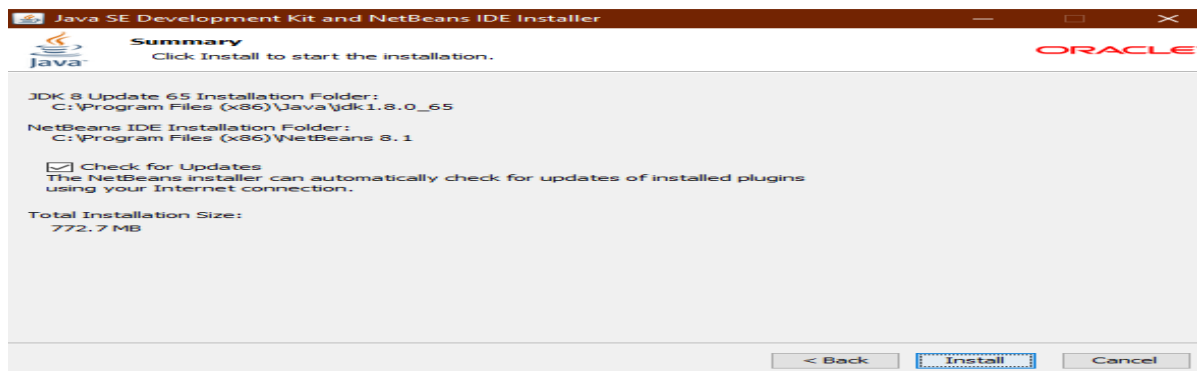
7. Next screen appear choose the installation folder, by default *c:\Program Files (x86)\Java\jdk1.0.0_65* then Click Next button.



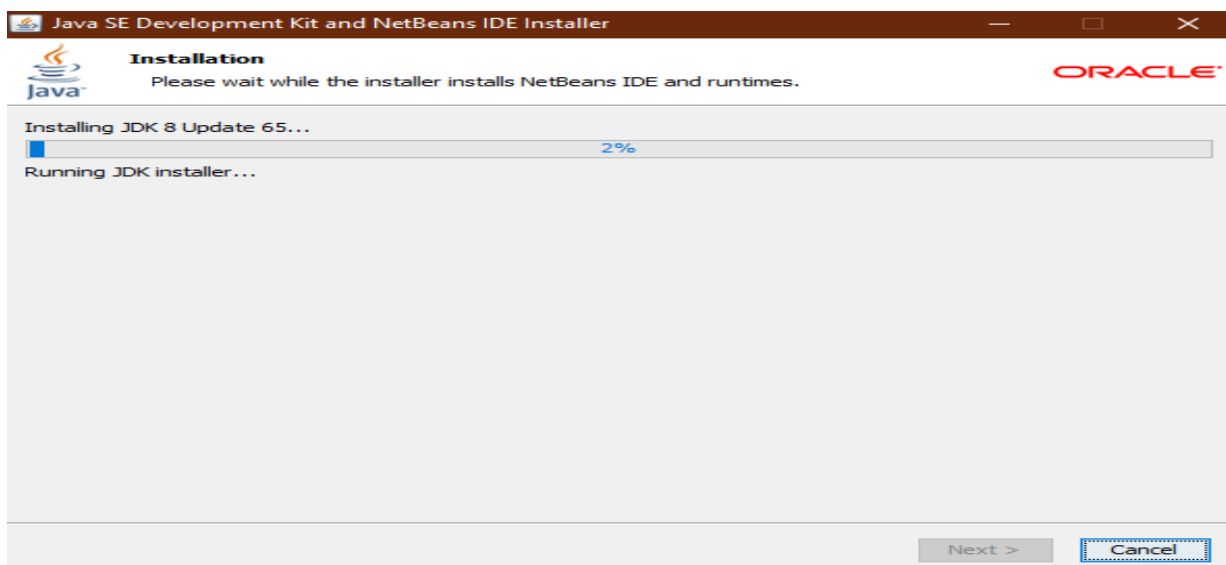
8. In the next screen provide Install the NetBeans IDE and JDK to choose the installation Folder name. If you're required then click Browse button, otherwise no then Click Next button.



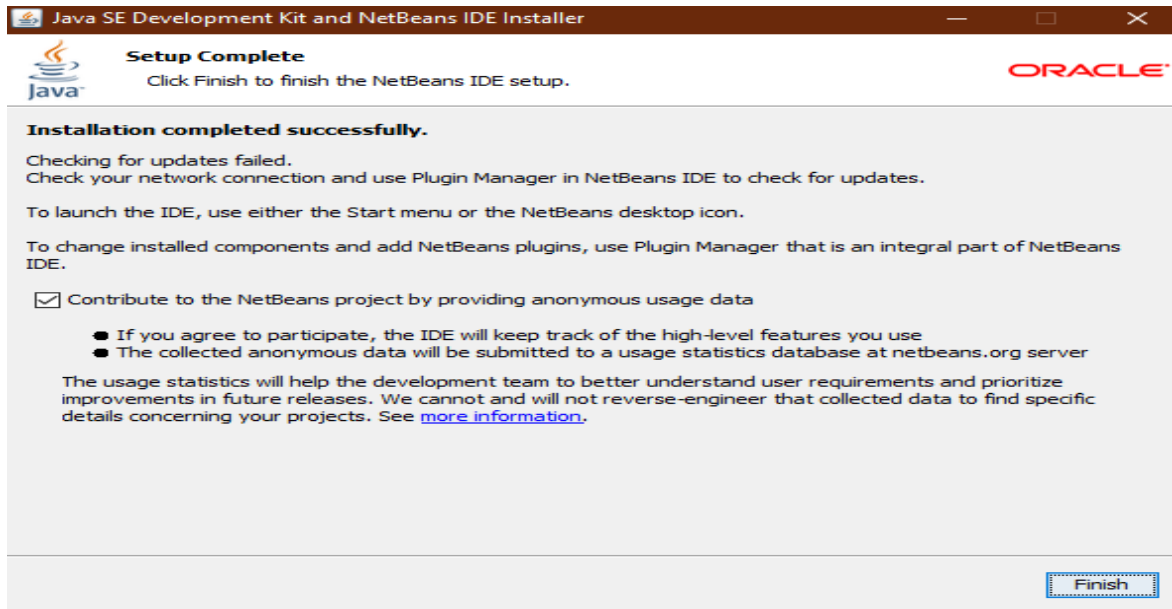
9. The next screen ready to installation then click next button and then start installation process on your computer.



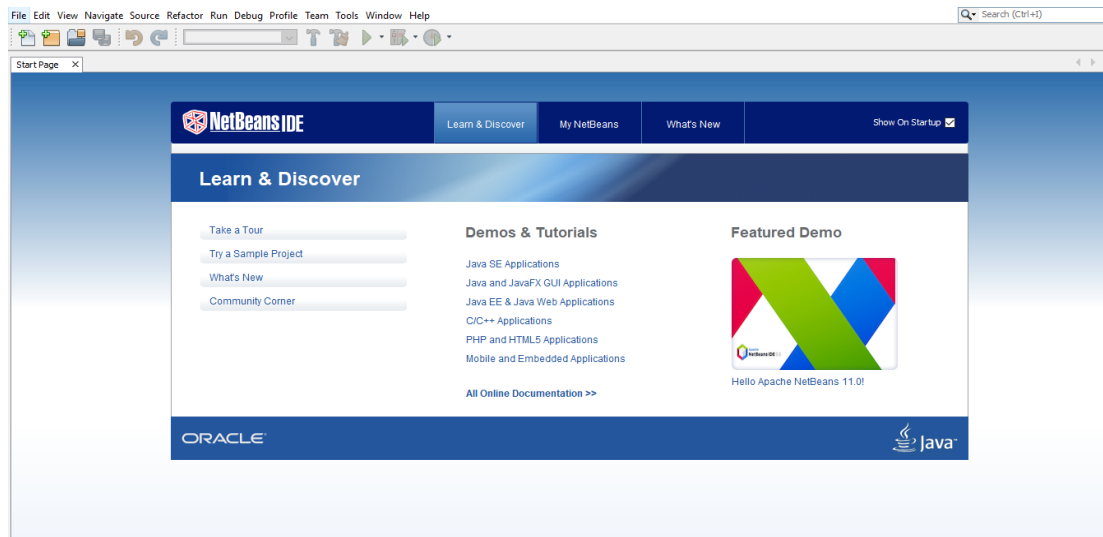
10. This is Installation processing on your computer wizard.



11. After installation process complete, you see completing the Net Beans and JDK setup wizard and click the finish button.



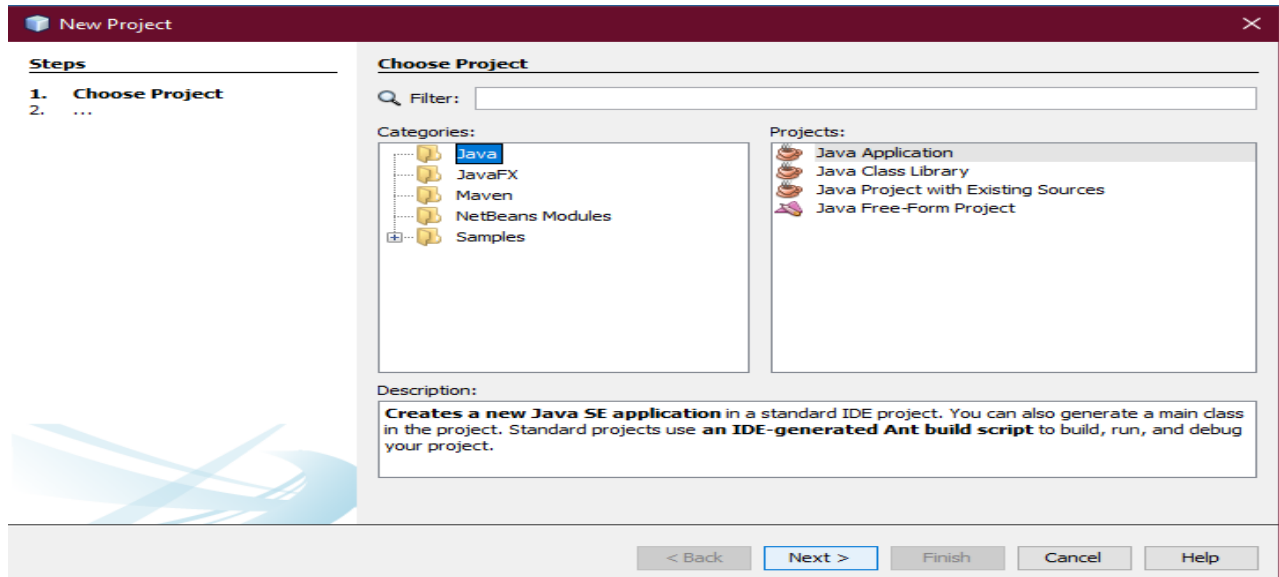
After you install the Net Beans IDE, you can launch the application as you would any other Windows application. Click the Net Beans Icon on the Desktop. After run that you see below screen.



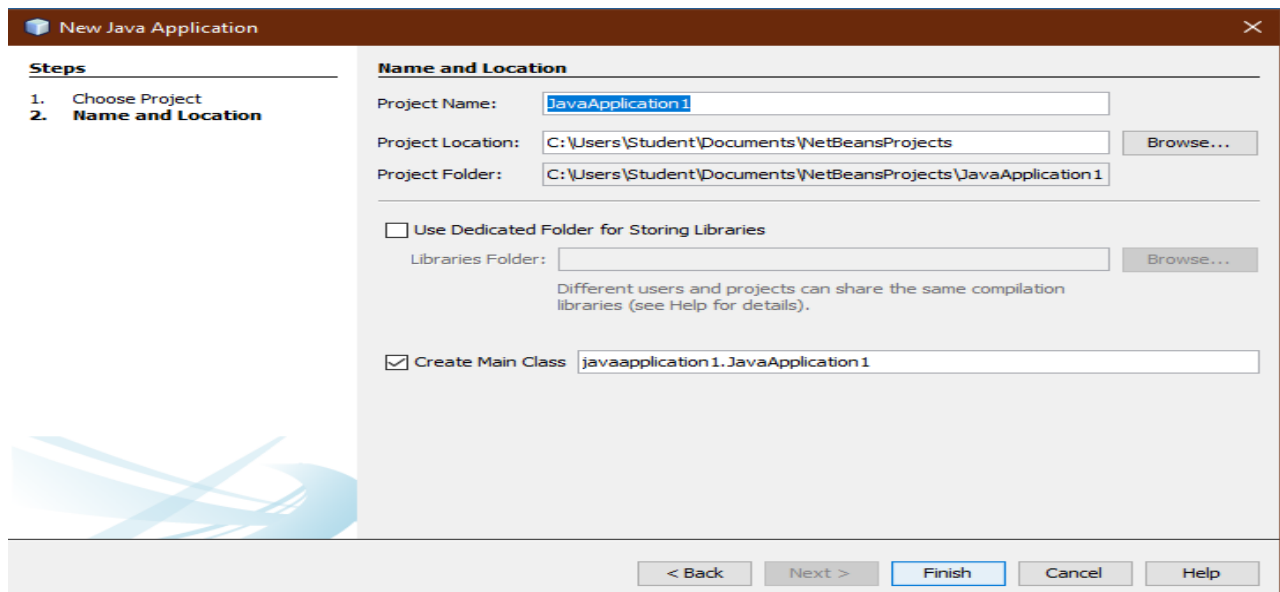
Testing the first Java program Hello world!

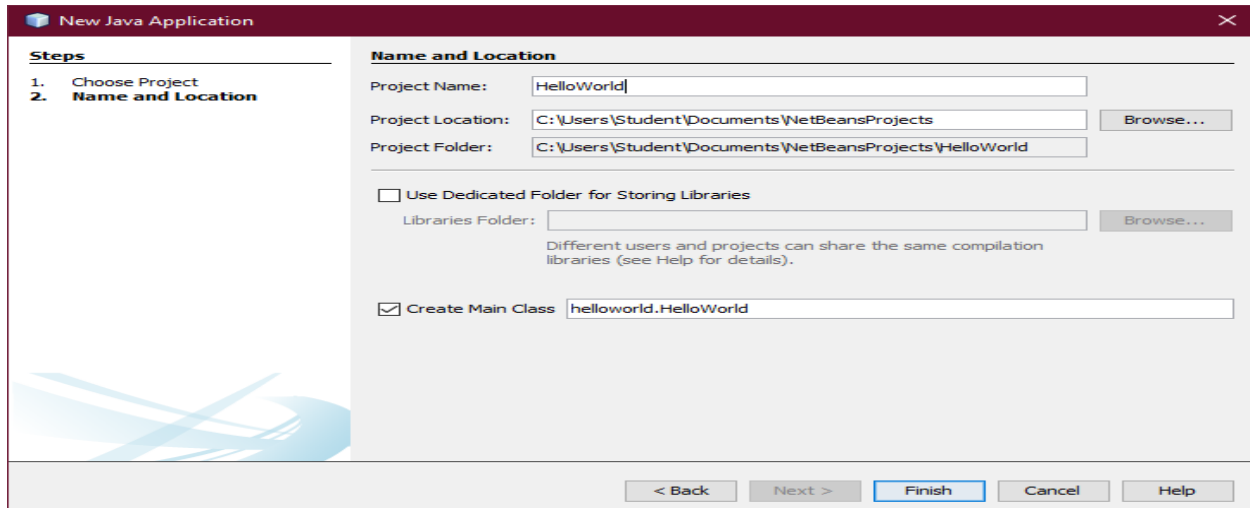
After installing your *Net Beans* IDE, you should test your configuration to ensure that everything was installed correctly. The following steps are the windows operating system.

1. Write a hello world program, first you file open for new Project and chose Java Application and click next button.



2. Write a Project name *HelloWrod* program replace by *JavaApplication1* and click **Finish** button.

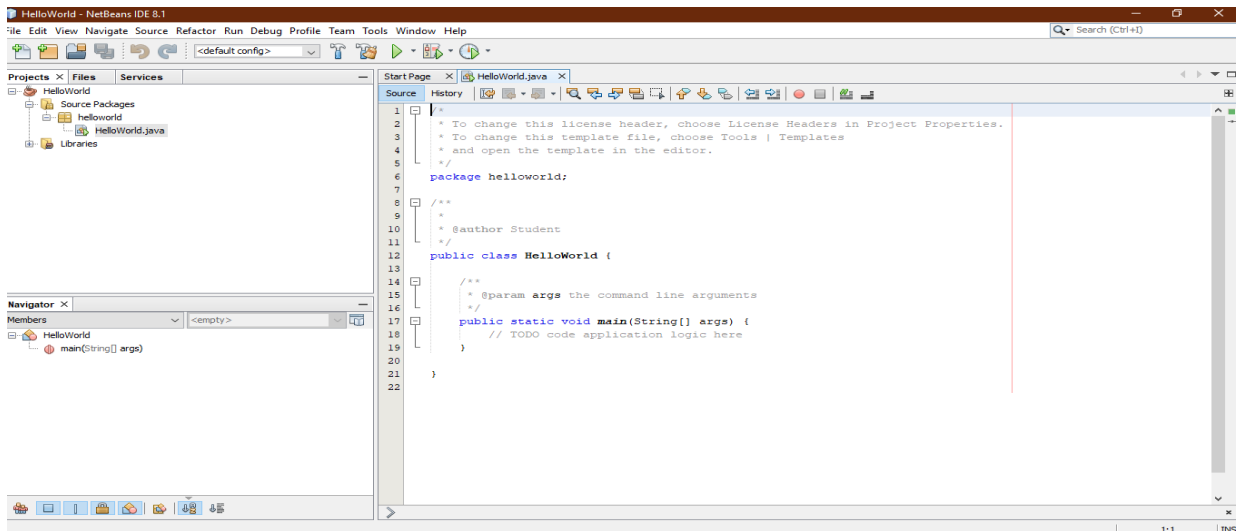





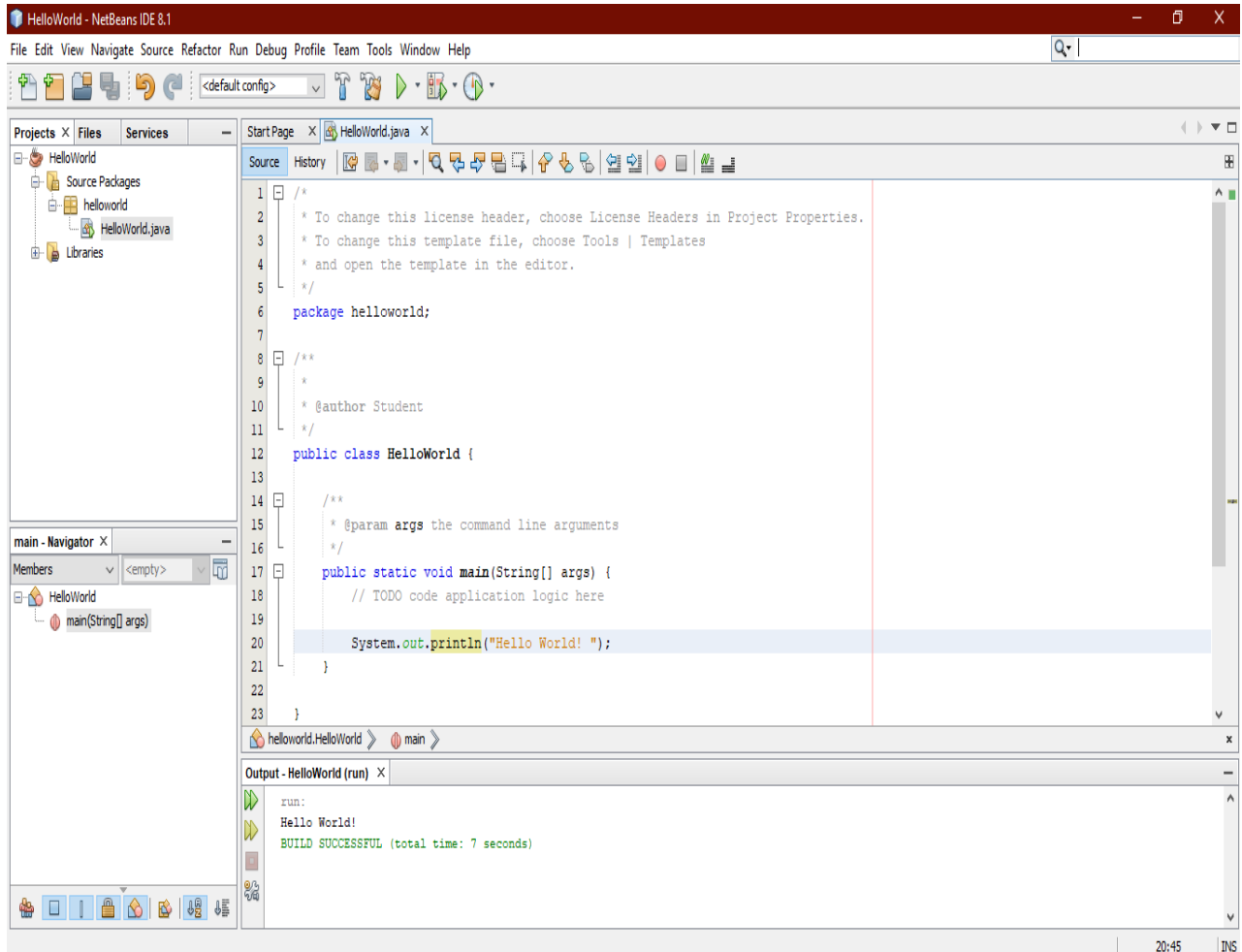
3. Now we will see given below screen, and write a **HelloWrod** program in or same as public static void main(String[] args) {
// TODO code application logic here

```
System.out.println("Hello Wrold!");
```

```
}
```



- Now we write java code and click play  button or F6 for run this program and we will see **Hello world** message in console output screen.



Exercise

Theory Questions.

1. What is OOP?
2. State some features of “Java“ Language.
3. Write names of basic pillars of OOP.
4. What are the reasons behind the development of Java language?
5. What do understand by the term “Model”?
6. What is *Net Beans*?

Practical Questions.

1. Write steps of Net Beans IDE installation or setup process.
2. Write Java code to display your Roll Number, Course Name and Technology Name on the console screen by using Net Bean Environment.

Objective and MCQs:

1. What is the default extension of Java source code file?
 - a) .c
 - b) .jpp
 - c) .xhtml
 - d) .java
2. Who is invented of Java language?
 - a) Denis Retchie
 - b) Rasmus Lerdorf
 - c) John Baker
 - d) James Gosling
3. Latest version of Java Language.
 - a) 1.3
 - b) 15
 - c) 8.0
 - d) 10
4. Abbreviation of OOP.
 - a) Object Oriented Programming
 - b) Object Oriented Python
 - c) Object Oriented Program
 - d) Object Orientation Programming
5. _____ put together the definitive idea of Object Orientation for
 - a) James Gosling.
 - b) Alan Kay
 - c) Ole-John Dahl
 - d) Kristen Nygaard

6. JDK 1.0 version was released.
 - a) 1995
 - b) 1996
 - c) 2014
 - d) 2020

7. The first name of java.
 - a) Oak
 - b) SIMULA
 - c) LISP
 - d) JDK

8. Intangible object is
 - a) Car
 - b) Book.
 - c) Goodwill.
 - d) Ali.

9. The Java applications are typically compiled into_____
 - a) Hypertext markup language.
 - b) Object Code
 - c) Machine Code
 - d) Bytecode

10. JDK stand for
 - a) Jar Development Kit
 - b) Java Development Kit
 - c) Jhon Developer kit
 - d) Java Developer kit