Practical no. 1

FS19CO042

Aim:

Getting started with Java Application Development using IDE

1.1 Check whether latest version of java (at least JDK 1.8)is installed or not. If not then download and install it.

1.2 Download and install the IntelliJ IDEA Community Edition/ NetBeans IDE 8.1/ Eclipse Neon or later version of IDE

1.3 Create a Java Project/ Application in the IDE

1.4 Create a Java class Person containing two variables name and yearOfBirth of appropriate data types, take inputs from the command line argument, a method to display the name and age of the person.

1.5 Save the project and run it.

1.6 Explore all the features (the menu and shortcuts) of the IDE. Learn about their use

Tool used: Editor (Notepad/Intellij IDE), JDK and JRE

Theory:

Java

Java is a programming language created by James Gosling from Sun Microsystems (Sun) in 1991. The target of Java is to write a program once and then run this program on multiple operating systems. The first publicly available version of Java (Java 1.0) was released in 1995. Sun Microsystems was acquired by the Oracle Corporation in 2010. Oracle has now the steermanship for Java. In 2006 Sun started to make Java available under the GNU General Public License (GPL). Oracle continues this project called *OpenJDK*.

Java virtual machine (JVM)

The Java virtual machine (JVM) is a software implementation of a computer that executes programs like a real machine.
The Java virtual machine is written specifically for a specific operating system, e.g., for Linux a special implementation is required as well as for Windows.

Java programs are compiled by the Java compiler into *bytecode*. The Java virtual machine interprets this *bytecode* and executes the Java program

Java Development kit (JDK)

The JDK additionally contains the development tools necessary to create Java programs. The JDK therefore consists of a Java compiler, the Java virtual machine and the Java class libraries

Java program workflow:

javac hello.java -> Compiles java source file into a class file and new hello.class file is generated
java hello -> Executes class file generated in java virtual machine.

Base structure of Java program:

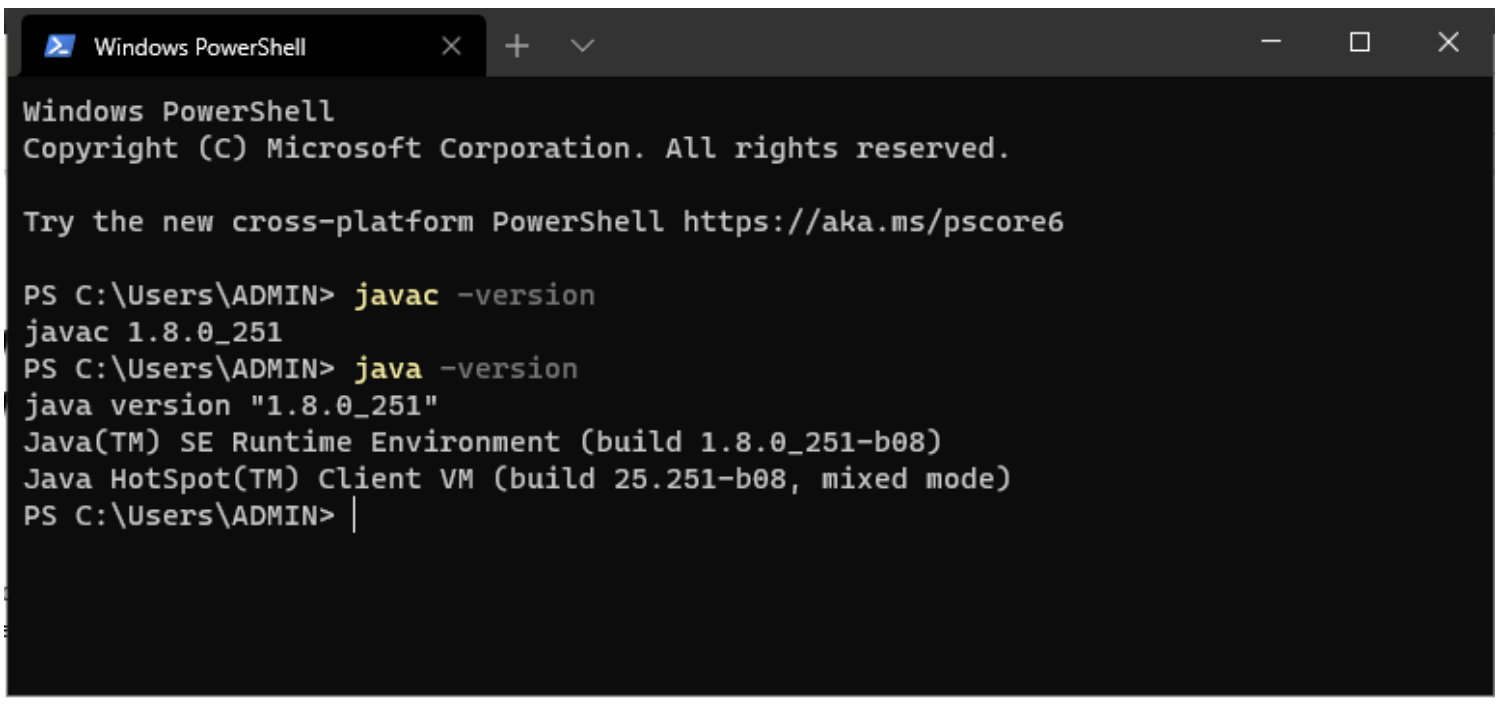
```
package test;
class Hello{
    public static void main(String[] args){
        // Code goes here
```

```
    }
}
```

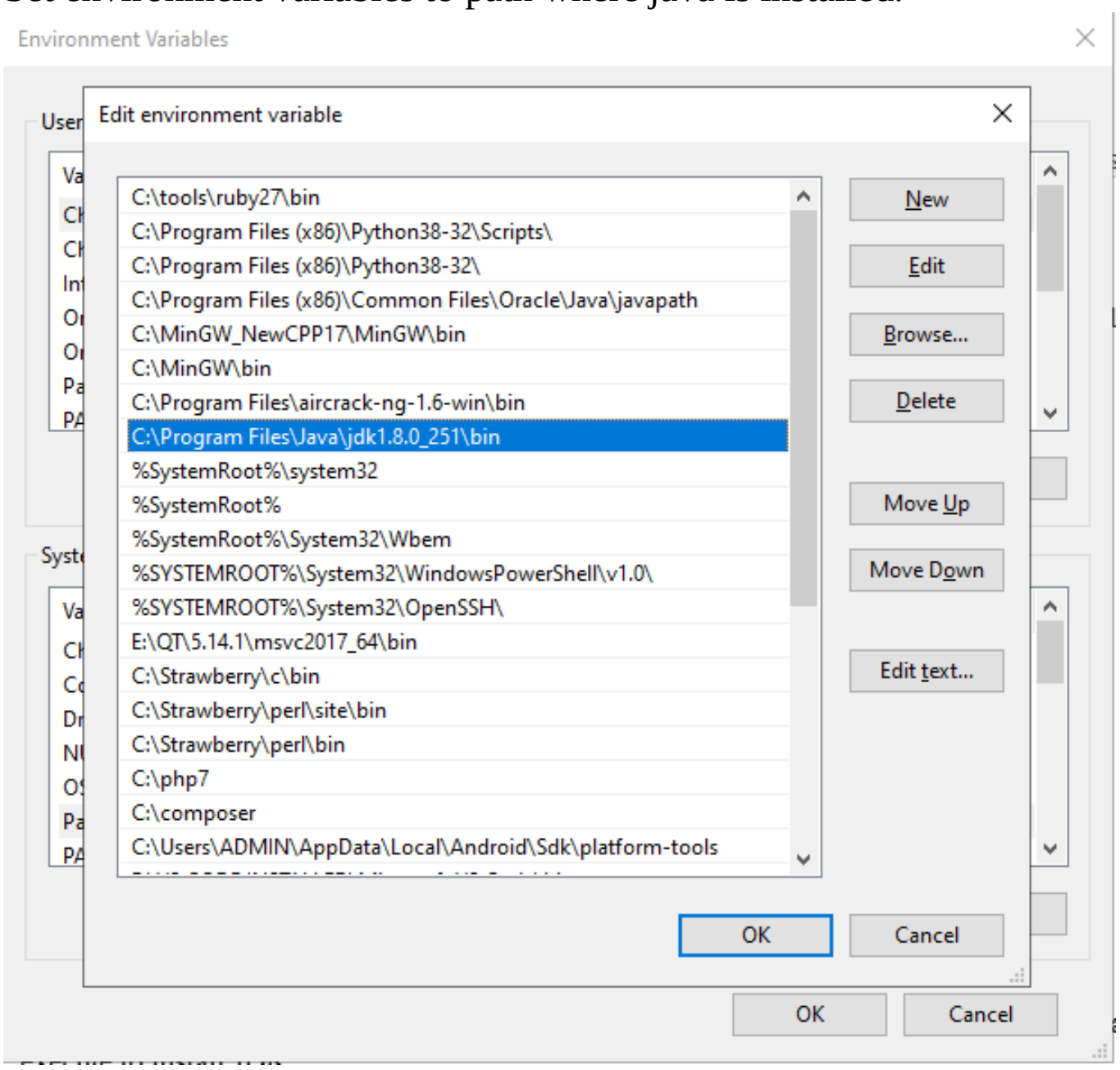
Steps:

1.1 Check whether latest version of Java (at least JDK 1.8) is installed or not. If not then download and install it.

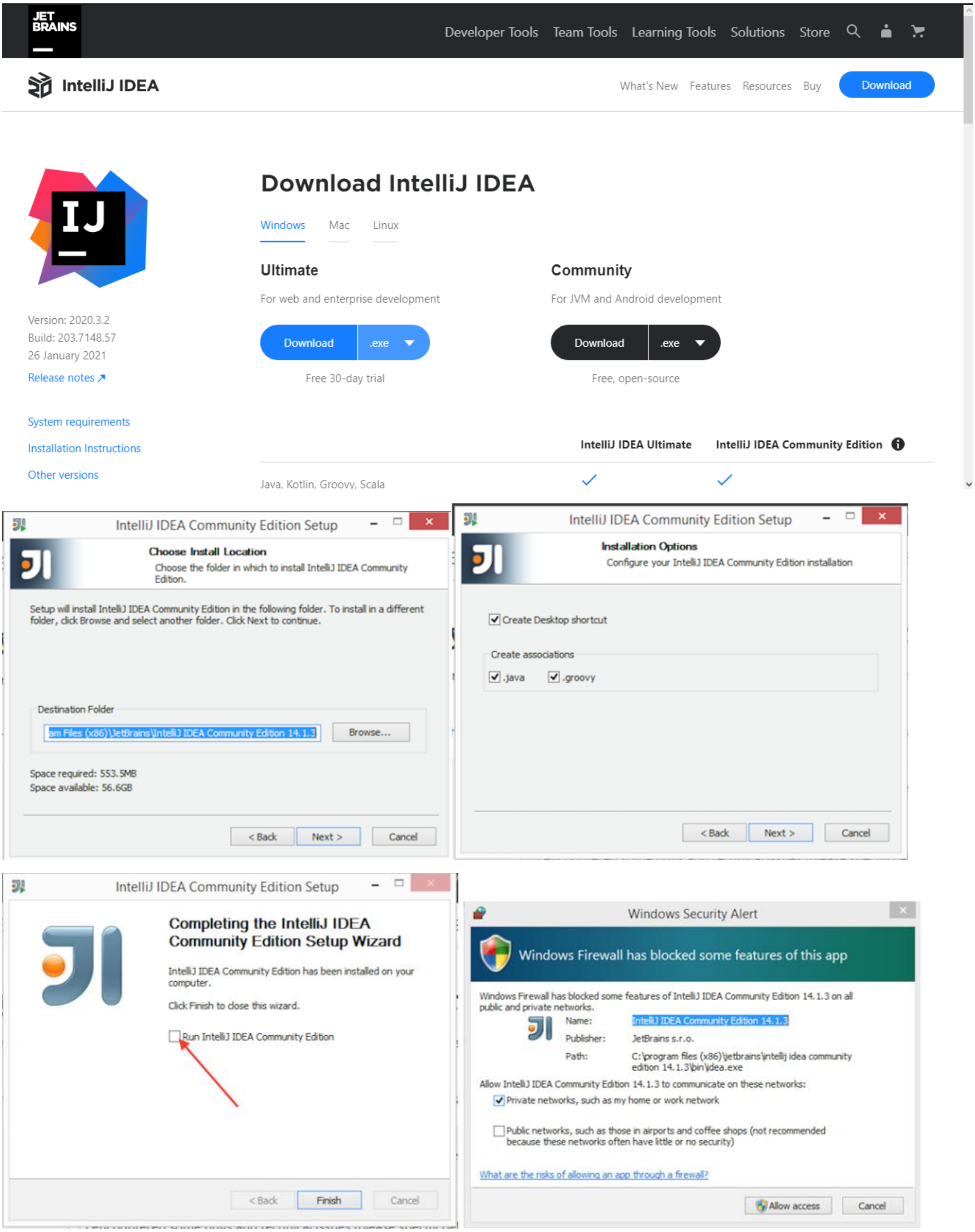
- Check if java compiler(javac) and jvm (java) are installed properly on system.
  Type these commands:
  javac -version
  java -version



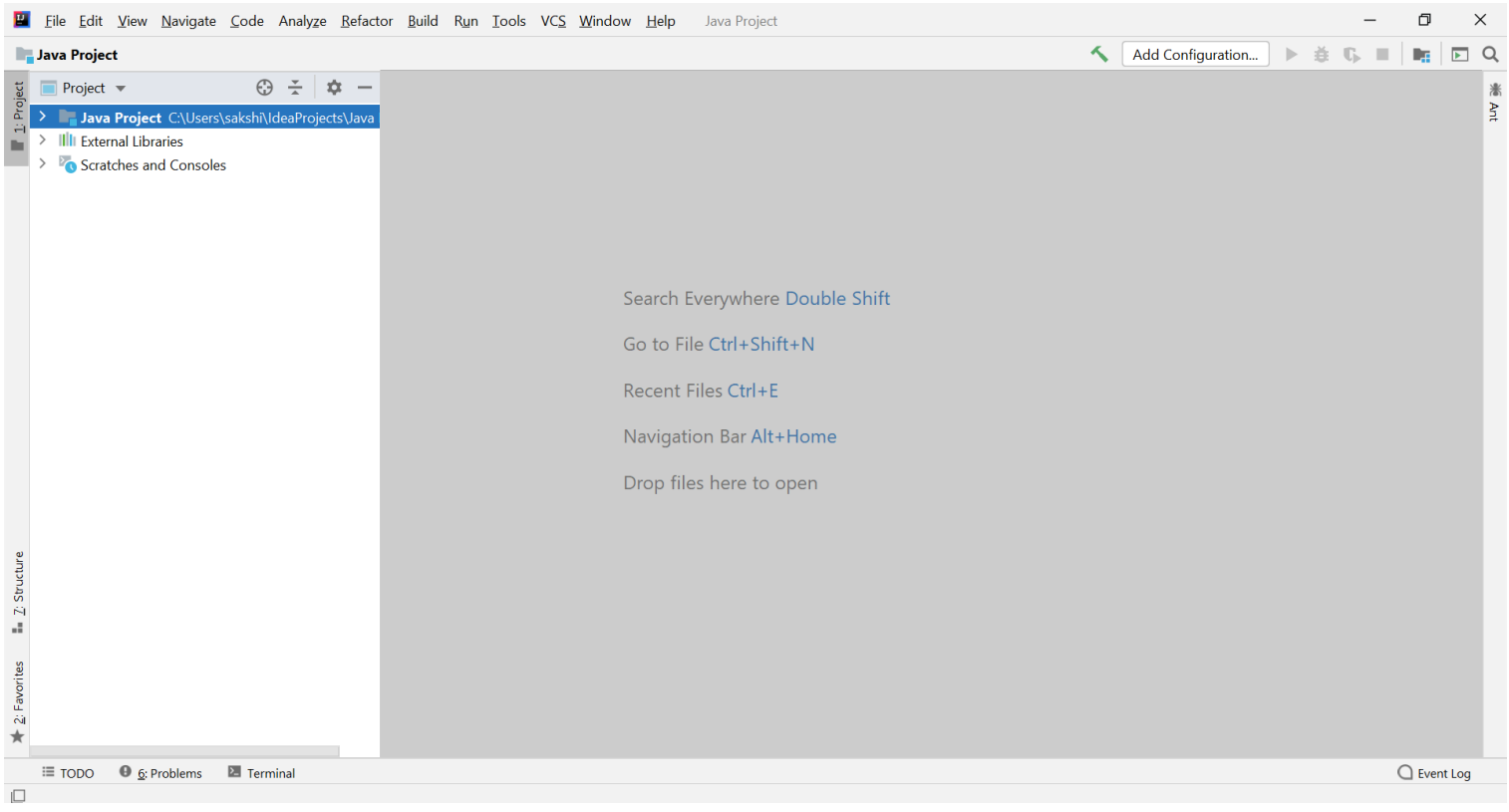
- If java compiler or jvm is not installed on system, download executibles from Oracle.com and execute to install JDK.
- Set environment variables to path where java is installed.



1.2 Download and install the IntelliJ IDEA Community Edition/ NetBeans IDE 8.1/ Eclipse Neon or later version of IDE



1.3 Create a Java Project/ Application in the IDE

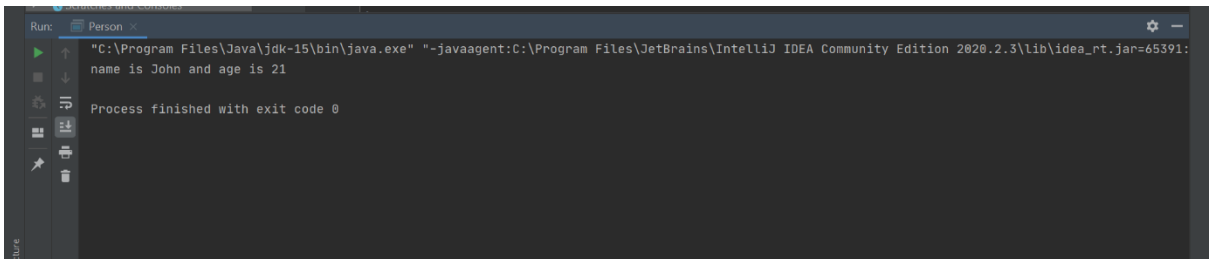


1.4 Create a Java class Person containing two variables name and yearOfBirth of appropriate data types, take inputs from the command line argument, a method to display the name and age of the person.

```
public class Person
{
   String name;
   int yearOfBirth;

   public static void disp_details(String a,int b)
   {
     int current_year=2021;
     int age=current_year-b;
     System.out.println("name is "+a+" and age is "+age);

   }


   public static void main(String [] args )
   {
      disp_details("sakshi",2004);
   }
}
```

1.5 Save the project and run it.

output :



1.6 Explore all the features (the menu and shortcuts) of the IDE. Learn about their use

Shortcut	Action
Double Shift	Search Everywhere

	Find anything related to IntelliJ IDEA or your project and open it, execute it, or jump to it.
Ctrl+Shift+A	Find Action Find a command and execute it, open a tool window or search for a setting.
Alt+Enter	Show intention actions and quick-fixes Fix highlighted error or warning, improve or optimize a code construct.
F2 Shift+F2	Navigate between code issues Jump to the next or previous highlighted error.
Ctrl+E	View recent files Select a recently opened file from the list.
Ctrl+Shift+Enter	Complete current statement Insert any necessary trailing symbols and put the caret where you can start typing the next statement.
Ctrl+Alt+L	Reformat code Reformat the whole file or the selected fragment according to the current code style settings.
Ctrl+Alt+Shift+T	Invoke refactoring Refactor the element under the caret, for example, safe delete, copy, move, rename, and so on.
Ctrl+W Ctrl+Shift+W	Extend or shrink selection Increase or decrease the scope of selection according to specific code constructs.
Ctrl+/ Ctrl+Shift+/	Add/remove line or block comment Comment out a line or block of code.
Ctrl+B	Go to declaration Navigate to the initial declaration of the instantiated class, called method, or field.
Alt+F7	Find usages Show all places where a code element is used across your project.
Alt+1	Focus the Project tool window
Escape	Focus the editor

Conclusion: Thus, we verified/installed java and IntelliJ IDE and ran first program on it. We also explored various features of the IDE.