**PRACTICAL # 01**

**OBJECT:**

**Development Tools and Environment Setup for Java.**

**THEORY:**

This course is aimed to teach you programming in Java through a series of practical. The first practical is dedicated to setting up the developing environment for Java.

**Setting up the java sdk:**

JRE (Java Runtime Environment) is needed for running Java programs. JDK (Java Development Kit), which includes JRE plus the development tools (such as compiler and debugger), is need for writing as well as running Java programs. Since we have to write Java Programs, would install JDK, which includes JRE.

Note: Steps below are for fresh JDK setup. If you have already installed some old JDK/JRE, you may re-install the newer version.

**JDK Setup on Windows**

* + - * 1. **Step 1: Download JDK**

1. Goto oracle download page.
2. Under "Java SE 8ux", click the "Download" button under "JDK".
3. Check "Accept License Agreement".
4. Choose your operating platform, e.g., x86 for 32-bit Windows or x64 for 64-bit Windows.
   * + - 1. **Step 2: Install JDK and JRE**

Run the downloaded installer executable which installs both the JDK and JRE. By default, the JDK will be installed in directory "C:\Program Files\Java\jdk1.8.0\_xx", and JRE in "C:\Program Files\Java\jre8".

You can change the installation directory or accept the defaults. Simply click "next"..."next"... to install JDK in "C:\Program Files\Java\jdk1.8.0\_xx" and JRE in "C:\Program Files\Java\jre8". Check installation directory by opening the folders using the Windows Explorer or command prompt.

**Setting up the Environment Variable**

* + - * 1. **Step 3: Include JDK's "bin" Directory in the PATH**

Windows looks the current directory and the directories listed in the PATH environment variable for executable programs. JDK programs (like Java compiler javac.exe and Java runtime java.exe) reside in directory "<JAVA\_HOME>\bin" (where <JAVA\_HOME> denotes the JDK installion directory). You need to include the "<JAVA\_HOME>\bin" directory in the PATH.

To edit the PATH environment variable in Windows XP/Vista/7/8:

1. Control Panel ⇒ System ⇒ Advanced system settings
2. Switch to "Advanced" tab ⇒ Environment Variables
3. In "System Variables", scroll down to select "PATH" ⇒ Edit
4. To the rightmost end of the text insert a semicolon and then INSERT "c:\Program Files\Java\jdk1.8.0\_x\bin" (Replace x with the upgrade number and VERIFY that this is your JDK bin directory)

DO NOT DELETE any existing entries; otherwise, some existing applications may not run.

Its also recommend that you define an environment variable called JAVA\_HOME, which contains the JDK installed directory, and include the JDK bin directory in the PATH via JAVA\_HOME, i.e., PATH=%JAVA\_HOME%\bin;...

**This completes the java development kit installation.**

##### Verify the JDK Installation

Launch CMD shell,

1. Type "path" command to list the contents of the PATH environment variable. Check to make sure that your <JAVA\_HOME>\bin is listed in the PATH.

Prompt > path

1. Check the following commands to verify that JDK/JRE are properly installed and display their version:

prompt> **java -version**

prompt> **javac -version**

##### Write a Hello-World Java Program

Create a directory for project, e.g., "D:\FirstProject". The directory name shall not contain blank or special characters.

Launch a text editor (such as TextPad). Write the program in it and save with the name of class. The extension of the file is java.

class First

{

public static void main(String[] args){

System.out.print("hello world ");

}

}

Save the above program as First.java

Compile the program with the following command on command prompt.

> **javac First.java**

This will generate First.class file. This file contains the platform independent code, called the java byte code. The java runtime environment will interpret and execute this file using the following commnand.

> **java First**

**Note**: Do not use the .class extension in the above command.

**Netbeans Installation**

NetBeans requires the Java JDK to be installed.

On the NetBeans IDE [Download page](https://netbeans.org/downloads/), you can obtain one of several installers, each of which contains the base IDE and additional tools.

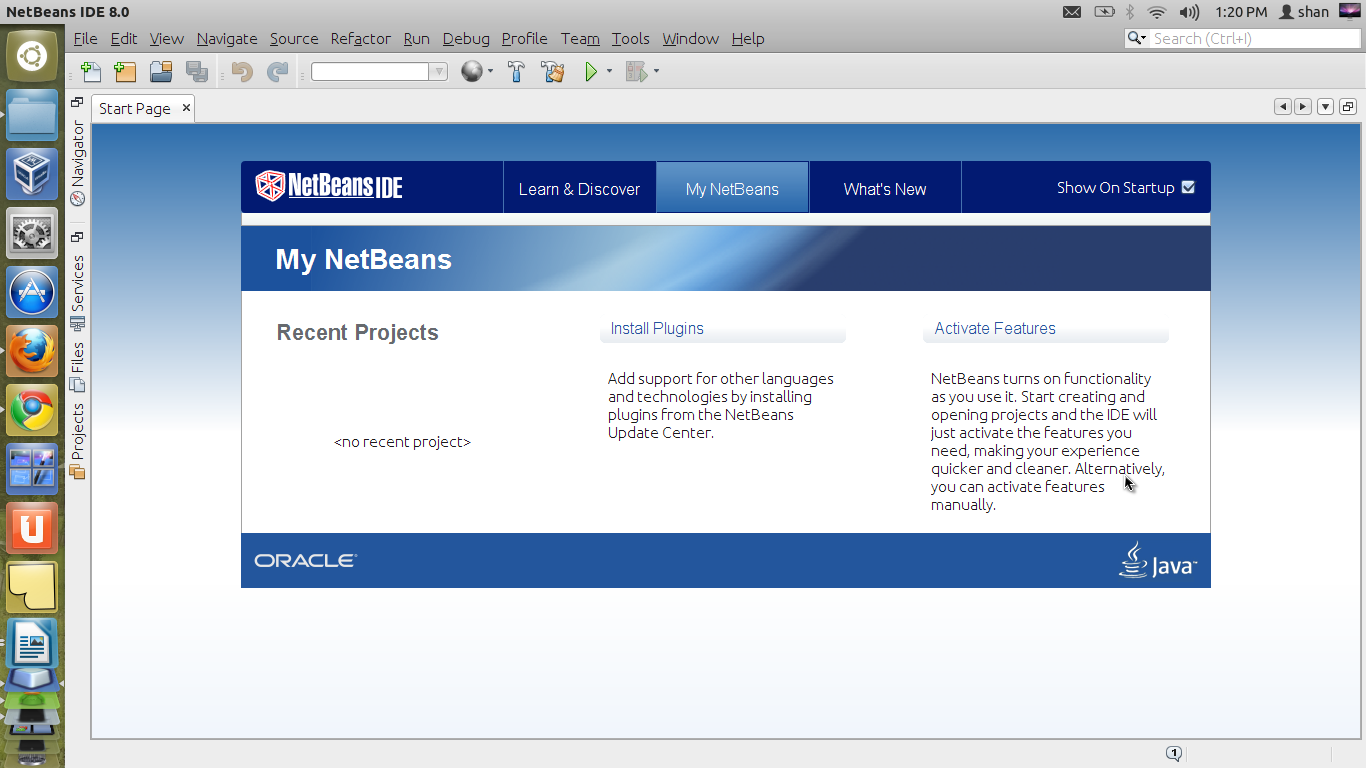
After executing the setup file, at the JUnit License Agreement page, decide if you want to install JUnit and click the appropriate option, click Next.

At the NetBeans IDE installation page, do:

1. Specify installation directory for the NetBeans IDE.

**Note:** The user profile you are using to run the installer must have read/write permissions for this directory.

1. Select JDK installation to use with the NetBeans IDE. If the installation wizard did not find a compatible JDK installation to use with the NetBeans IDE, your JDK is not installed in the default location. In this case, specify the path to an installed JDK.



**Fig 1: Netbeans IDE main page.**

**Activity:**

Perform the above mentioned steps to install JDK and netbreans IDE.

**Review Questions:**

**Q1: What is the difference between Java JRE and JDK?**

**Q2: What is meant by environment variable?**

**Q3: Write the commands to compile and run a Java source code.**

**Q4: What is the output of putting source file through Java compiler?**