# CSE 5234 – Distributed Enterprise Computing

Lab 1: Dev Environment Setup

The goal of this lab is to configure basic development environment on your local machine so that you can complete subsequent labs for this course.

# Objectives

1. Create basic workspace on local machine.
2. Download and install required software.
3. Deploy/configure runtime platform for deploying and testing applications.

# Instructions

The environment setup will vary based on the technology stack you intend to use. Instructions are provided for two basic setups – one with JavaScript based front end, and another with Enterprise Java.

## Common Instructions

### Setup working directories:

* Create a local workspace to keep track of all your work in one place. The following instructions are ***suggestions***, you can select an alternative that you are more comfortable with.
* Create an easy to access directory on your local hard drive for keeping all required software. The recommended location for development tools & software is: C:\Users\<YOURUSERNAME>\Documents\workspace\devtools
* Create a workspace directory for all your projects. Recommended location is: C:\Users\<YOURUSERNAME>\Documents\workspace\cse5234

### Create GitHub account

If you do not have an account on [GitHub](https://github.com/), sign up for one now. The following resources will help you get up and running:

* + [GitHub Skills](https://skills.github.com/) (all courses)
  + [Introduction to GitHub](https://github.com/skills/introduction-to-github)
  + [First Day on GitHub](https://skills.github.com/#first-day-on-github)

### Install and configure Git

Go to <https://git-scm.com/downloads> and install Git for your operating system. You need to configure git to connect to your GitHub account. Setup your username and email in Git (do it globally). Your username should be First Name Last Name, e.g., “Praveen Kumar”.

## JavaScript based front-end and node based back-end.

1. Setup VS Code
   1. Go to [Download Visual Studio Code - Mac, Linux, Windows](https://code.visualstudio.com/download)
   2. **Optional**: Watch the intro videos (they’re short and will help you be more productive in labs): [Visual Studio Code Introductory Videos](https://code.visualstudio.com/docs/getstarted/introvideos)
   3. **Optional**: Follow these tutorials: [Introduction to GitHub in Visual Studio Code - Learn](https://docs.microsoft.com/en-us/learn/modules/introduction-to-github-visual-studio-code/)
2. Setup Node
   1. Go to [Node.js](https://nodejs.org/en/)
   2. Download and install the latest version appropriate for your o/s.
   3. Verify that Node is set up properly by following the quick tutorial: [React JavaScript Tutorial in Visual Studio Code](https://code.visualstudio.com/docs/nodejs/reactjs-tutorial)
   4. Use VS Coded to publish the tutorial to your GitHub account.

## Enterprise Java based front-end and back-end.

1. Download and install the following software:
   1. Java Development Kit (JDK) Version 8 from: <https://www.oracle.com/java/technologies/javase/javase-jdk8-downloads.html> Installation is self-explanatory.
   2. Eclipse IDE for Java EE Developers (Oxygen Release) from <https://www.eclipse.org/downloads/packages/release/oxygen/r/eclipse-ide-java-ee-developers>. Unzip into the ***devtools*** directory (see create local workspace instructions above).
   3. Install IBM Liberty Developer Tools for Eclipse **and** WAS Liberty with Java EE 8 Full platform <https://developer.ibm.com/wasdev/downloads/#asset/runtimes-wlp-javaee8>

Drag and drop “**Install**” icon onto Eclipse toolbar, which will begin to install Liberty developer tools from Eclipse marketplace. Additionally, download WAS Liberty runtime (zip) in ***devtools*** directory. If you don’t download liberty runtime in this step, you can do it while setting up your server (next step).

<Eclipse IDE for Enterprise Java and Web Developers, 2023.03>

< [Eclipse IDE for Enterprise Java and Web Developers | Eclipse Packages](https://www.eclipse.org/downloads/packages/release/2023-03/r/eclipse-ide-enterprise-java-and-web-developers) >

1. Create WAS Liberty Profile Server configuration for deploying and testing JEE applications
   1. Open Eclipse, go to Workbench. It should be in Java EE perspective by default. If not, open Java EE perspective by following the trail: Window -> Perspective -> Open Perspective -> Other -> Java EE.
   2. Go to Servers section (see screen shots in Appendix)
   3. Click on link to create a new server, or right click, New, Server.
   4. Go through wizard. Chose server type as IBM > Liberty Server.
      1. If you did not download liberty runtime previously, select “Install from an archive or a repository”. Choose destination path to be an empty directory under ***devtools***. Select to “Download and install a new runtime from ibm.com”. Make sure that you select WAS Liberty with “Java EE 8 **Full Platform**”.
      2. If you downloaded the liberty profile runtime previously, select “Choose an existing installation”, and point to the directory where you downloaded (and unarchived) the runtime file.
   5. You should see a new server created, as shown in the pictures in Appendix.
   6. You will now see an error (Local Server configuration problem), due to missing key store element in “server.xml”. Resolve this problem by doing the following:
      1. Open command window (cmd)
      2. Browse to WAS Liberty Profile runtime (that you downloaded previously). Browse to bin\ directory, and run: securityUtility encode
      3. The security utility will ask you to enter text to encode, enter defaultKeyStore
      4. Utility will create a password, copy and paste this password to textpad
      5. Add an element to server.xml (note, below password is for my PC!!)

<keyStore id=*"defaultKeyStore"* password=*"{xor}Ozo5PiozKxQ6JgwrMC06"*/>

* + 1. Save and close server.xml

# Appendix









