# Assignment 5

## 1. Installation of VS Code

Steps to download and install Visual Studio Code on Windows 11:

1. Prerequisites:
   - Ensure your system is running Windows 7, 8, 10, or 11.
   - Internet connection for downloading the installation file.
2. Download:
   - Go to the [Visual Studio Code website](https://code.visualstudio.com/).
   - Click on the "Download for Windows" button. The site should automatically detect your OS version.
3. Installation:
   - Once the download is complete, open the installer file (`VSCodeSetup.exe`).
   - Follow the prompts in the setup wizard:
     - Accept the license agreement.
     - Choose the installation location.
     - Select additional tasks, such as adding VS Code to the system PATH for easy command-line access.
   - Click on "Install" to begin the installation.
   - After the installation completes, click "Finish" to launch VS Code.

## 2. First-time Setup

Initial configurations and settings for an optimal coding environment:

1. Theme and Appearance:
   - Go to `File` > `Preferences` > `Color Theme` to choose a theme. Popular themes include "Dark+" and "Light+".
2. Font Size:
   - Go to `File` > `Preferences` > `Settings`, then search for "Font Size" to adjust according to your preference.
3. Extensions:
   - Essential extensions for various purposes:
     - Code formatting: Prettier
     - Linting: ESLint
     - Language support: Python, JavaScript, etc.
     - Version control: GitLens
4. Editor Configuration:
   - Configure auto-save by searching for "Auto Save" in settings and setting it to `afterDelay`.

5. Keybindings:
   - Go to `File` > `Preferences` > `Keyboard Shortcuts` to customize shortcuts according to your preference.

### 3. User Interface Overview

Main components of the VS Code user interface:

1. Activity Bar:
   - Located on the farleft side.
   - Provides quick access to views and actions such as Explorer, Search, Source Control, Run and Debug, Extensions.
2. Side Bar:
   - Displays different views like Explorer, Search, and Source Control.
   - Helps in navigating and managing files, searching text, and handling version control.
3. Editor Group:
   - Central part of the interface where files are opened and edited.
   - Can split into multiple groups for side-by-side editing.
4. Status Bar:
   - Located at the bottom.
   - Shows information like line and column number, current Git branch, and notifications.

### 4. Command Palette

What is the Command Palette and how to access it:

- The Command Palette provides access to many commands.
- Access it by pressing `Ctrl+Shift+P` or `F1`.
- Examples of tasks:
  - Changing color theme: Type "Color Theme".
  - Running tasks: Type "Run Task".
  - Opening settings: Type "Preferences: Open Settings".

### 5. Extensions in VS Code

Role of extensions and how to manage them:

- Extensions add functionalities such as language support, debuggers, and tools.
- To find and install extensions:
  - Click on the Extensions icon in the Activity Bar or press `Ctrl+Shift+X`.

  - Search for the desired extension and click "Install".
- Manage installed extensions through the Extensions view, where you can enable, disable, or uninstall them.
- Essential extensions for web development:
  - Prettier: Code formatter.
  - ESLint: Linting JavaScript.
  - Live Server: Launch a development local server.
  - Debugger for Chrome: Debugging in Chrome.

**6. Integrated Terminal**

How to open and use the integrated terminal:
- Open the terminal by pressing `Ctrl+`` (backtick) or selecting `View` > `Terminal`.
- Advantages over an external terminal:
  - Seamless integration with the editor.
  - Access to multiple terminals.
  - Ability to run commands in the context of the project directory.

**7. File and Folder Management**

How to create, open, and manage files and folders:
- Creating a file/folder:
  - Right-click in the Explorer view and select `New File` or `New Folder`.
- Opening files:
  - Double-click a file in the Explorer or use `Ctrl+P` to quickly open files by name.
- Managing files:
  - Use the Explorer view to drag and drop files, rename, delete, and organize them into folders.
- Navigation:
  - Use `Ctrl+Tab` to switch between open files.
  - Use breadcrumbs for navigating within the file structure.

**8. Settings and Preferences**

How to find and customize settings:
- Access settings:
  - Go to `File` > `Preferences` > `Settings` or press `Ctrl+,`.
- Change theme:

- In settings, search for "Color Theme" and select a preferred theme.
- Change font size:
  - In settings, search for "Font Size" and adjust the value.
- Customize keybindings:
  - Go to `File` > `Preferences` > `Keyboard Shortcuts` and modify shortcuts as needed.

### 9. Debugging in VS Code

Steps to set up and start debugging a simple program:

1. Set up debugger:
   - Click on the Run and Debug icon in the Activity Bar or press `Ctrl+Shift+D`.
   - Click on "create a launch.json file" and select the appropriate environment.
2. Start debugging:
   - Set breakpoints by clicking in the gutter next to the line numbers.
   - Click the green play button or press `F5` to start debugging.
3. Key debugging features:
   - Step over, step into, and step out of functions.
   - Inspect variables and watch expressions.
   - View call stack and output.

### 10. Using Source Control

Integrating Git with VS Code for version control:

1. Initialize a repository:
   - Open the Source Control view by clicking the Source Control icon in the Activity Bar or pressing `Ctrl+Shift+G`.
   - Click on "Initialize Repository".
2. Making commits:
   - Stage changes by clicking the "+" icon next to files.
   - Write a commit message and click the checkmark icon to commit.
3. Pushing changes to GitHub:
   - Click on the ellipsis (`...`) in the Source Control view and select `Push`.
   - Follow prompts to authenticate with GitHub if necessary.