### **Installation of VS Code**

#### **Steps to Download and Install Visual Studio Code on Windows 11**

1. **Download Visual Studio Code:**
   * Open your web browser and go to the [Visual Studio Code download page](https://code.visualstudio.com/Download).
   * Click on the "Windows" button to download the VS Code installer for Windows.
2. **Run the Installer:**
   * Once the download is complete, open the downloaded file (e.g., VSCodeSetup-x64-1.x.x.exe).
   * Follow the installation prompts:
     + Accept the license agreement.
     + Choose the installation location.
     + Select additional tasks (e.g., creating a desktop icon, adding VS Code to the PATH).
3. **Complete the Installation:**
   * Click "Install" and wait for the installation to complete.
   * Click "Finish" to launch Visual Studio Code.

#### **Prerequisites**

* **Administrator Access:** You may need administrator access to install software on your machine.
* **Windows 11:** Ensure your system meets the requirements for running Windows applications.

### **First-time Setup**

#### **Initial Configurations and Settings**

1. **User Interface Theme:**
   * Go to File > Preferences > Color Theme.
   * Choose a theme that suits your preference (e.g., Dark+, Light+).
2. **Font Size and Family:**
   * Go to File > Preferences > Settings (or press Ctrl+,).
   * Search for "font size" and set your desired font size.
   * Search for "font family" to choose your preferred font.
3. **Auto Save:**
   * In Settings, search for "auto save" and set it to afterDelay or onWindowChange.
4. **Extensions:**
   * Go to the Extensions view by clicking the Extensions icon on the Activity Bar or pressing Ctrl+Shift+X.
   * Install essential extensions (e.g., Python, Prettier - Code formatter, ESLint).

### **User Interface Overview**

#### **Main Components of the VS Code UI**

1. **Activity Bar:**
   * Located on the far left.
   * Contains icons for different views (Explorer, Search, Source Control, Run and Debug, Extensions).
2. **Side Bar:**
   * Located next to the Activity Bar.
   * Displays the currently selected view (e.g., Explorer, Source Control).
3. **Editor Group:**
   * The central area where files are opened and edited.
   * Supports multiple editor tabs and split views.
4. **Status Bar:**
   * Located at the bottom.
   * Shows information about the current file, coding language, Git branch, and other status indicators.

### **Extensions in VS Code**

#### **Role of Extensions**

* Extensions enhance the functionality of VS Code.
* They provide additional features like language support, debuggers, and tools.

#### **Finding and Installing Extensions**

1. **Open the Extensions View:**
   * Click the Extensions icon on the Activity Bar or press Ctrl+Shift+X.
2. **Search for Extensions:**
   * Use the search bar to find extensions (e.g., "Python", "Prettier").
3. **Install Extensions:**
   * Click on the desired extension and press Install.

#### **Essential Extensions for Web Development**

* **ESLint:** Linting for JavaScript/TypeScript.
* **Prettier:** Code formatter.
* **Live Server:** Launch a local development server with live reload.
* **Debugger for Chrome:** Debug your JavaScript code in the Chrome browser.

### **Integrated Terminal**

#### **Opening and Using the Integrated Terminal**

1. **Open the Terminal:**
   * Go to View > Terminal or press Ctrl+`.
2. **Advantages of Integrated Terminal:**
   * Direct access to command-line tools within the editor.
   * Run build scripts, version control commands, and other tasks without leaving VS Code.

### **File and Folder Management**

#### **Creating, Opening, and Managing Files and Folders**

1. **Creating Files/Folders:**
   * Right-click in the Explorer view and select New File or New Folder.
2. **Opening Files/Folders:**
   * Go to File > Open File... or File > Open Folder....
3. **Navigating Files/Directories:**
   * Use the Explorer view or Ctrl+P to quickly open files by name.

## **Settings and Preferences**

### **Customizing Settings in VS Code**

* **Accessing Settings:**
  + Go to File > Preferences > Settings or press Ctrl+,.
* **Examples:**
  + **Theme:** Search for "Color Theme" to change the theme.
  + **Font Size:** Search for "Font Size" to adjust the font size.
  + **Keybindings:** Search for "Keyboard Shortcuts" to customize keybindings.

## **Debugging in VS Code**

### **Setting Up and Starting Debugging**

1. **Open a File to Debug:**
   * Open the file you want to debug.
2. **Add Breakpoints:**
   * Click in the gutter next to the line numbers to add breakpoints.
3. **Start Debugging:**
   * Go to Run > Start Debugging or press F5.

### **Key Debugging Features**

* **Breakpoints:** Pause execution at specific lines.
* **Watch:** Monitor variable values.
* **Call Stack:** View the call stack to understand the execution flow.
* **Debug Console:** Execute commands and evaluate expressions during debugging.

## **Using Source Control**

### **Integrating Git with VS Code**

1. **Initialize a Repository:**
   * Open the folder you want to version control.
   * Go to the Source Control view and click "Initialize Repository".
2. **Making Commits:**
   * Make changes to your files.
   * Stage changes and write a commit message in the Source Control view, then click the checkmark to commit.
3. **Pushing Changes to GitHub:**
   * Click the "Publish to GitHub" button in the Source Control view or use the terminal to push changes using Git commands (git push).