### Installation of VS Code

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

**Download the Installer:**

* 1. Visit the [Visual Studio Code website](https://code.visualstudio.com/" \t "_new).
  2. Click on the "Download for Windows" button.

**Run the Installer:**

* 1. Locate the downloaded installer file (usually in the Downloads folder) and double-click it to run.
  2. If prompted by User Account Control (UAC), click "Yes" to allow the installer to make changes to your device.

**Install VS Code:**

* 1. In the setup window, accept the license agreement and click "Next."
  2. Choose the destination location for the installation and click "Next."
  3. Select additional tasks (e.g., creating a desktop icon, adding to PATH) and click "Next."
  4. Click "Install" to begin the installation process.
  5. Once the installation is complete, click "Finish" to launch Visual Studio Code.

#### Prerequisites

* **Windows 11:** Ensure your system meets the minimum requirements.
* **Administrator Privileges:** Required for installation and modifying system settings.

### First-time Setup

#### Initial Configurations and Settings

**Theme and Appearance:**

* + Go to File > Preferences > Color Theme to choose a theme that suits your preference (e.g., Dark+, Light+).

**Font Size and Family:**

* + Navigate to File > Preferences > Settings and search for "Font Size" to adjust the font size.
  + Search for "Font Family" to change the font.

**Extensions:**

* + Click on the Extensions icon in the Activity Bar or press Ctrl+Shift+X.
  + Install essential extensions such as:
    - **ESLint**: for JavaScript and TypeScript linting.
    - **Prettier**: for code formatting.
    - **Live Server**: to serve a live preview of your web pages.
    - **Python**: for Python development.

**Editor Settings:**

* + Enable auto-save by searching for "Auto Save" in Settings.

### User Interface Overview

#### Main Components of the VS Code User Interface

**Activity Bar:**

* + Located on the far left, it allows quick access to various views such as Explorer, Search, Source Control, Run and Debug, and Extensions.

**Side Bar:**

* + Displays different panels depending on the selected view in the Activity Bar, such as file explorer, search results, or extensions list.

**Editor Group:**

* + The main area where you edit files. You can open multiple files in tabs and split the editor to view files side-by-side.

**Status Bar:**

* + Located at the bottom, it shows information about the current file, such as encoding, line ending, language mode, and the current branch if using version control.

### Command Palette

#### What is the Command Palette and How to Access It?

* The Command Palette allows you to access all available commands and functions in VS Code.
* Access it by pressing Ctrl+Shift+P or F1.
* Examples of common tasks:
  + Opening settings: type Preferences: Open Settings.
  + Changing the theme: type Preferences: Color Theme.
  + Installing extensions: type Extensions: Install Extensions.

### Extensions in VS Code

#### Role of Extensions

* Extensions add functionality to VS Code, allowing for language support, themes, linters, debuggers, and more.

#### Finding, Installing, and Managing Extensions

**Finding Extensions:**

* + Click on the Extensions icon in the Activity Bar or press Ctrl+Shift+X.

**Installing Extensions:**

* + Search for the desired extension in the Extensions view, then click "Install."

**Managing Extensions:**

* + Click on the gear icon next to an installed extension for options like disabling, uninstalling, or configuring.

#### Essential Extensions for Web Development

* **HTML CSS Support**
* **JavaScript (ES6) code snippets**
* **Path Intellisense**
* **Bracket Pair Colorizer 2**

### Integrated Terminal

#### How to Open and Use the Integrated Terminal

* Open the terminal by pressing Ctrl+`` (backtick) or navigating to View > Terminal`.
* You can run shell commands directly within VS Code, switch between multiple terminal instances, and configure shell preferences.

#### Advantages of Using the Integrated Terminal

* Seamless workflow without leaving the editor.
* Integrated with the editor, allowing quick access to the terminal and code simultaneously.
* Customizable with themes and fonts.

### File and Folder Management

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

**Creating Files and Folders:**

* + Right-click in the Explorer view and select New File or New Folder.

**Opening Files and Folders:**

* + Click File > Open File or File > Open Folder.

**Navigating Between Files:**

* + Use the Explorer view or press Ctrl+P to quickly open files by name.
  + Navigate between open files using Ctrl+Tab.

### Settings and Preferences

#### Customizing Settings

* Access settings via File > Preferences > Settings or press Ctrl+,.
* Examples of customization:
  + **Theme:** Search for "Color Theme" and select your preferred theme.
  + **Font Size:** Search for "Font Size" and adjust the value.
  + **Keybindings:** Go to File > Preferences > Keyboard Shortcuts or press Ctrl+K Ctrl+S.

### Debugging in VS Code

#### Setting Up and Starting Debugging

**Open a File to Debug:**

* + Ensure you have the relevant extension installed for the language.

**Set Breakpoints:**

* + Click in the gutter next to the line number where you want to add a breakpoint.

**Start Debugging:**

* + Go to Run > Start Debugging or press F5.

**Key Debugging Features:**

* + **Watch Variables:** Monitor variables' values in real-time.
  + **Call Stack:** View the call stack of the current execution.
  + **Step Through Code:** Use step over, step into, and step out controls to navigate through your code.

### Using Source Control

#### Integrating Git with VS Code

**Initialize a Repository:**

* + Open the Source Control view by clicking the Source Control icon in the Activity Bar.
  + Click Initialize Repository.

**Making Commits:**

* + Stage changes by clicking the + icon next to changed files.
  + Enter a commit message and click the checkmark icon to commit.

**Pushing Changes to GitHub:**

* + Ensure you have a GitHub repository set up.
  + Add the remote repository URL using the terminal: git remote add origin <repository-url>.
  + Push changes using git push -u origin main (or the appropriate branch).