Introduction to Visual Studio Code

The Developer’s Swiss Army Knife

What is VS Code?

Think of VS Code as a **well-equipped workshop**:

- **Tools** – Built-in coding features
- **Tool Storage** – Extensions for specialized tasks
- **Workbench** – Clean, organized workspace
- **Magnifying Glass** – Debugging & analysis
- **Reference Books** – Integrated documentation

Why Choose VS Code?

- **Free & Open Source** – No licensing fees, community-driven
- **Lightweight but Powerful** – Fast startup, rich features
- **Universal Language Support** – Works with 50+ languages
- **Extensible** – 40,000+ extensions to customize your workflow
- **Integrated Development** – Git, terminal, debugger built-in
- **Cross-Platform** – Same experience on Windows, macOS, and Linux

VS Code vs. Other Editors

Feature	Basic Text Editor	VS Code	Heavy IDE
Speed	🚲	🚗	🚚
Features	Minimal	Balanced	Packed
Learning Curve	Easy	Moderate	Steep
Cost	Free	Free	Often Paid

What Can VS Code Do?

- **Smart Editing** – Syntax highlighting, IntelliSense, snippets
- **Code Navigation** – Go to definition, find references, symbol search
- **Debugging** – Breakpoints, step-through, variable inspection
- **Version Control** – Git integration, visual diffs, commit management
- **Project Management** – Multi-folder workspaces, file explorer, integrated terminal

- **Customization** – Themes, keyboard shortcuts, layouts, custom extensions

> It is easy to make a VSCode extension once you master JavaScript programming.

Installation

1. Download from code.visualstudio.com
2. Verify the CLI tool:

```
code --version
```

Projects in VS Code

- In VSCode, a **folder** is a project.
- Create a `.vscode` folder in your project for custom settings

Common Commands

Open Folder

```
File → Open Folder (Ctrl+K Ctrl+O)
```

New File

```
File → New File (Ctrl+N)
```

Save

```
File → Save (Ctrl+S)
```

Command Palette

- **Shortcut:** `Ctrl+Shift+P` / `Cmd+Shift+P`
- One search bar for all VS Code features
- Fuzzy search, keyboard-first productivity

IntelliSense

Just like predictive text on your phone:

```
pr → print()
```

```
console. → log() | error() | warn()
```

Integrated Terminal

Shortcut: `Ctrl+`` / `Cmd+``

```
python my_script.py      # Run Python
pip install requests     # Install packages
git add .                # Git commands
```

Example: Python Project

1. **Open Folder:** `my_first_project`
2. **Create File:** `hello.py`
3. **Write Code:**

```
print("Hello, VS Code!")
name = input("Your name: ")
print(f"Nice to meet you, {name}!")
```

4. **Run:** Right-click → *Run Python File in Terminal*

Debugging Basics

- **Breakpoints** – Stop at specific lines
- **Step Through** – F10 (over), F11 (into), F5 (continue)
- **Inspect Variables** – Hover to see values, use Watch panel

> We must install Python-related extensions to use programming features.

Customizing VS Code

Themes

```
File → Preferences → Color Theme
```

Keyboard Shortcuts

```
File → Preferences → Keyboard Shortcuts
```

Settings

```
File → Preferences → Settings (Ctrl+,)
```

> We can edit JSON files to change the settings.

Local vs. Global Settings

- **Project-specific:** `.vscode/settings.json` in your folder
- **Global:**
  - Mac: `~/Library/Application Support/Code/User`
  - Windows: `%APPDATA%\Code\User`

Git Integration

- **Stage Changes:** Click `+` next to files
- **Commit:** Add a message, click ✓
- **Push/Pull:** Sync with GitHub or other repos

Search Shortcuts

- **Find in File:** `Ctrl+F` / `Cmd+F`
- **Find in All Files:** `Ctrl+Shift+F` / `Cmd+Shift+F`
- **Quick Open File:** `Ctrl+P` / `Cmd+P`

Essential Shortcuts

Action	Windows/Linux	macOS
Command Palette	`Ctrl+Shift+P`	`Cmd+Shift+P`
Quick Open	`Ctrl+P`	`Cmd+P`
Toggle Terminal	`Ctrl+``	`Cmd+``
Comment Code	`Ctrl+/`	`Cmd+/`
Format Document	`Shift+Alt+F`	`Shift+Opt+F`