**Lab Exercise 3- Project Bootstrapping Using GitHub Copilot in VS Code**

**Objective**

Learn how to use **GitHub Copilot** in **VS Code** to bootstrap a new project by generating code, automating tasks, and improving development efficiency.

**Prerequisites**

* Installed **VS Code**
* Installed **GitHub Copilot Extension**
* GitHub account with **Copilot access**
* Basic knowledge of Git and programming

**Step 1: Setup VS Code and GitHub Copilot**

1. **Open VS Code**
2. Install the **GitHub Copilot extension** from the VS Code marketplace.
3. **Sign in** to your GitHub account to enable Copilot.
4. Open a **new project folder** in VS Code.

**Step 2: Initialize a New Project**

1. Open the **terminal in VS Code** (Ctrl + ~).
2. Run the following commands to create and initialize a project:

mkdir my-copilot-project

cd my-copilot-project

git init

**Step 3: Use GitHub Copilot to Generate Code**

**A. Create a Python Script Using Copilot**

1. Create a new file:

touch main.py

1. Open main.py and type:

# Write a function to generate Fibonacci sequence

1. Press **Tab** and let Copilot autocomplete the function.

**B. Create a Basic Web Server Using Copilot (Node.js Example)**

1. Create server.js:

touch server.js

1. Start typing:

// Create an Express server with a single route

1. Accept Copilot's suggestion to generate a **basic Express.js server**.

**Step 4: Add a README.md and License**

1. Create a **README.md**:

touch README.md

1. Type:

# Project Name

1. Accept Copilot’s suggestions for documentation.

**Step 5: Push to GitHub**

1. Create a **GitHub repository** from the terminal:

gh repo create my-copilot-project --public

1. Push the code:

git add .

git commit -m "Initial commit"

git branch -M main

git push -u origin main

**Step 6: Enhance Code Using Copilot Suggestions**

* Open any function and write a **comment describing improvements**.
* Copilot will suggest **optimized code or refactoring**.
* Accept suggestions and test the changes.

**Step 7: Explore Copilot Chat (Optional)**

* Use Ctrl + / to ask Copilot to explain or improve code.

**Conclusion**

You have successfully bootstrapped a project using **GitHub Copilot in VS Code**. You now understand how to:  
✅ **Generate boilerplate code**  
✅ **Use Copilot for autocompletion**  
✅ **Document the project**  
✅ **Push code to GitHub**