

GitHub Copilot

Improvise Python App using GitHub Copilot



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Use Case Details:

Meet Mr. Mark, who has recently joined the ABC project as a fresher. He wishes to increase his productivity and speed up coding operations with Python.

Mr. John, Mr. Mark's manager, supplied the Python code source and asked for modifications to create an interactive HTML (Hyper Text Markup Language) form and an API endpoint. This will allow Mark to gain considerable experience constructing a Python web app that serves an HTTP API while generating pseudo-random tokens for identifying reasons.

Mark had a close timeline to finish his task and started exploring options to create code using templates or getting code generate assistances. During his study, he discovered GitHub Copilot AI (Artificial Intelligence) tool as a code assistant tool. Also, he discovered that GitHub Copilot is an AI pair programmer that generates suggestions based on context and code patterns. Let us help Mark to complete his task with GitHub Copilot.

Learning Objectives:

1. Experiences VS Code (Web) in GitHub Codespaces as a development environment.
2. Develop interactive HTML form and Application Programming Interface (API) endpoint.
3. Use GitHub Copilot as an assistant to create code, add comments, generate testcase, design web page and explain the code.
4. Build a Python App which contains code generated by GitHub Copilot.

Know about Virtual Environment – GitHub Codespaces:

Codespaces are cloud-based development environments provided by GitHub. They allow developers to code, build, test, and debug their projects entirely in the cloud, removing the need for local development environments. With Codespaces, developers can access their projects from any device with an internet connection, collaborate with teammates in real-time, and seamlessly switch between different development environments.

GitHub Codespaces provide pre-configured development environments with all the necessary tools and dependencies already installed, enabling developers to get started quickly without the hassle of setting up their development environment manually. This is particularly useful for onboarding new team members, working on multiple projects, or accessing development environments from different devices.

Additionally, Codespaces integrate tightly with GitHub repositories, making it easy to spin up a development environment directly from a repository. This tight integration also ensures that changes made in a Codespace are automatically synced back to the GitHub repository, enabling seamless collaboration and version control.

Overall, GitHub Codespaces streamline the development workflow by providing developers with a flexible, scalable, and collaborative development environment in the cloud.

Pre-requisites:

1. Make sure that you have **high and stable internet bandwidth connectivity** to work on remote environments.
2. Recommended to use Google Chrome browser for seamless connectivity.
3. Signup in [GitHub.com \(https://github.com/\)](https://github.com/) using **Accenture mailid** only and share username to get access of GitHub Copilot Subscription. ([License Requestion Link](#) or <https://atcittrainingtracker.accenture.com/GitHubCopilotRequisitionTool/home>), in case if you haven't done.
4. GitHub Copilot subscription invite is accepted and joined in this organization **GitHubCopilotTDLc**.
5. Sign-in to GitHub using this [link \(https://github.com/login\)](https://github.com/login) using **Accenture mailid**. If you have already signed in using your personal email address or any other email address sign out first and then sign in using email address where GitHub Copilot license is activated.

Activity Overview: (Detailed Instructions are given in the below section)

The API already has a single endpoint to generate a token. Let's update the API by adding a new endpoint that accepts text and returns a list of tokens.

1. Add Pydantic model to be used in a new route that will accept JSON.

GitHub Copilot

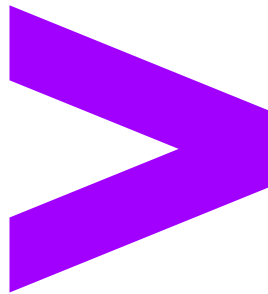
- Access main.py file and add a comment so that GitHub Copilot can generate a Pydantic model for you.
2. Explore the generate () function in the Python script and use generate () function for establishing a new endpoint.
 - Provide a comment to GitHub Copilot to create a FastAPI endpoint.
 - Endpoint should accept a POST request with a JSON body.
 - JSON Body should contain a single field called "text."
 - It should return a checksum of the text.
3. Add a Welcome Note to the user with customized message with participant(your) name.
4. Create documentation for the new API endpoint for better readability.
 - Explain the code.
 - Add Comments.
5. Create test cases for the generate () route using the FastAPI test client using GitHub Copilot.
6. Fix the warning messages using GitHub Copilot features.
7. Create a Readme.md file to highlight about how to execute the application using uvicorn webserver.

Activity Instructions:

1. Ensure that you have signed in to GitHub Account as per given pre-requisites instructions.
2. Access the folder named as **01- Improve Python App using GitHub Copilot available in the [GitHub Repository](#)** to perform activity as per the given instructions.
 - a. If you get 404 error while accessing the given GitHub Repository URL, Kindly sign in using GitHub Credentials enabled with copilot.

Learning Outcome:

By the end of this activity, Mark can generate prompts and get code assistant for different scenarios from GitHub Copilot. He can use GitHub Copilot to improve his existing project, increase his productivity, and speed up coding activities in Python.



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