Creating a Lab for API Design First using GitHub Copilot

A guide to install the OpenAPI Visual Studio Code extension and use Copilot to build a Swagger/OpenAPI specification

# Introduction

API design first is an approach to develop APIs based on a clear and precise specification that defines the functionality, structure, and behavior of the API. This specification can be written in a standard format, such as OpenAPI (formerly known as Swagger), which is a widely used and supported framework for describing and documenting RESTful APIs.

GitHub Copilot is an AI-powered code completion tool that helps developers write code faster and with less errors. It can suggest code snippets, comments, tests, and even entire functions based on the context and the developer's intent. Copilot can also help with API design first, by generating OpenAPI specifications from natural language descriptions or existing code.

In this document, we will show you how to create an API design using GitHub Copilot, how to install the OpenAPI Visual Studio Code extension, and how to use Copilot to build a Swagger/OpenAPI specification.

# Prerequisites

To follow this document, you will need:

* A GitHub account and access to GitHub Copilot. You can sign up for the Copilot technical preview here: https://copilot.github.com/
* Visual Studio Code, a free and open source code editor. You can download it here: https://code.visualstudio.com/
* The OpenAPI Visual Studio Code extension, which provides syntax highlighting, validation, and preview for OpenAPI files. You can install it from the VS Code marketplace here: <https://marketplace.visualstudio.com/items?itemName=42Crunch.vscode-openapi>

A screenshot of a computer

Description automatically generated

The other installation option is to install in Visual Studio Code:

Click extensions on the Menu Ribbon

A black and white squares

Description automatically generated

A screenshot of a computer

Description automatically generated

Click Install to add the extension

# API Design First using GitHub Copilot

Now that you have the prerequisites, you can start creating a lab for API design first using GitHub Copilot. Here are the steps:

1. Create a new folder for your lab project and open it in VS Code.
2. Create a new file named openapi.yaml and save it in the project folder. This file will contain your OpenAPI specification.
3. Start typing a natural language description of your API in the openapi.yaml file, such as "A simple API for a todo list app". Copilot will suggest a code snippet that matches your description, such as:
4. openapi: 3.0.0
5. info:
6. title: Todo List API
7. version: 1.0.0
8. paths:
9. /todos:
10. get:
11. summary: Get all todos
12. responses:
13. '200':
14. description: A list of todos
15. content:
16. application/json:
17. schema:
18. type: array
19. items:
20. type: object
21. properties:
22. id:
23. type: integer
24. title:
25. type: string
26. completed:
27. type: boolean
28. Accept the suggestion by pressing Tab or Enter, or modify it as you wish. You can also use Copilot to generate more code for your API, such as parameters, request bodies, security schemes, etc. Just type what you want and Copilot will try to help you.
29. Use the OpenAPI Visual Studio Code extension to validate and preview your OpenAPI specification. You can access the extension features from the VS Code command palette (Ctrl+Shift+P) or the editor context menu.

A screenshot of a computer

Description automatically generated

1. You can also see a live preview of your API documentation by clicking on the "OpenAPI Preview" button in the top right corner of the editor.

A screenshot of a computer

Description automatically generated

1. Save your openapi.yaml file and commit it to your GitHub repository. You can use Copilot to generate a README.md file for your project, by typing

Create a README file **for** **my** API

GitHub Copilot: Sure, here's a basic structure for a README file for your API. You can fill in the details as per your project's specifics.

Create README.md in VSC

Click the Add Content to copy into the file

A screenshot of a phone

Description automatically generated

# Project Title  
  
## Overview  
Brief description **of** your project.  
  
## API Endpoints  
  
### GET /todo/{id}  
Retrieves a todo item **by** **its** ID.  
  
#### Parameters  
- `id` (path, required): The ID **of** **the** todo **to** **get**. Must be an integer **greater than** **or** **equal** **to** 1.  
  
#### Responses  
- `200`: Returns **the** todo item.  
- `404`: Todo **not** found.  
  
### PUT /todo/{id}  
Updates a todo item **by** **its** ID.  
  
#### Parameters  
- `id` (path, required): The ID **of** **the** todo **to** update. Must be an integer **greater than** **or** **equal** **to** 1.  
  
#### Request Body  
- `description`: The todo **to** update. This field **is** required.  
  
## Installation  
Instructions **for** setting up your project locally.  
  
## Usage  
Instructions **on** how **to** use your project **after** installation.  
  
## Contributing  
Guidelines **for** contributing **to** your project.  
  
## License  
Information **about** **the** license.

Please replace the placeholders with the actual details of your project.

Congratulations, you have created a lab for API design first using GitHub Copilot!