Generate Test Cases for Specific Use Case Using Generative AI

Estimated time needed: 30 minutes

As a software developer, you may be very comfortable with coding. Code should be tested for functionality across multiple scenarios as and when created. Test-driven development (TDD) is one of the proven methodologies for ensuring that the code works as expected. It is an approach to software development in which you first write the test cases for the code you *wish* you had and then write the code to make the test cases pass. Visit this link on TDD to learn more. In the past, writing the correct test cases was challenging and required expertise and experience. Now, you can avail the help of Generative AI to generate test cases for specific use cases.

Please remember that the prompts you feed to Generative AI are like a conversation with a subject matter expert and the consecutive prompts depend on the previous prompts and the response received. Change the wording when required to get a specific desired result. The example showcases one possible chat conversation to attain the objective.

Learning objectives

At the end of the lab you will be able to:

1. Use Generative AI to generate test cases for specific use cases.
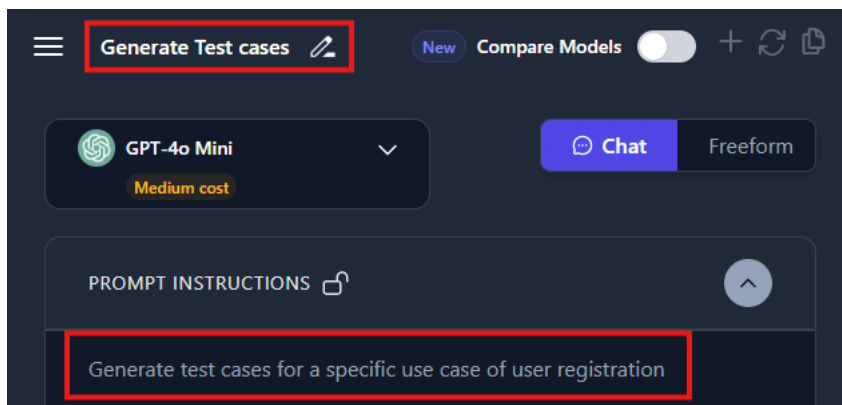2. Write test cases adhering to the laws of TDD.

Prerequisites

It will be good if you know how to code in any of the programming languages and have the ability to think from the perspective of software design.

Set up chat title and prompt instruction

When the chat session opens, a new chat conversation begins. Give the chat conversation an appropriate title. This will help you revisit the chat conversation. It is a good practice to segregate the conversations topically as it will help you continue the conversation later.

Also provide a prompt instruction which is specific to the conversation in this particular lab. Let's get started with the task of creating software documentation for the JavaScript code.

> Please note Generative AI is an evolving field. As you attempt the labs, your experience and output might be different than what is seen here.

Tool capability to generate test cases

You have been provided with the "User registration" module of the software and tasked with creating a test case for validating the registration. You decide to optimally utilize your time by using Gen AI to write the documentation.

Firstly, you need to determine if the Gen AI tool has the capability to do the required software documentation for JavaScript. In the prompt window, type the following:

```
I have a user registration module in my software. Can you help me create a test case for a specific use case?
```

If the GenAI model has the ability to generate test case, you will get a affirmative response in line with what is shown in the image below.You will need to use your judgment to perceive the confidence in the response, to decide on continuing to use the tool either entirely or use it as a support tool. Iterative prompts can be used to ensure the correctness of the responses.

▶ Click here to view the sample response generated

Provide the use case to Gen AI

Paste the following in the prompt window to state the use case for which you need the test case.

```
Help me create a test case for validation of the user registration information.
```

The output could be something similar to what is shown in this image:

▶ Click here to view the sample response generated

This response assumed that you needed the test case for manual testing with the provided GUI. If you need test case for testing the API, you need to be more specific and provide a context to generative AI for it to give the kind of response you require.

Refined test case generation prompt

What you need are the various scenarios that you must test to validate the registration information. In the prompt window, type the following:

```
Give me the test cases for registration validation, taking into consideration various possible scenarios and the required input and
```

The output could be something similar to what is shown in this image:

▶ Click here to view the sample response generated

Your response might be different from what is shown above but at the core, the response is similar. This response is more exhaustive as the question was more specific.

Now, to see what one of the test cases would look like, ask for a code-specific example.

Check where the test cases belong

We have test cases based on multiple scenarios for validating the registration information. As a software developer, it is also important to segregate the test cases on whether it should be in the front end or the back end. All of the responses in the previous response is evidently for front end. But use the help of Generative AI to determine the same. In the prompt window, type the following:

```
Will these test cases fit better in front-end testing or back-end testing?
```

The output could be something similar to what is shown in this image:

▶ Click here to view the sample response generated

Segregate front end and back end test cases

Get the list of test cases with a clear segregation of what should be in the front end and what should be in the back end. In the prompt window, type the following:

```
Recommend for each of the test cases suggested whether it should belong to the front end or the back end. Include the recommendation
```

The output could be something similar to what is shown in this image:

▶ Click here to view the sample response generated

Let's prompt and find out what *processed data correctly* entails.

Specific backend test case

You can use Gen AI to find out the kind of processing to be done in the backend. Type the following prompt:

```
Elaborate on the back-end testing.
```

The output would be similar to what is given below. Notice that it includes more specific information about the kind of back-end validation to do.
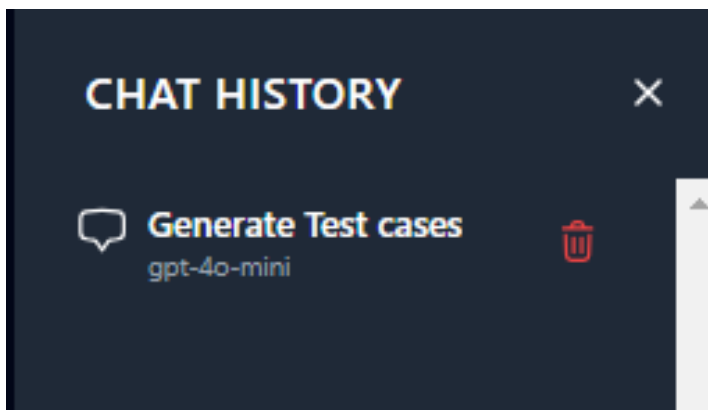
▶ Click here to view the sample response generated

The response above details the kind of check we can do.
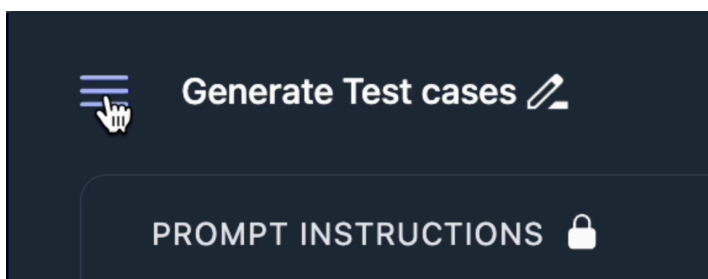
Conclusion

Congratulations! You have generated test cases that can be used in both the front end and the back end. If you are happy with the output produced, you may use it. If you want to improvise, you may ask additional relevant questions. If you want the code sample for development or testing, you can ask for specific code samples specifying the language preferred. Generative AI depends on external sources to supplement its responses with more facts and realism. However, it is your prerogative as a software developer to ascertain the accuracy of the output.

You can always visit the conversations during the live session using the history option by clicking on the main menu on the top-left.

Then, choose the chat by title among all the labs listed.

Author(s)

Rama
Lavanya