Lesson 04 Demo 14

Generating Code Using Codeium

Objective: To demonstrate the use of Codeium by showcasing its capabilities of generating, modifying, and explaining code, as well as generating documentation for the code

Tools required: Visual Studio Code and Codeium Extension

Prerequisites: Install the Codeium extension within VS Code (Refer to the Demo: Installing Codeium in VS Code)

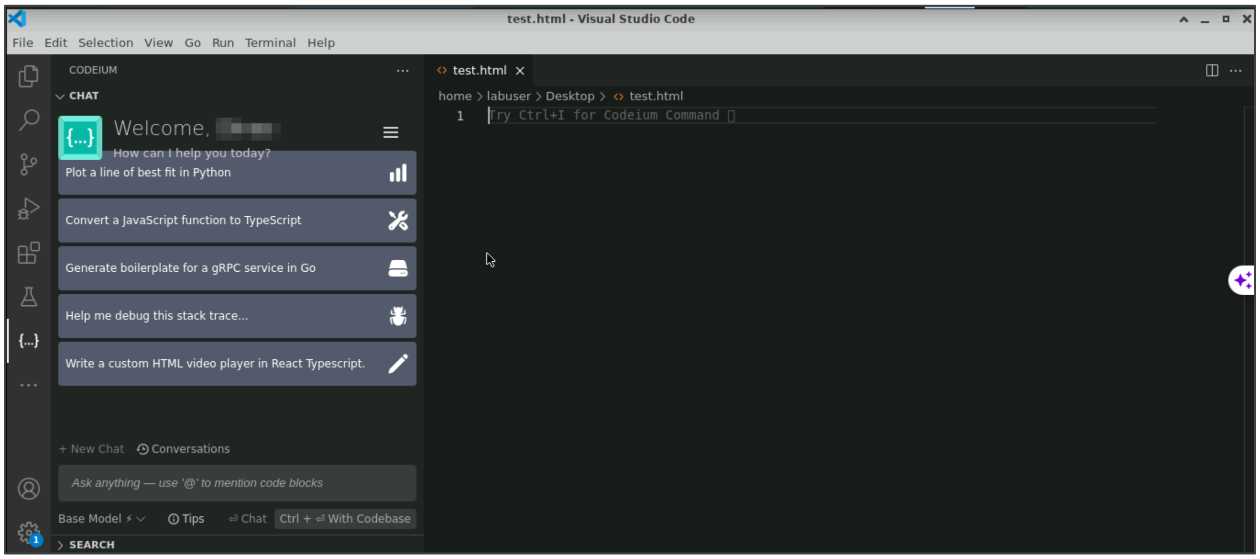
Steps to be followed:

1. Create an HTML page using the code generation feature
2. Write a JavaScript code using the autocomplete feature

Note: Codeium, as an artificial intelligence tool, can produce varied outputs even when presented with similar prompts. Hence, it is recommended to use the exact prompts given in the document to get accurate results.

Step 1: Create an HTML page using the code generation feature

1.1 Create a file **test.html** in VS Code



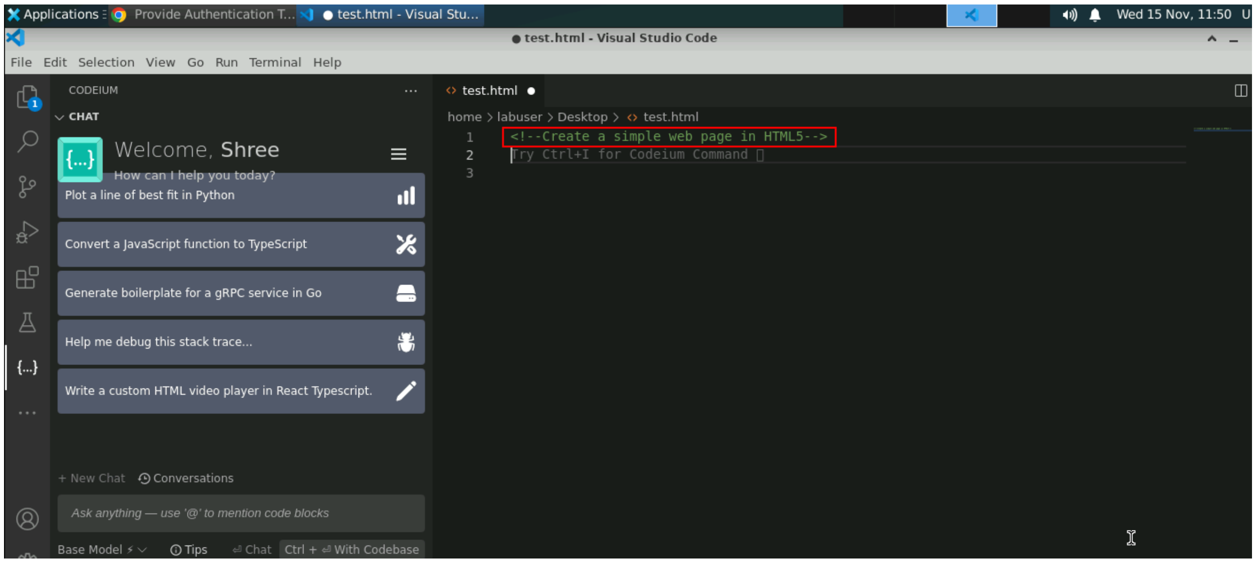
test.html - Visual Studio Code

File Edit Selection View Go Run Terminal Help
CODEIUM
CHAT
Welcome, [redacted]
How can I help you today?
Plot a line of best fit in Python
Convert a JavaScript function to TypeScript
Generate boilerplate for a gRPC service in Go
Help me debug this stack trace...
Write a custom HTML video player in React Typescript.
+ New Chat
Conversations
Ask anything — use '@' to mention code blocks
Base Model
Tips
Chat
Ctrl + ⏎ With Codebase
SEARCH
test.html
home > labuser > Desktop > test.html

```
Try Ctrl+I for Codeium Command
```

1.2 Enter the following HTML comment:

<!--Create a simple web page using HTML5-->



```
<!--Create a simple web page in HTML5-->
Try Ctrl+I for Codeium Command
```

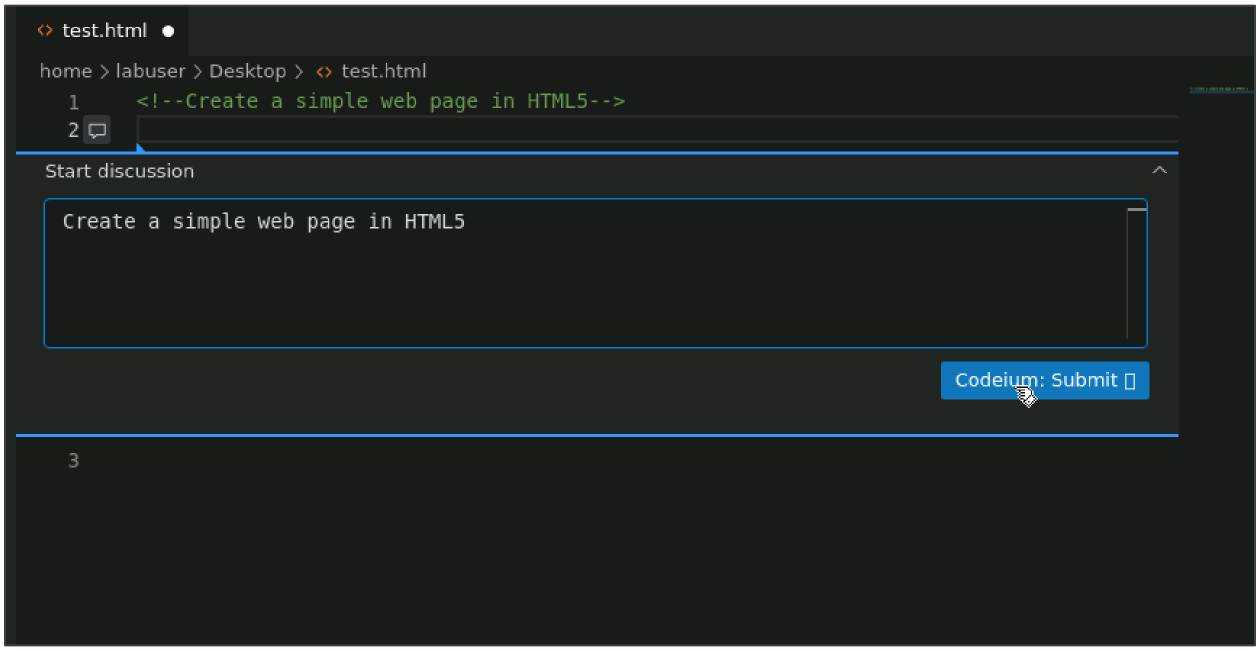
CODEIUM
CHAT
Welcome, Shree
How can I help you today?
Plot a line of best fit in Python
Convert a JavaScript function to TypeScript
Generate boilerplate for a gRPC service in Go
Help me debug this stack trace...
Write a custom HTML video player in React Typescript.
+ New Chat
Conversations
Ask anything — use '@' to mention code blocks
test.html
home > labuser > Desktop > test.html

You will get a suggestion to press **Ctrl+I** to use the Codeium command.

1.3 Press **Ctrl+I** and enter the following instructions:

Create a simple web page in HTML5

Now, click on **Codeium: Submit.**

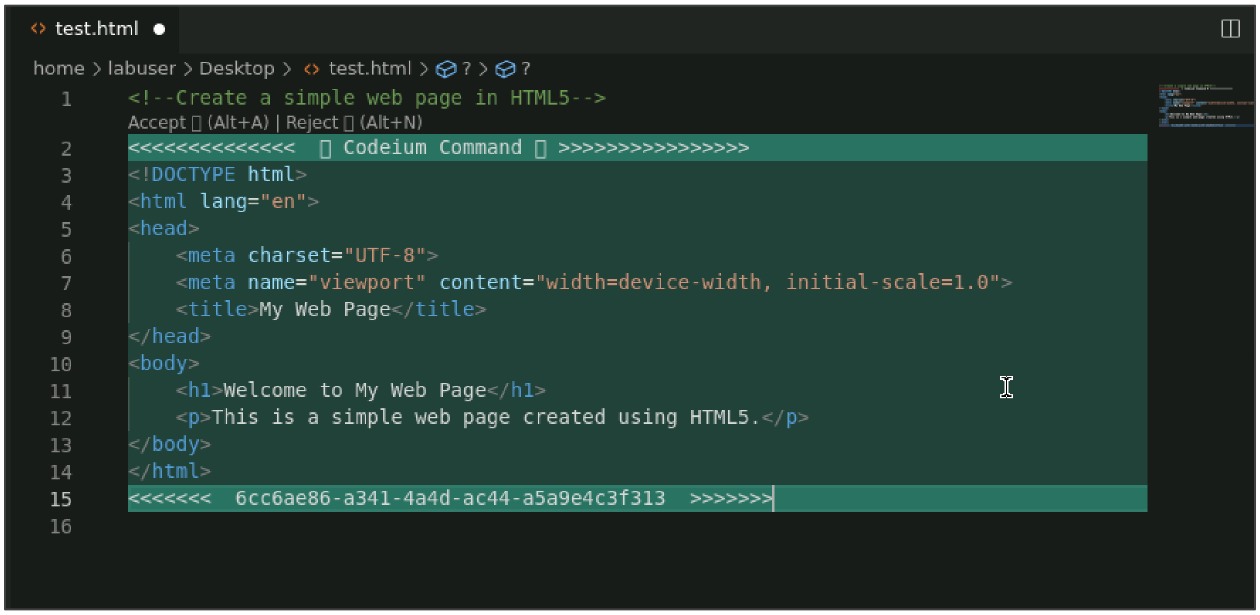


```
<!--Create a simple web page in HTML5-->
```

Start discussion

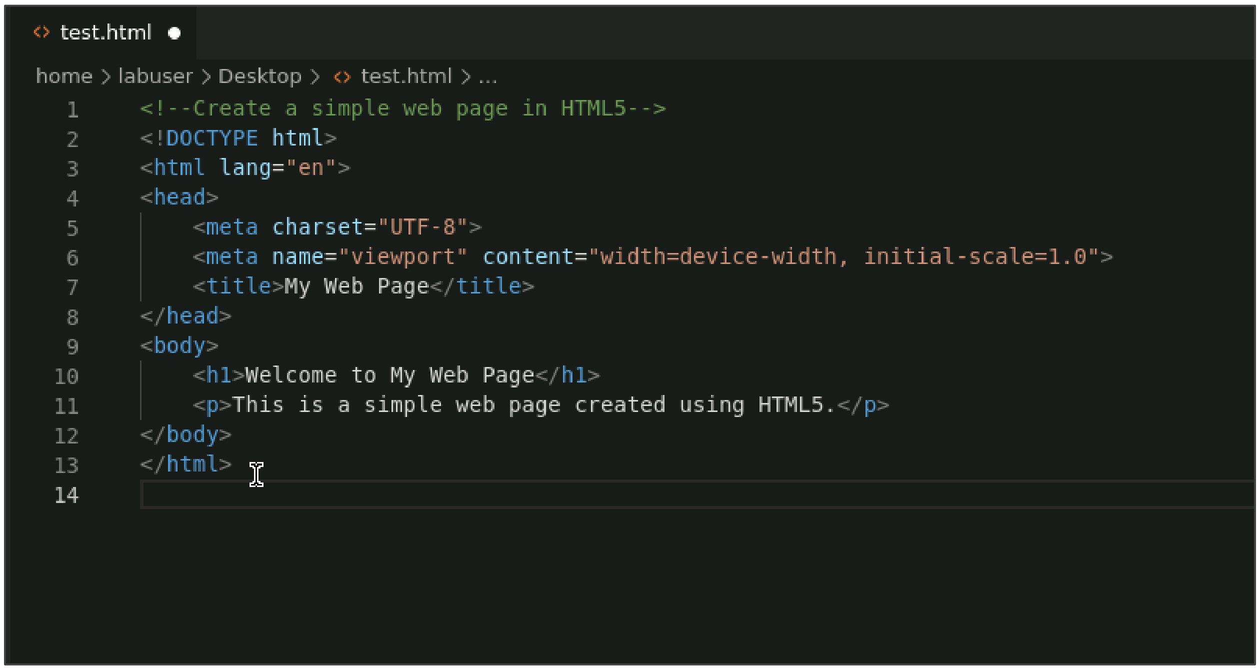
```
Create a simple web page in HTML5
```

1.4 Press **Alt+A** to accept the suggested code snippet



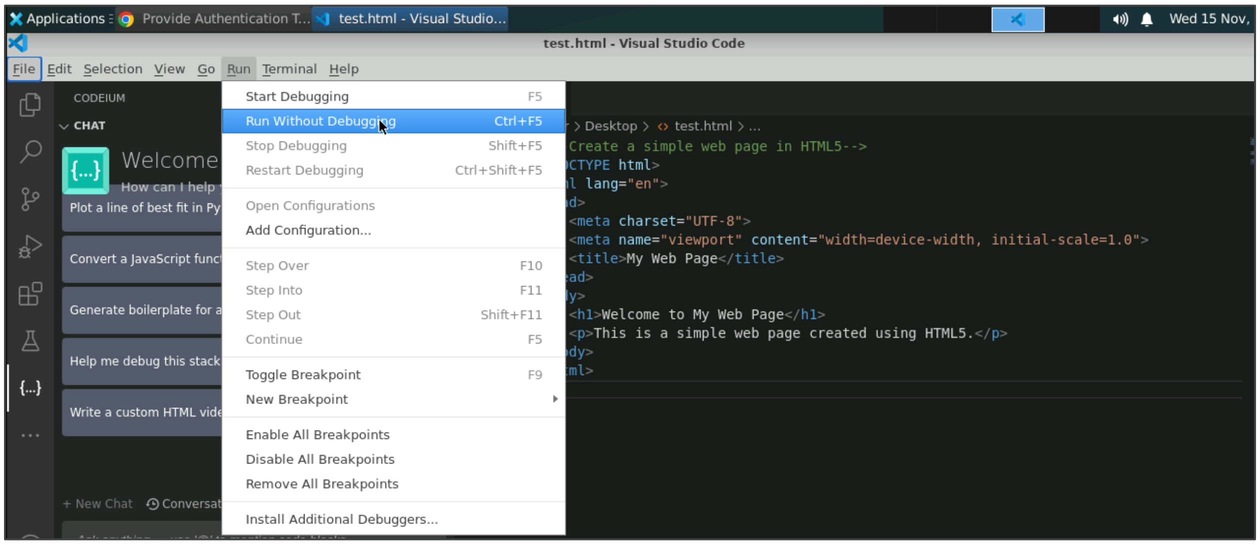
test.html
home > labuser > Desktop > test.html > ? > ?
Accept (Alt+A) | Reject (Alt+N)

```
<!--Create a simple web page in HTML5-->
<<<<<<<<<<<<<<   Codeium Command  >>>>>>>>>>>>>>>>>
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>My Web Page</title>
</head>
<body>
    <h1>Welcome to My Web Page</h1>
    <p>This is a simple web page created using HTML5.</p>
</body>
</html>
<<<<<<<  6cc6ae86-a341-4a4d-ac44-a5a9e4c3f313  >>>>>>>
```

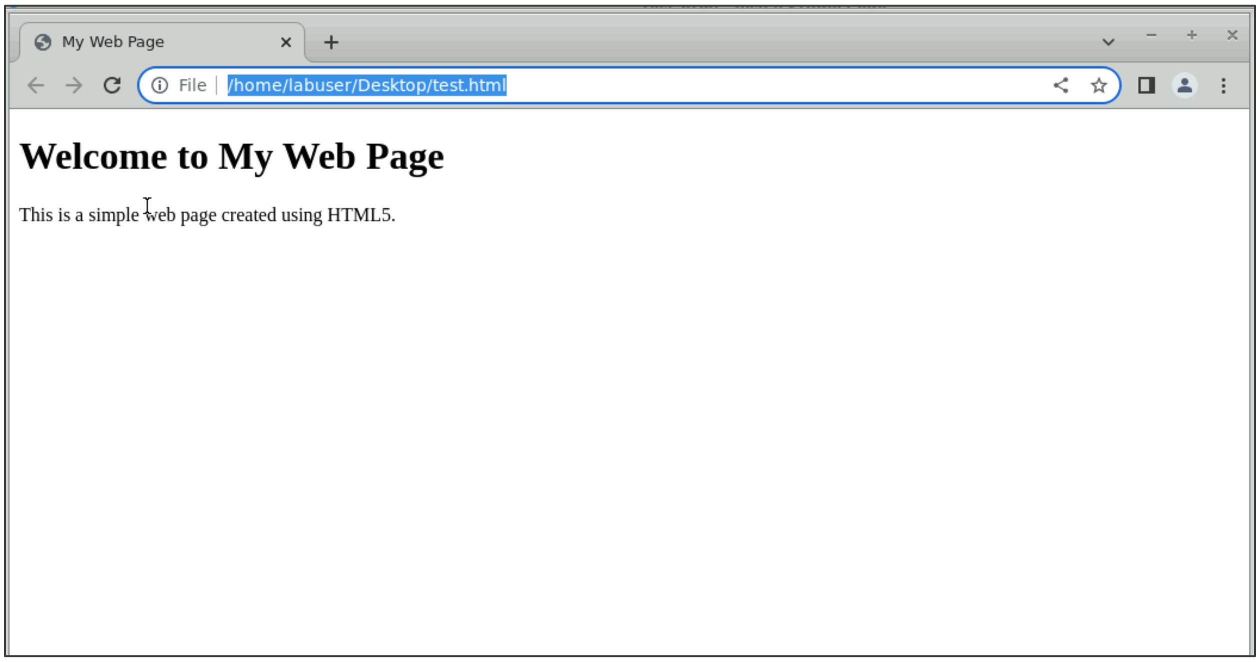


```
<!--Create a simple web page in HTML5-->
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>My Web Page</title>
</head>
<body>
    <h1>Welcome to My Web Page</h1>
    <p>This is a simple web page created using HTML5.</p>
</body>
</html>
```

1.5 Save and run the HTML file to check the output



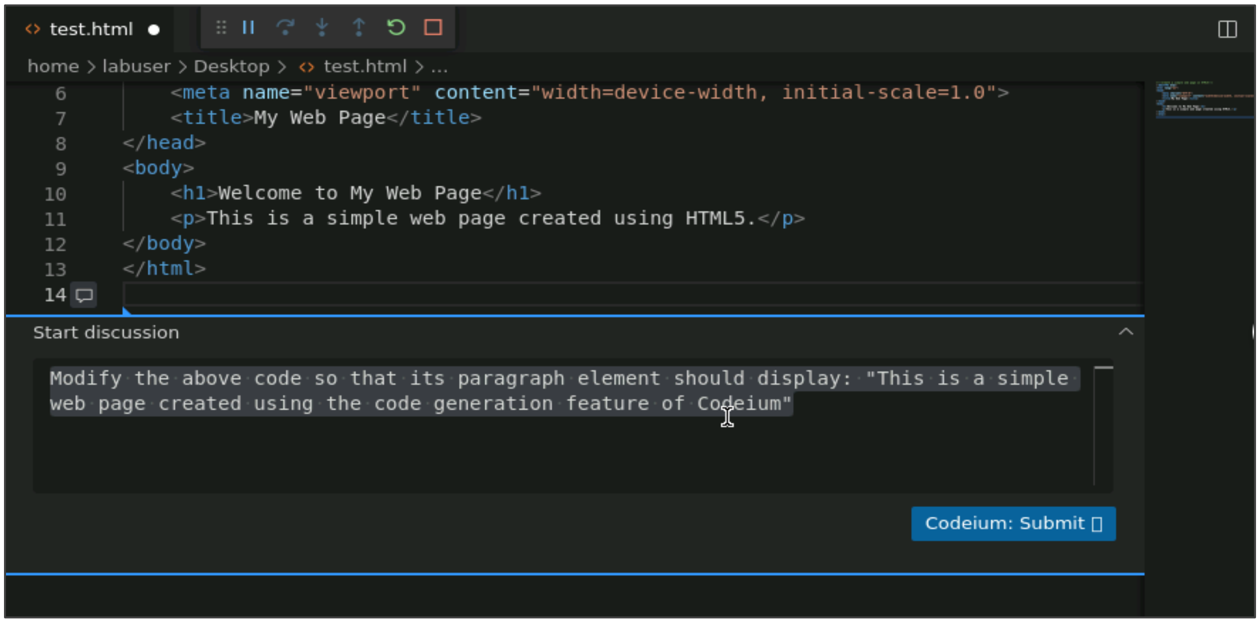
```
Create a simple web page in HTML5-->
CTYPE html>
l lang="en">
d>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>My Web Page</title>
ad>
y>
<h1>Welcome to My Web Page</h1>
<p>This is a simple web page created using HTML5.</p>
dy>
ml>
```



Welcome to My Web Page

This is a simple web page created using HTML5.

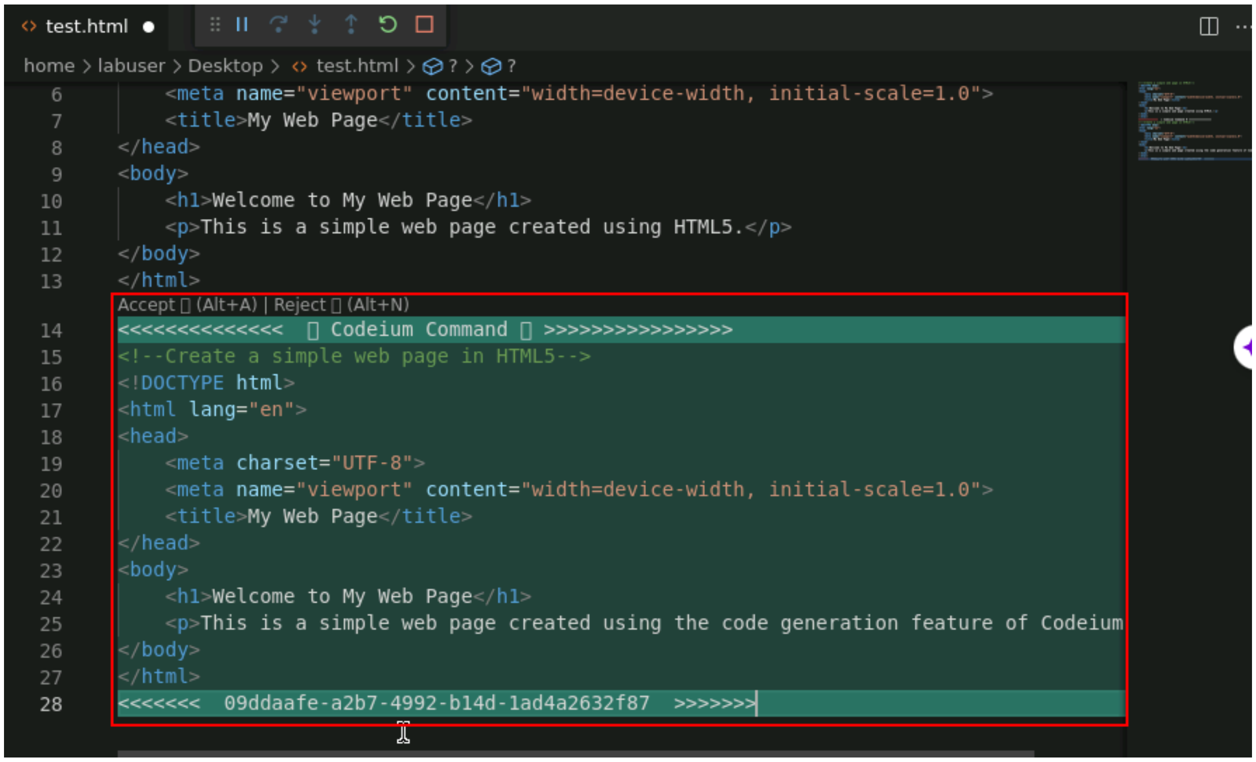
1.6 Press **Ctrl+I** and enter the following instructions to make changes to the existing code snippet:
Modify the above code so that its paragraph element should display: "This is a simple web page created using the code generation feature of Codeium"



```
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <title>My Web Page</title>
    </head>
    <body>
        <h1>Welcome to My Web Page</h1>
        <p>This is a simple web page created using HTML5.</p>
    </body>
    </html>
```

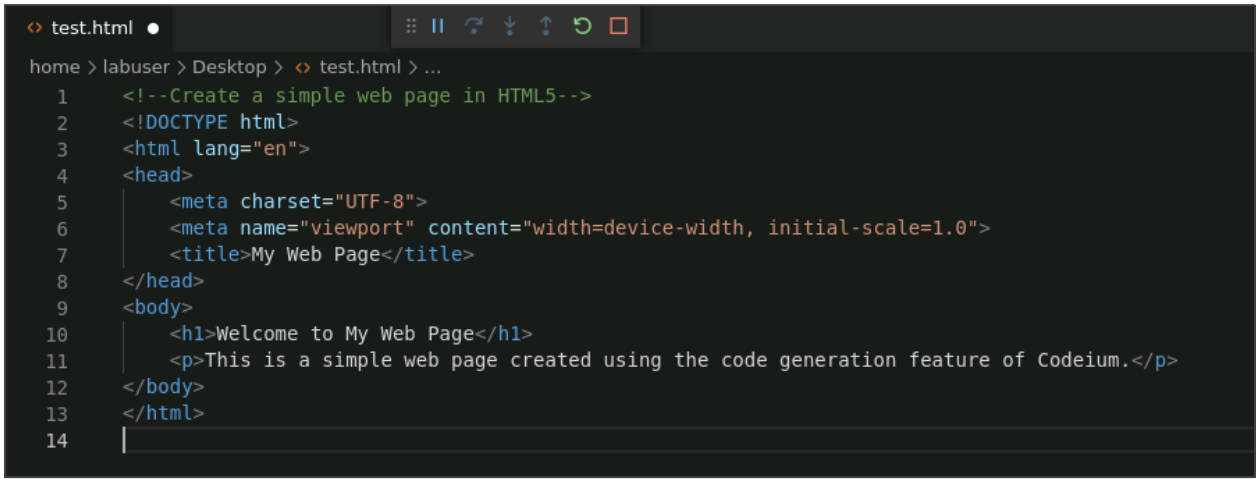
Modify the above code so that its paragraph element should display: "This is a simple web page created using the code generation feature of Codeium"

1.7 Press **Alt+A** to accept the suggested code and replace it with the existing code snippet



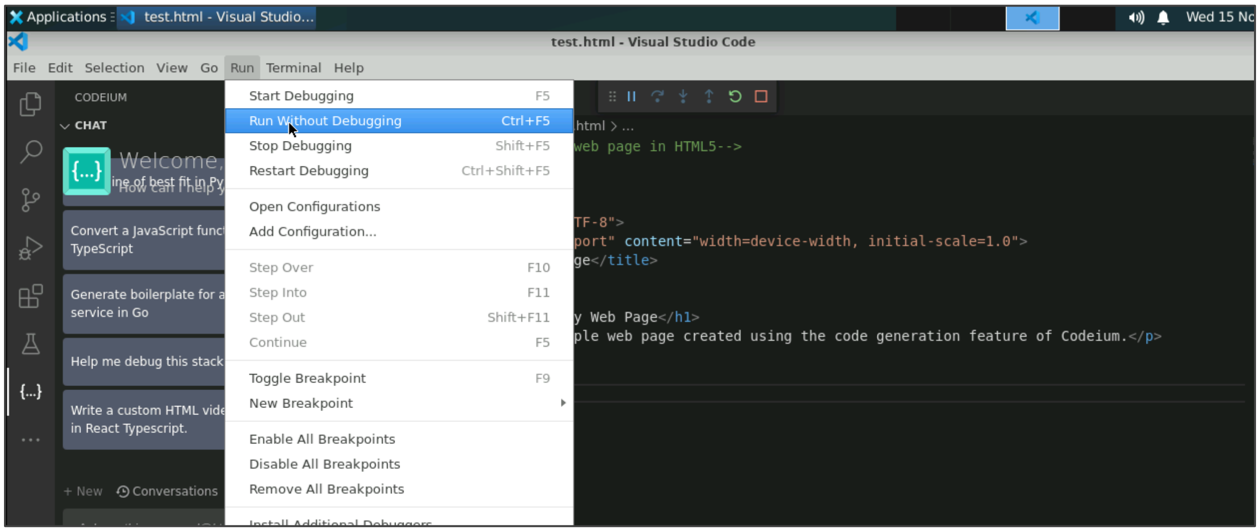
test.html
home > labuser > Desktop > test.html > ? > ?
Accept (Alt+A) | Reject (Alt+N)

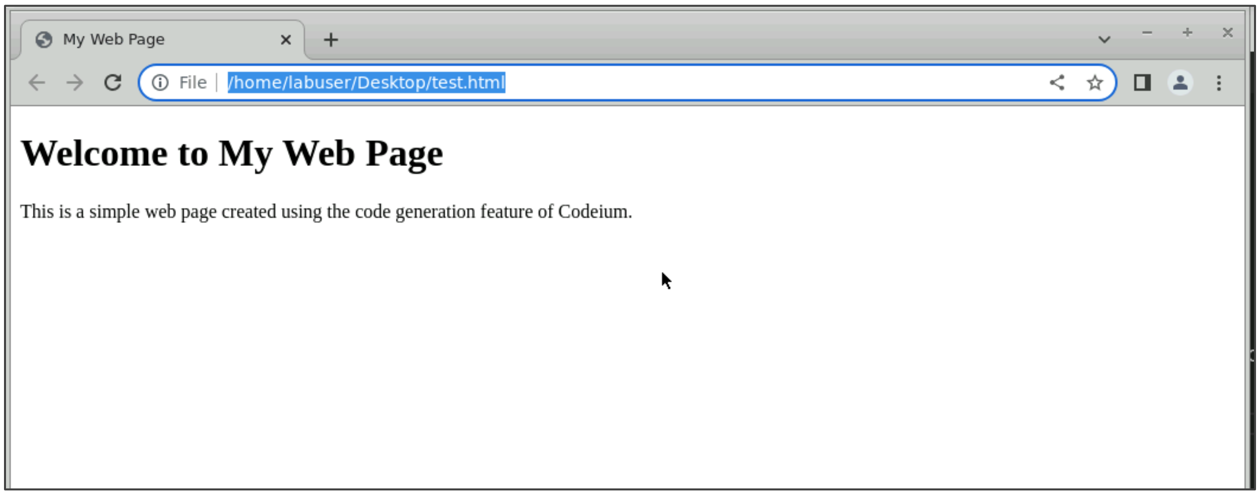
```
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <title>My Web Page</title>
    </head>
    <body>
        <h1>Welcome to My Web Page</h1>
        <p>This is a simple web page created using HTML5.</p>
    </body>
    </html>
<<<<<<<<<<<<<<<   Codeium Command   >>>>>>>>>>>>>>>>>
<!--Create a simple web page in HTML5-->
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>My Web Page</title>
</head>
<body>
    <h1>Welcome to My Web Page</h1>
    <p>This is a simple web page created using the code generation feature of Codeium
</body>
</html>
<<<<<<<  09ddaafe-a2b7-4992-b14d-1ad4a2632f87  >>>>>>>
```



```
<!--Create a simple web page in HTML5-->
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>My Web Page</title>
</head>
<body>
    <h1>Welcome to My Web Page</h1>
    <p>This is a simple web page created using the code generation feature of Codeium.</p>
</body>
</html>
```

1.8 Save and run the HTML file



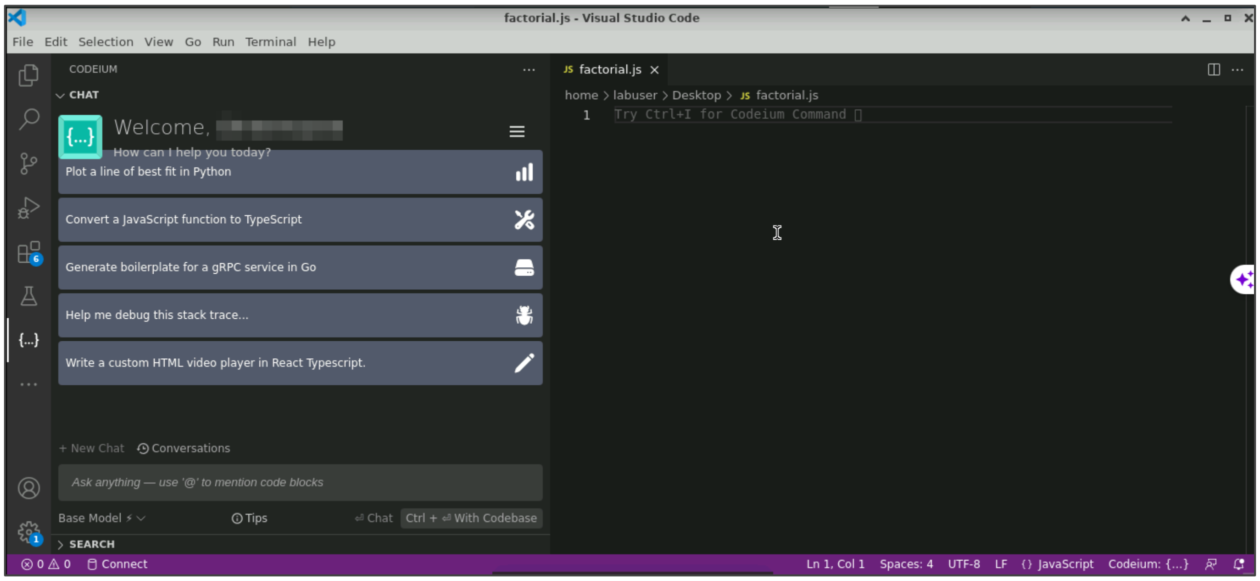


Welcome to My Web Page

This is a simple web page created using the code generation feature of Codeium.

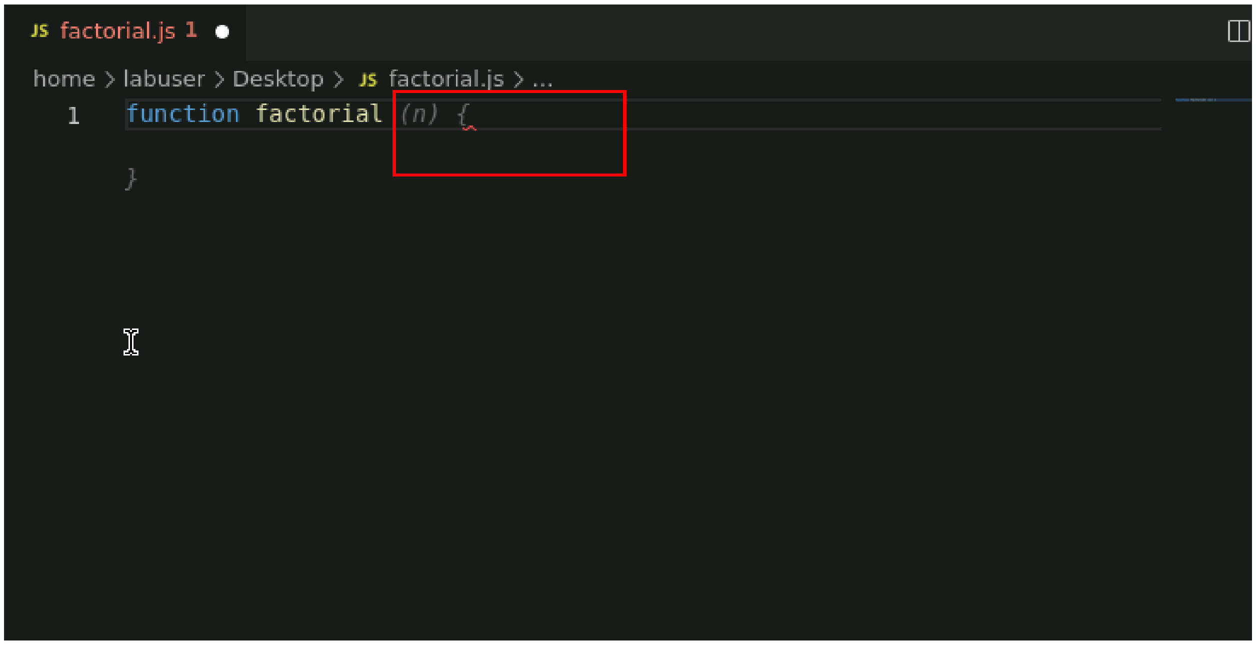
Step 2: Write a JavaScript code using the autocomplete feature

2.1 Create a file named **factorial.js**


factorial.js - Visual Studio Code
File Edit Selection View Go Run Terminal Help
CODEIUM
CHAT
Welcome, [redacted]
How can I help you today?
Plot a line of best fit in Python
Convert a JavaScript function to TypeScript
Generate boilerplate for a gRPC service in Go
Help me debug this stack trace...
Write a custom HTML video player in React Typescript.
+ New Chat
Conversations
Ask anything — use '@' to mention code blocks
Base Model
Tips
Chat
Ctrl + ⏎ With Codebase
SEARCH
factorial.js
home > labuser > Desktop > factorial.js
Connect
Ln 1, Col 1 Spaces: 4 UTF-8 LF {} JavaScript Codeium: {...}

```
Try Ctrl+I for Codeium Command
```

2.2 Define a **function factorial(n)**

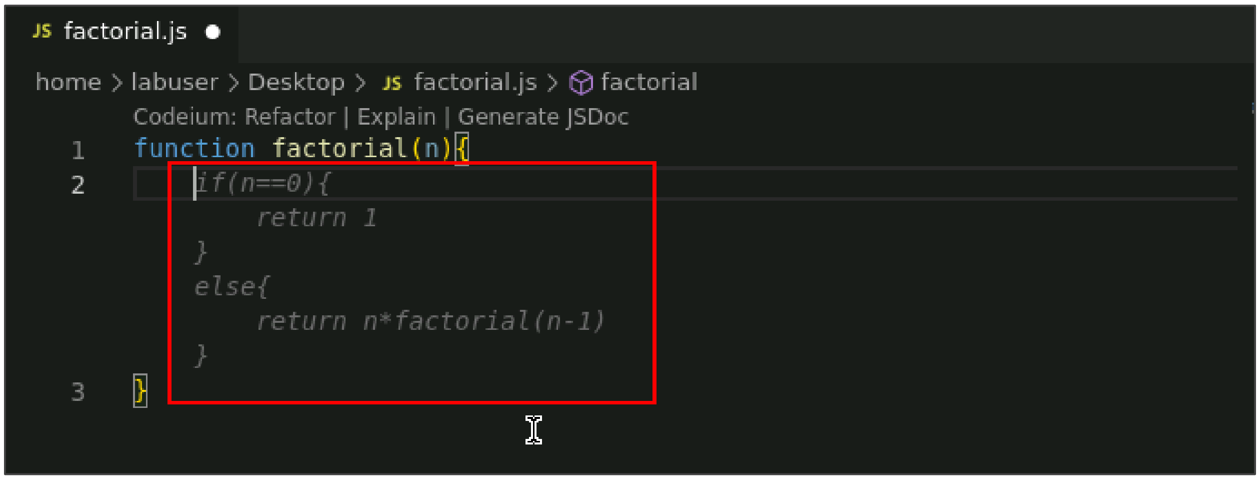


```
function factorial (n) {

}
```

You will notice that Codeium autocompletes the code statement.

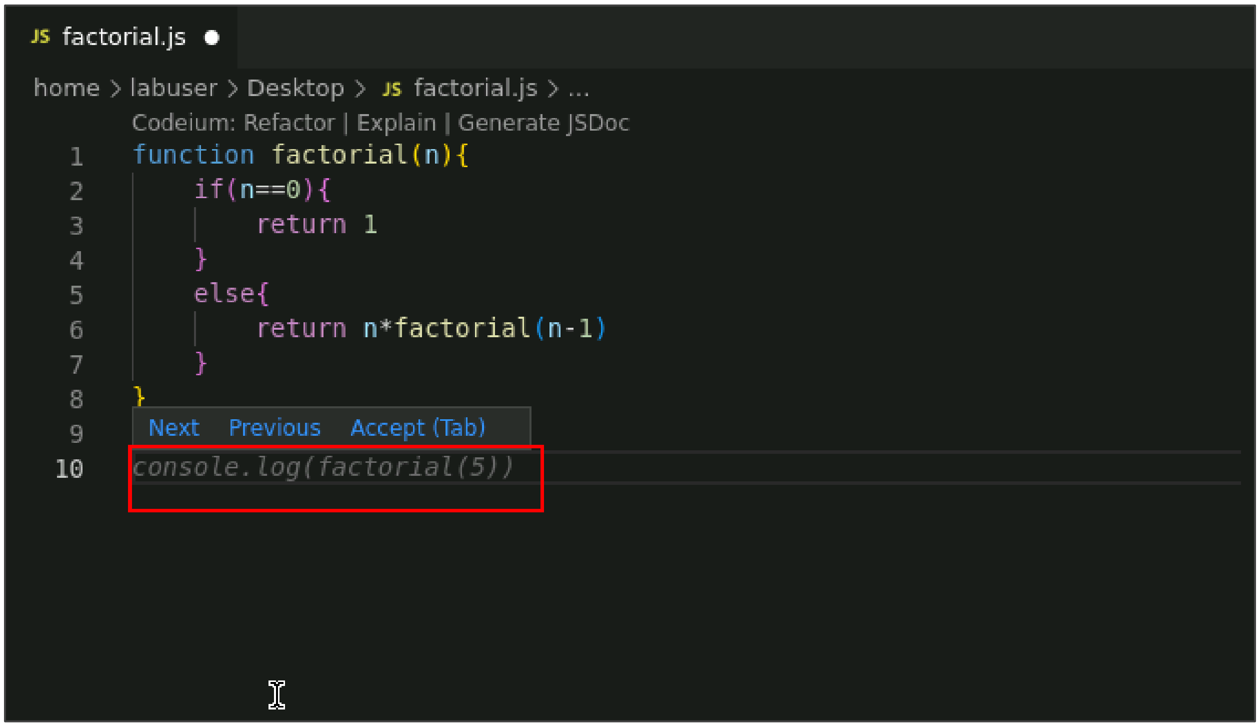
2.3 Press the **tab** key to accept the suggestion


JS factorial.js ●
home > labuser > Desktop > JS factorial.js > factorial
Codeium: Refactor | Explain | Generate JSDoc

```
function factorial(n){
    if(n==0){
        return 1
    }
    else{
        return n*factorial(n-1)
    }
}
```

As you press the **tab,** Codeium autocompletes the JavaScript code to find a factorial.

2.4 Press the **tab** to accept the suggestion

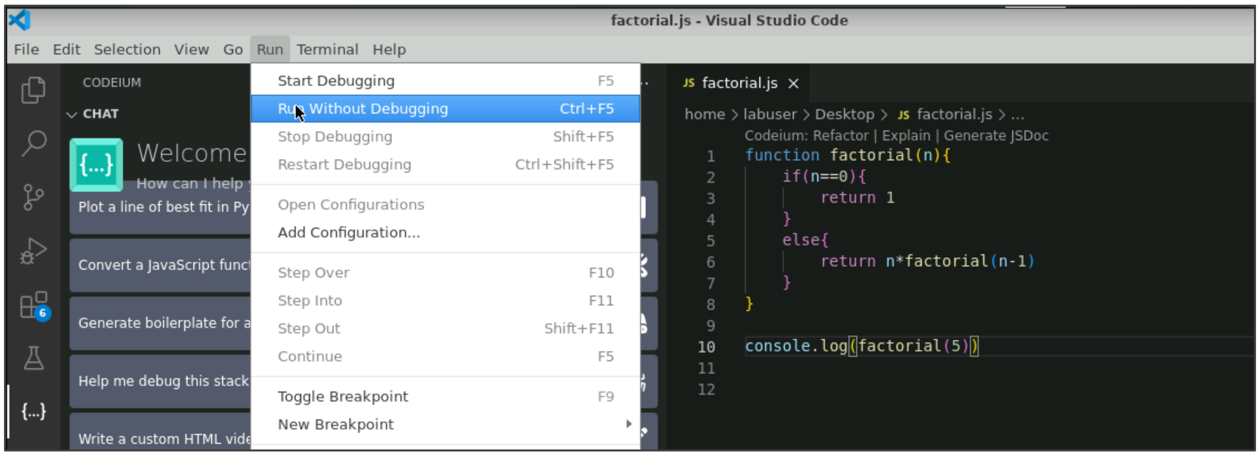

JS factorial.js ●
home > labuser > Desktop > JS factorial.js > ...
Codeium: Refactor | Explain | Generate JSDoc
Next Previous Accept (Tab)

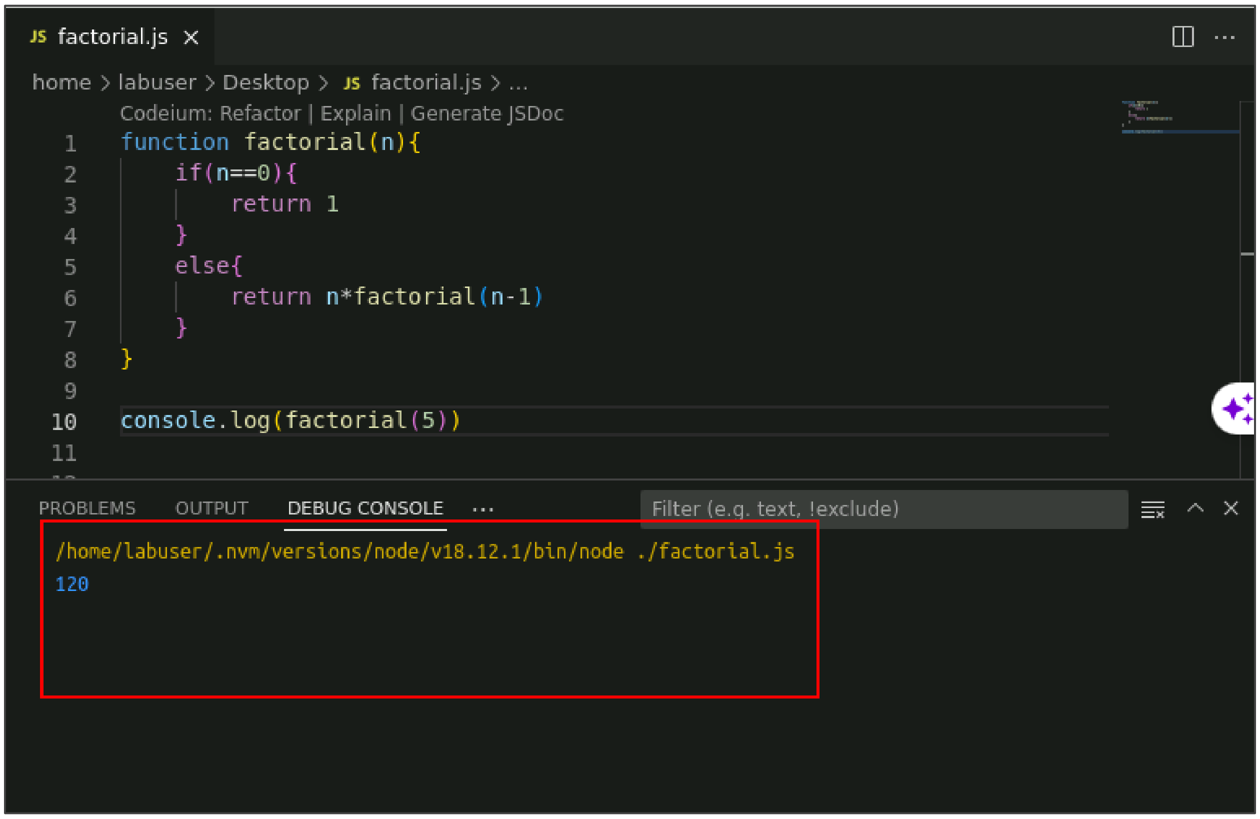
```
function factorial(n){
    if(n==0){
        return 1
    }
    else{
        return n*factorial(n-1)
    }
}

console.log(factorial(5))
```

Codeium automatically suggests the code statement to print the factorial within the console.

2.5 Save and run the code



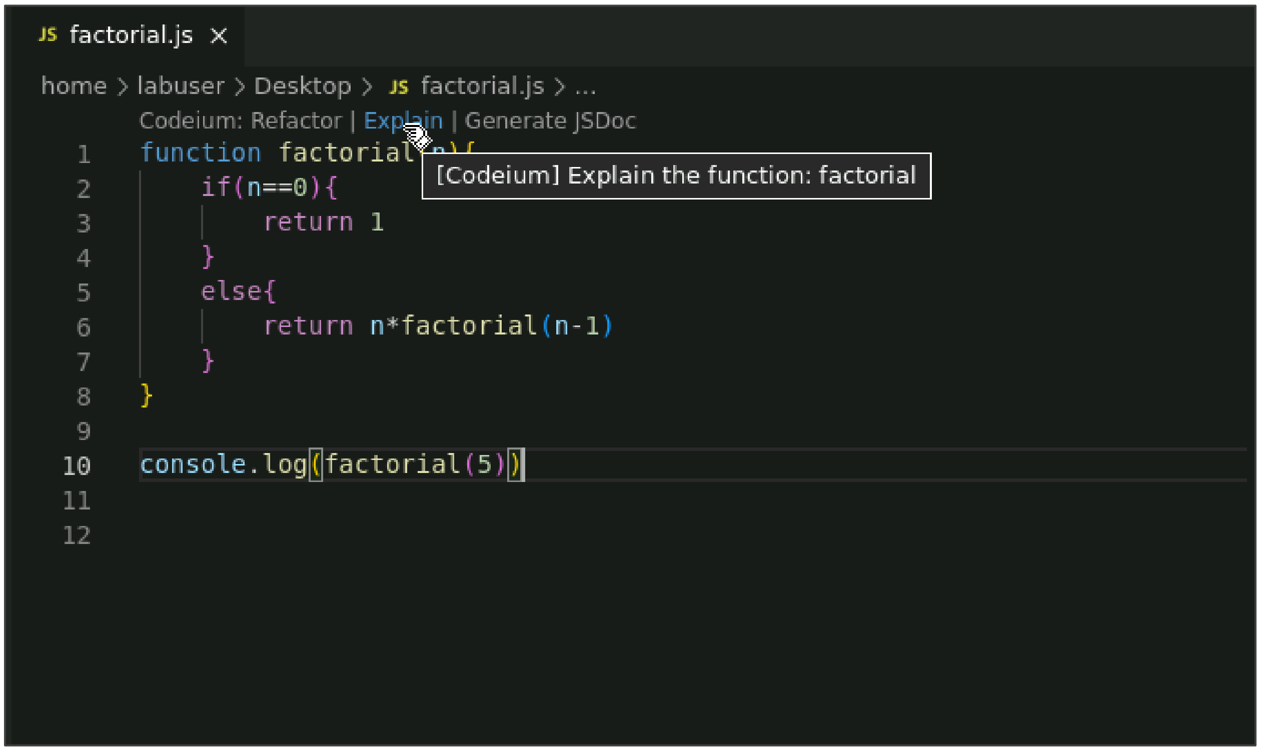


```
function factorial(n){
    if(n==0){
        return 1
    }
    else{
        return n*factorial(n-1)
    }
}

console.log(factorial(5))
```

```
/home/labuser/.nvm/versions/node/v18.12.1/bin/node ./factorial.js
120
```

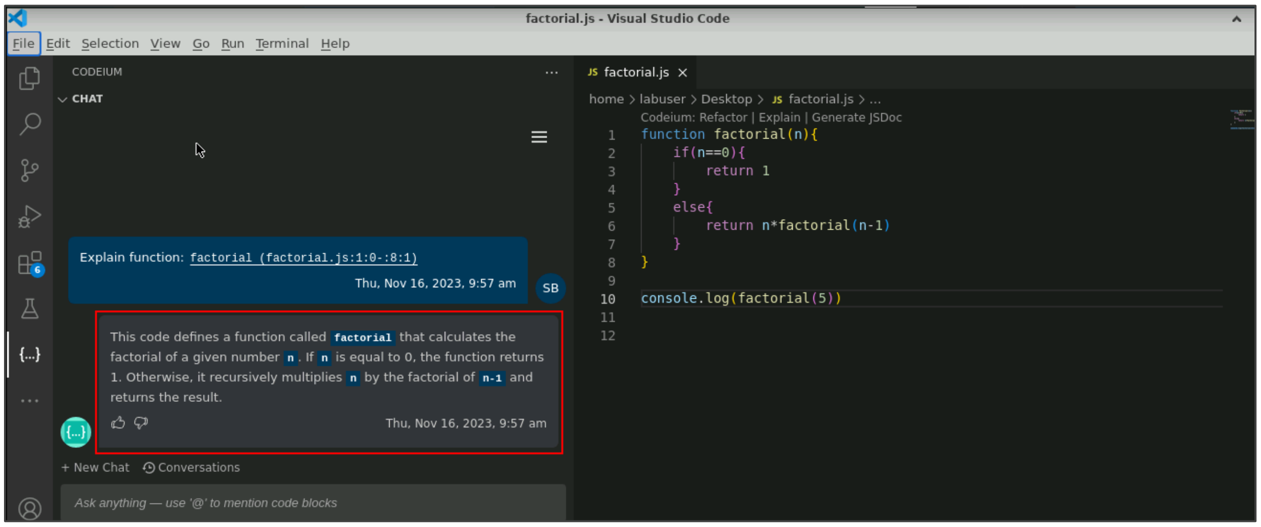
2.6 Click on the **Explain** feature of Codeium to view the code explanation



factorial.js
home > labuser > Desktop > factorial.js > ...
Codeium: Refactor | Explain | Generate JSDoc
[Codeium] Explain the function: factorial

```
function factorial(n){
    if(n==0){
        return 1
    }
    else{
        return n*factorial(n-1)
    }
}

console.log(factorial(5))
```



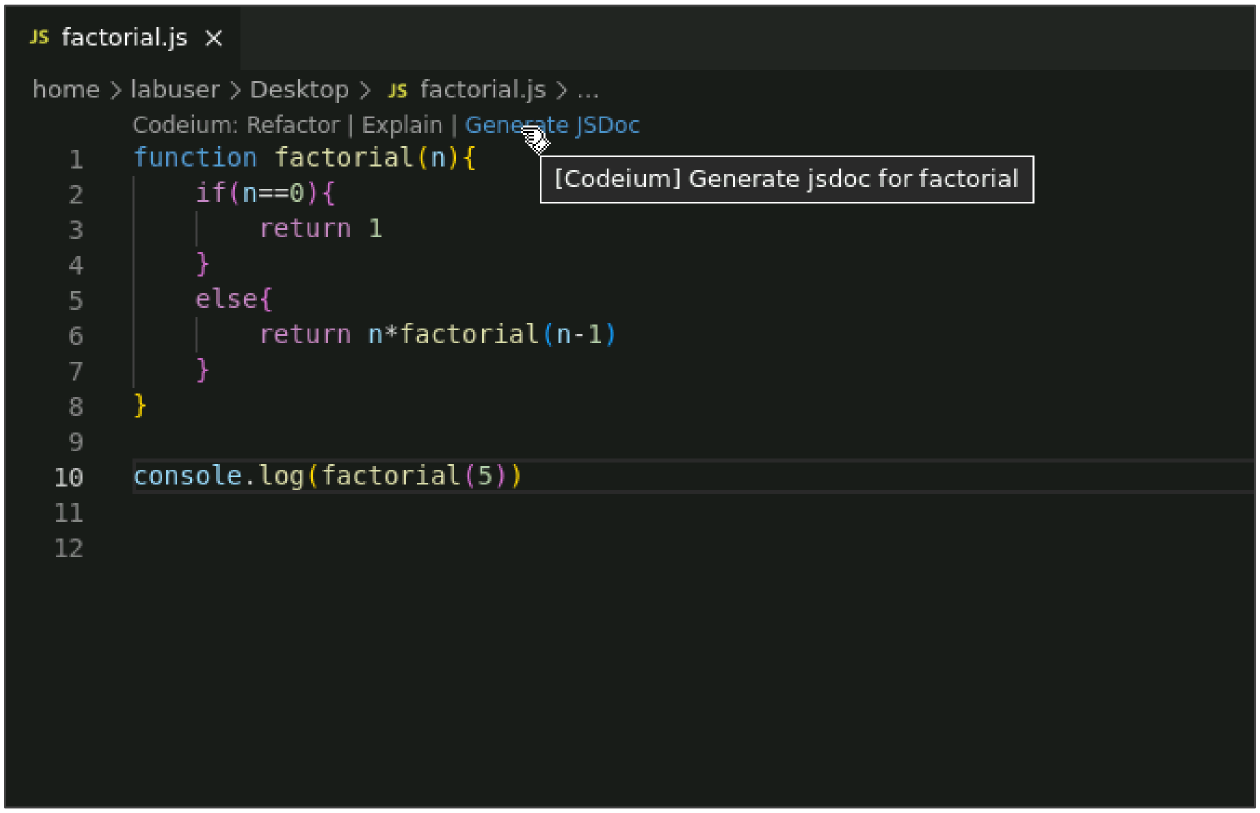
factorial.js - Visual Studio Code
File Edit Selection View Go Run Terminal Help
CODEIUM
CHAT
+ New Chat
Conversations
Ask anything — use '@' to mention code blocks

Explain function: factorial (factorial.js:1:0-:8:1)
Thu, Nov 16, 2023, 9:57 am

This code defines a function called `factorial` that calculates the factorial of a given number `n`. If `n` is equal to 0, the function returns 1. Otherwise, it recursively multiplies `n` by the factorial of `n-1` and returns the result.
Thu, Nov 16, 2023, 9:57 am

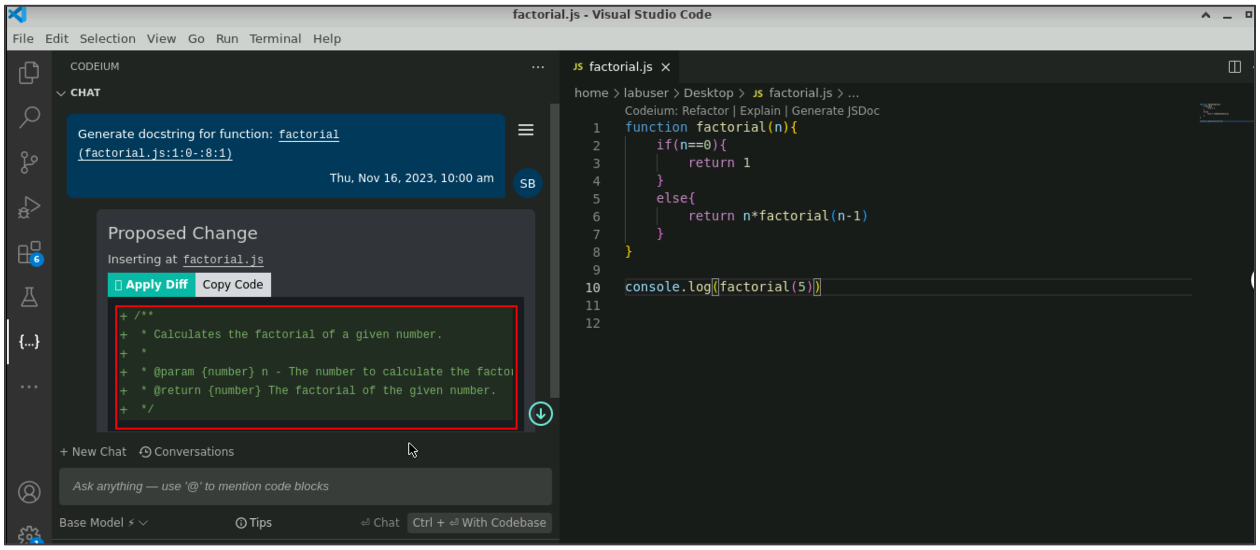
You will get a proper code explanation.

2.7 Click on **Generate JSDoc** to generate a docstring for the code


factorial.js
home > labuser > Desktop > factorial.js > ...
Codeium: Refactor | Explain | Generate JSDoc
[Codeium] Generate jsdoc for factorial

```
function factorial(n){
    if(n==0){
        return 1
    }
    else{
        return n*factorial(n-1)
    }
}

console.log(factorial(5))
```


factorial.js - Visual Studio Code
File Edit Selection View Go Run Terminal Help
CODEIUM
CHAT
SB
Proposed Change
Apply Diff
Copy Code
+ New Chat
Conversations
Ask anything — use '@' to mention code blocks
Base Model
Tips
Chat
Ctrl + ⏎ With Codebase
factorial.js
home > labuser > Desktop > factorial.js > ...
Codeium: Refactor | Explain | Generate JSDoc

Generate docstring for function: factorial (factorial.js:1:0-:8:1)

Thu, Nov 16, 2023, 10:00 am

Inserting at factorial.js

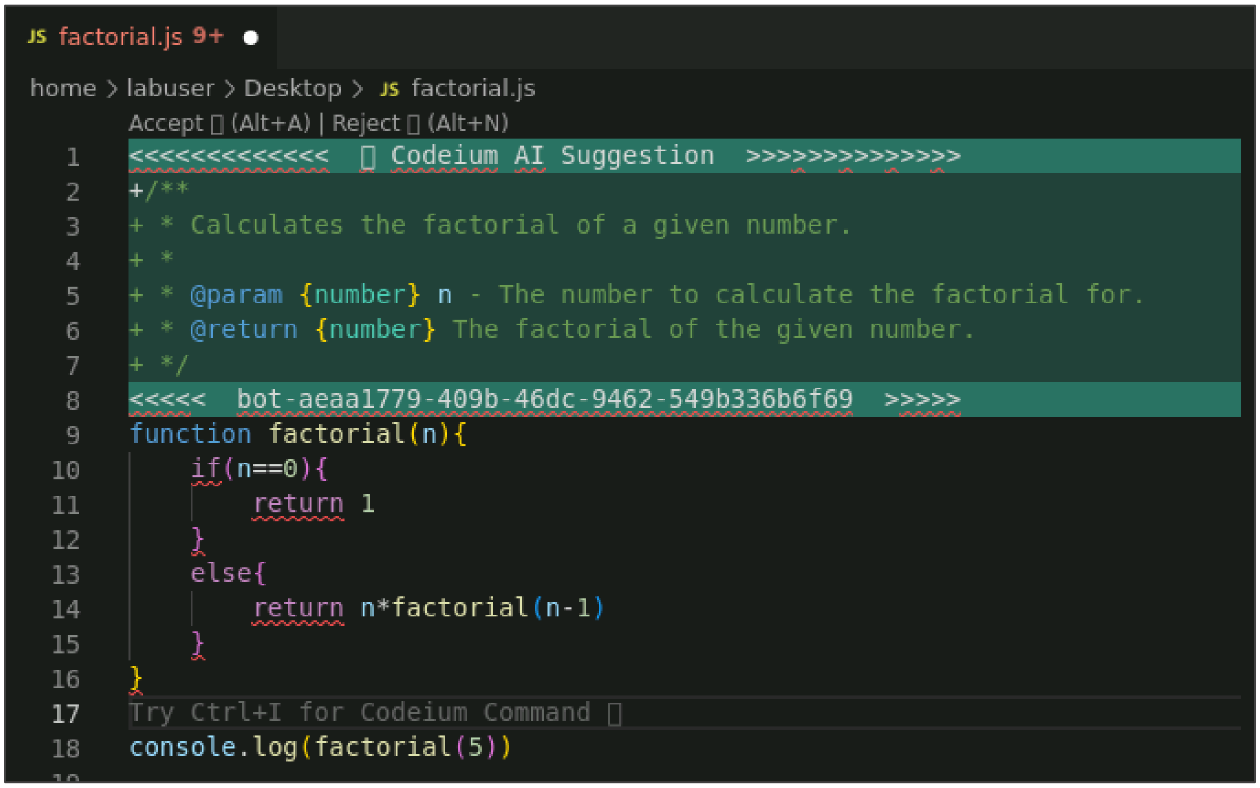
```
+ /**
+  * Calculates the factorial of a given number.
+  *
+  * @param {number} n - The number to calculate the facto
+  * @return {number} The factorial of the given number.
+  */
```

```
function factorial(n){
    if(n==0){
        return 1
    }
    else{
        return n*factorial(n-1)
    }
}

console.log(factorial(5))
```

You will get a proper docstring for the function.

2.8 Click on **Apply Diff** to apply the changes in the code

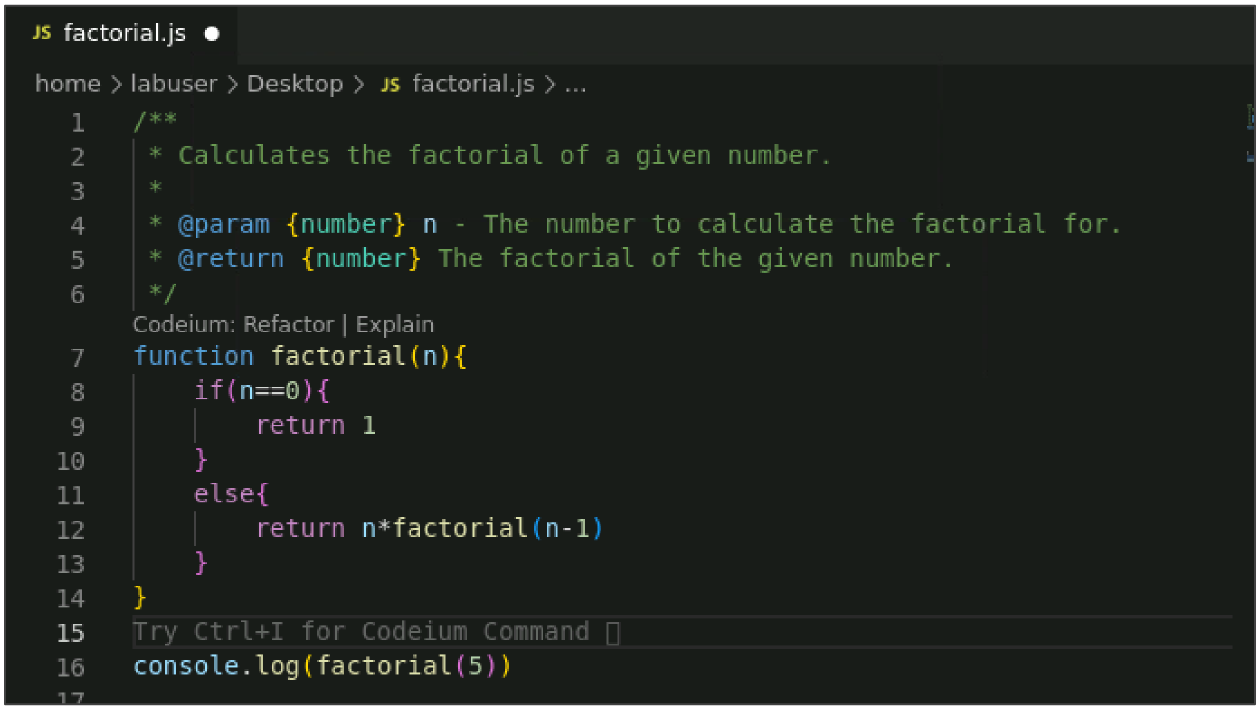


JS factorial.js 9+ ●

home > labuser > Desktop > JS factorial.js

Accept (Alt+A) | Reject (Alt+N)

```
<<<<<<<<<<<<<<   Codeium AI Suggestion   >>>>>>>>>>>>>>
+/**
+ * Calculates the factorial of a given number.
+ *
+ * @param {number} n - The number to calculate the factorial for.
+ * @return {number} The factorial of the given number.
+ */
<<<<<  bot-aeaa1779-409b-46dc-9462-549b336b6f69  >>>>>
function factorial(n){
    if(n==0){
        return 1
    }
    else{
        return n*factorial(n-1)
    }
}
Try Ctrl+I for Codeium Command
console.log(factorial(5))
```

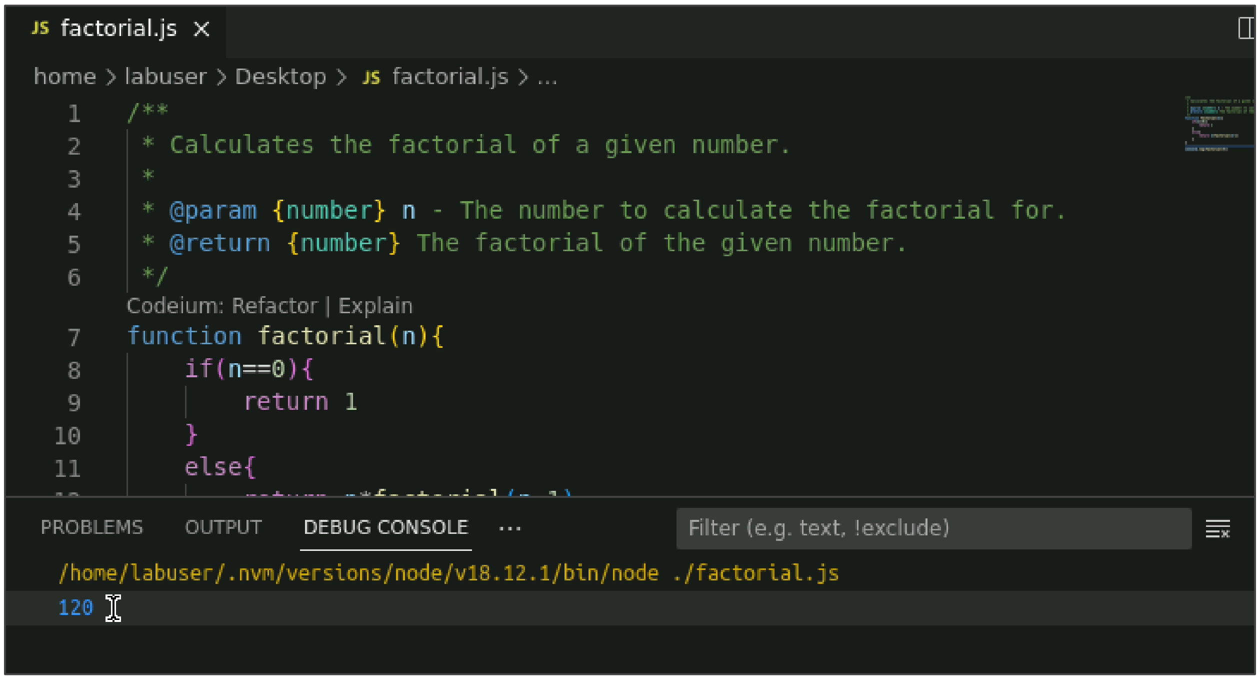


JS factorial.js ●

home > labuser > Desktop > JS factorial.js > ...

```
/**
 * Calculates the factorial of a given number.
 *
 * @param {number} n - The number to calculate the factorial for.
 * @return {number} The factorial of the given number.
 */
Codeium: Refactor | Explain
function factorial(n){
    if(n==0){
        return 1
    }
    else{
        return n*factorial(n-1)
    }
}
Try Ctrl+I for Codeium Command
console.log(factorial(5))
```

2.9 Save and run the code



factorial.js

home > labuser > Desktop > factorial.js > ...

```
/**
 * Calculates the factorial of a given number.
 *
 * @param {number} n - The number to calculate the factorial for.
 * @return {number} The factorial of the given number.
 */
Codeium: Refactor | Explain
function factorial(n){
    if(n==0){
        return 1
    }
    else{
```

PROBLEMS OUTPUT DEBUG CONSOLE ...

```
/home/labuser/.nvm/versions/node/v18.12.1/bin/node ./factorial.js
120
```

By following these steps, you have successfully demonstrated the use of Codeium by showcasing the capabilities of generating, modifying, and explaining code, as well as generating documentation for the code.