



# TRAVELPORT

**DEV TALKS -**

**create-react-app  
dressed  
with BDD**

**@ Rn**

**Toni Recio**



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# THE DEVELOPER CONTRADICTION

Don't you like testing?



**SOFTWARE DEVELOPMENT IS  
BASED ON AUTOMATING MANUAL  
AND REPETITIVE USER TASKS.**

The code is changed!



Manually test what the developer thinks he/she needs to validate

Manually test again all the application

Automatically run all tests that validate the correct behavior of the application



# **SOFTWARE DEVELOPMENT IS BASED ON AUTOMATING MANUAL AND REPETITIVE USER TASKS.**

*unless you are a developer, then it is  
better to follow manually*





# BEHAVIOR DRIVEN DEVELOPMENT

Defining expectations





**TDD is about a team agreement**



**BDD is about a customer-team agreement**





# WELCOME TO GHERKIN

The Given When Then world



# SIMPLE FEATURE FILE STRUCTURE

Feature / Background / Scenarios / Step definitions

Feature: Minesweeper

Background:

Given the player opens the game

Scenario: Uncovering a cell with a mine - Losing the game

Given the player loads the following mock data:

"""

	*		o		o	
	o		o		o	
	o		o		o	

"""

When the player uncovers the cell (1,1)

Then the player should lose the game



# LET'S DO BDD WITH REACTJS

Step by step



# STEP 1

Creating a new ReactJS application – Where is Jest?



{} package.json > ...

```
1  {
2    "name": "tp-devtalks-bdd-react",
3    "version": "0.1.0",
4    "private": true,
5    "dependencies": {
6      "@testing-library/jest-dom": "^5.16.5",
7      "@testing-library/react": "^13.4.0",
8      "@testing-library/user-event": "^13.5.0",
9      "react": "^18.2.0",
10     "react-dom": "^18.2.0",
11     "react-scripts": "5.0.1",
12     "web-vitals": "^2.1.4"
13   },
14   "scripts": {
15     "start": "react-scripts start",
16     "build": "react-scripts build",
17     "test": "react-scripts test",
18     "eject": "react-scripts eject"
19   },
```



# THE CLASSIC JEST TEST

```
Calculator.js  
function sum(a, b) {  
  return a + b;  
}  
module.exports = sum;
```

```
calculator.test.js  
const sum = require('./sum');  
test('adds 1 + 2 to equal 3', () => {  
  expect(sum(1, 2)).toBe(3);  
});
```



The image shows a screenshot of the Visual Studio Code editor interface. The top menu bar includes File, Edit, Selection, View, Go, Run, Terminal, and Help. The title bar on the right indicates the active file is 'setupTests.js - tp-devtalks-bdd-react'. The Explorer sidebar on the left shows the project structure with folders 'node\_modules', 'public', and 'src'. The 'src' folder is expanded, showing files like 'App.css', 'App.js', 'App.test.js', 'index.css', 'index.js', 'logo.svg', 'reportWebVitals.js', and 'setupTests.js', which is currently selected. The main editor area displays the content of 'setupTests.js' with the following code:

```
src > JS setupTests.js
1 // jest-dom adds custom jest matchers for asserting on DOM nodes.
2 // allows you to do things like:
3 // expect(element).toHaveTextContent(/react/i)
4 // learn more: https://github.com/testing-library/jest-dom
5 import '@testing-library/jest-dom';
6
```

← → ↻ 🏠 <https://github.com/testing-library/jest-dom>

☰ README.md

- Custom matchers
  - `toBeDisabled`
  - `toBeEnabled`
  - `toBeEmptyDOMElement`
  - `toBeInTheDocument`
  - `toBeInvalid`
  - `toBeRequired`
  - `toBeValid`
  - `toBeVisible`
  - `toContainElement`
  - `toContainHTML`
  - `toHaveAccessibleDescription`
  - `toHaveAccessibleName`

# STEP 2

Creating a new Feature file



FileEditSelectionViewGoRunTerminalHelpminesweeper.core.feature - tp-devtalks-bdd-react - Visual St

EXPLORER

OPEN EDITORS

TP-DEVTALKS-BDD-REACT

minesweeper.core.feature src\fe... M

JS minesweeper.test.js src\tests

.vscode

node\_modules

public

src

features

minesweeper.core.feature M

minesweeper.edge.feature

tests

App.css

App.js

App.test.js

index.css

index.js

logo.svg

reportWebVitals.js

setupTests.js

.gitignore

package-lock.json

package.json

README.md

varn lock

minesweeper.core.feature M X JS minesweeper.test.js

src > features > minesweeper.core.feature

1 Feature: Minesweeper

2

3 Background:

4 | Given the player opens the game

5

6 Scenario: Starting game - All the cells should be hidden

7 | Then all the cells should be covered

8

9 Scenario: Starting game - All the cells should be enabled

10 | Then all the cells should be enabled

11

12 Scenario: Uncovering a cell - Disabling the cell

13 | Given the player loads the following mock data:

14 | ""

15 | \* | o |

16 | ""

17 | When the player uncovers the cell (1,2)

18 | Then the cell (1,2) should be disabled

19

20 Scenario: Uncovering a cell with the mouse - Using mouse left click

21 | Given the player loads the following mock data:

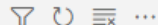
22 | ""

20





EXTENSIONS: MARKETPLACE



Extension: Cucumber (Gherkin) Full Support X

gherkin

**Cucumber (Gherkin) Full...** 65ms  
VSCode Cucumber (Gherkin) Full L...  
Alexander Krechik**Snippets and Synta...** 112K ★ 5  
Code snippets to write scenarios f...  
Euclidity **Install****Feature Syntax Highl...** 51K ★ 5  
Syntax highlight and snippets  
Roland Orosz **Install****Gherkin Indent** 40K ★ 2.5  
Gherkin Indent sets the indentatio...  
Aravind Kumar **Install****Gherkin Table Align** 4K ★ 5  
A table formatter for gherkin tables.  
Alan Cole **Install****Gherkin PDF** 1K  
Converts Gherkin (.feature) files in...  
TestEssence **Install****Gherkin Beautifier** 7K ★ 3  
Gherkin Beautifier is a multilingual...  
Siarhei Kuchuk **Install****Gherkin [PT-BR] Envolt...** 970  
Autocomplete para arquivos .feat...  
Envolt **Install****Cucumber (Gherkin) ...** 11K ★ 5  
VSCode Cucumber (Gherkin) Beha...  
marcosvfranco **Install****Gherkin Table Format...** 2K ★ 5  
dandrii **Install**

## Cucumber (Gherkin) Full Support v2.15.2

Alexander Krechik | 561,598 | ★★★★★ (20)

VSCode Cucumber (Gherkin) Full Language Support + Formatting + Autocomplete

**Disable****Uninstall**

This extension is enabled globally.

[Details](#)[Feature Contributions](#)[Changelog](#)[Runtime Status](#)

## Cucumber Full Language Support

VSCode Cucumber (Gherkin) Language Support + Format + Steps/PageObjects Autocomplete

This extension adds rich language support for the Cucumber (Gherkin) language t including:

- Syntax highlight
- Basic Snippets support
- Auto-parsing of feature steps from paths, provided in settings.json
- Autocompletion of steps
- Ontype validation for all the steps
- Definitions support for all the steps parts
- Document format support, including tables formatting
- Supporting of many spoken languages
- Gherkin page objects native support
- Multiple programming languages, JS, TS, Ruby, Kotlin etc.

Important extension goals are improving of steps suggestions list and minimization

# STEP 3

Creating a new Test file using Cucumber



# BUT WHAT IS CUCUMBER?





♥ Nuked: Probably Microwaved

Products Pricing Documentation



Search packages

yarn add jest-cucumber --dev

Search

Sign Up

Sign In

## jest-cucumber TS

3.0.1 • Public • Published 2 years ago

Readme

Explore BETA

8 Dependencies

21 Dependents

33 Versions

# Jest Cucumber

Execute Gherkin scenarios in Jest

build passing Greenkeeper Move to Snyk downloads 202k/month

```
import { loadFeature, defineFeature } from 'jest-cucumber';
import { Rocket } from '../src/rocket';

const feature = loadFeature('./specs/features/basic-scenarios.feature');

defineFeature(feature, test => {
```

yarn add jest-cucumber --dev

github.com/bencompton/jest-cucumber

Homepage

github.com/bencompton/jest-cucumbe...





File Edit Selection View Go Run Terminal Help minesweeper.test.js - tp-devtalks-bdd-react - Visual Studio Code

EXPLORER

OPEN EDITORS

TP-DEVTALKS-BDD-REACT

minesweeper.core.feature src\f... 9+

JS minesweeper.test.js src\tests M

.vscode

node\_modules

public

src

features

tests

steps

JS minesweeper.edge.test.js

JS minesweeper.test.js M

# App.css

JS App.js

JS App.test.js

minesweeper.core.feature 9+

JS minesweeper.test.js M

src > tests > JS minesweeper.test.js > ...

1 import { loadFeature, defineFeature } from 'jest-cucumber'

2

3 const featureFile = loadFeature('./src/features/minesweeper.core.feature');

4

5 defineFeature(featureFile, test => {

6

7 })

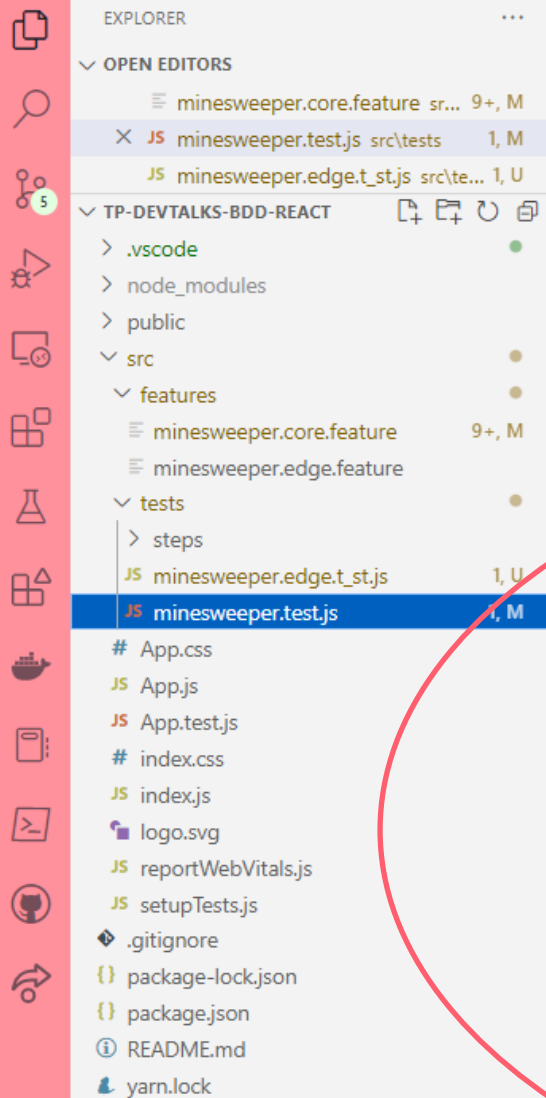
yarn test



# STEP 4

Implementing console messages suggestions





```
minesweeper.core.feature 9+, M JS minesweeper.test.js 1, M X JS minesweeper.edge.t_st.js 1, U
src > tests > JS minesweeper.test.js > defineFeature() callback
5
6 const featureFile = loadFeature('./src/features/minesweeper.core.feature');
7
8 defineFeature(featureFile, test => {
9
10
11 })
```

PROBLEMS 43 TERMINAL DEBUG CONSOLE JUPYTER

**FAIL** src/tests/minesweeper.test.js

- Test suite failed to run

Feature file has a scenario titled "Starting game - All the cells should be hidden", but no match found in

```
test('Starting game - All the cells should be hidden', ({ given, then }) => {
  given('the player opens the game', () => {
    });
  then('all the cells should be covered', () => {
    });
});
```

Feature file has a scenario titled "Starting game - All the cells should be enabled", but no match found in

```
test('Starting game - All the cells should be enabled', ({ given, then }) => {
  given('the player opens the game', () => {
    });
  then('all the cells should be enabled', () => {
    });
});
```

Feature file has a scenario titled "Uncovering a cell - Disabling the cell", but no match found in step de

File Edit Selection View Go Run Terminal Help minesweeper.test.js - tp-devtalks-bdd-react - Visual Studio Code

EXPLORER

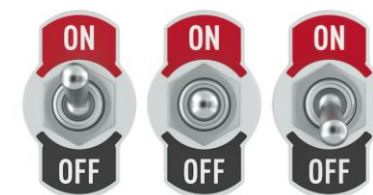
OPEN EDITORS

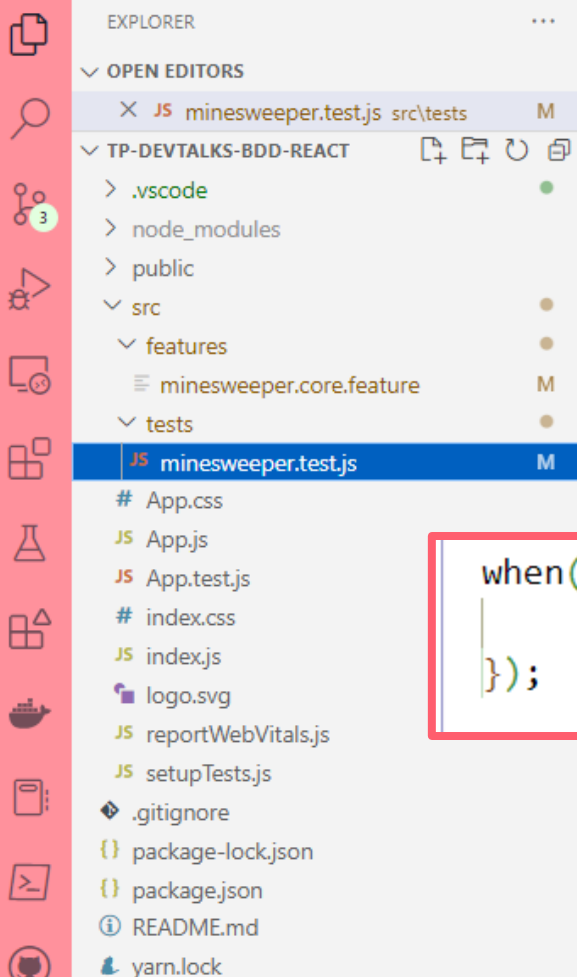
- minesweeper.core.feature src/fe... M
- JS minesweeper.test.js src/tests
- JS minesweeper.edge.test.js src/tests M

TP-DEVTALKS-BDD-REACT

- .vscode
- node\_modules
- public
- src
  - features
    - minesweeper.core.feature M
    - minesweeper.edge.feature
  - tests
    - steps
    - JS minesweeper.edge.test.js M
    - JS minesweeper.test.js
- App.css
- App.js
- App.test.js

```
3 import { loadFeature, defineFeature } from 'jest-cucumber'
4 import * as steps from './steps/minesweeper.steps.js'
5
6 const featureFile = loadFeature('./src/features/minesweeper.core.feature', {
7   errors: {
8     missingScenarioInStepDefinitions: false, // Error when a scenario is in the feature file, but not in the step definition
9     missingStepInStepDefinitions: false, // Error when a step is in the feature file, but not in the step definitions
10    missingScenarioInFeature: false, // Error when a scenario is in the step definitions, but not in the feature
11    missingStepInFeature: false, // Error when a step is in the step definitions, but not in the feature
12  }
13 });
14
15 defineFeature(featureFile, test => {
16   test('Starting game - All the cells should be hidden', ({ given, then }) => {
17     given('the player opens the game', () => {
18       steps.openTheGame()
```





JS minesweeper.test.js M X

src &gt; tests &gt; JS minesweeper.test.js &gt; defineFeature() callback &gt; test('Starting game - All the cells should be hidden') callback

```
3 import { loadFeature, defineFeature } from 'jest-cucumber'
4
5 const featureFile = loadFeature('./src/features/minesweeper.core.feature', {
6   errors: {
7     missingScenarioInStepDefinitions: false, // Error when a scenario is in the feature file, but not
8     missingStepInStepDefinitions: false, // Error when a step is in the feature file, but not in the
9     missingScenarioInFeature: false, // Error when a scenario is in the step definitions, but not in
10    missingStepInFeature: false, // Error when a step is in the step definitions, but not in the fea
11  }
12 });
```

```
when(/^the player uncovers the cell \((\d+),(\d+)\)$/ , (arg0, arg1) => {
  // ...
});
```

```
18   });
19
20   then('all the cells should be covered', () => {
21     // ...
22   });
23 });
24
25 test('Starting game - All the cells should be enabled', ({ given, then }) => {
26   given('the player opens the game', () => {
27     // ...
28   });
29
30   then('all the cells should be enabled', () => {
31     // ...
32   });
33 });
```





EXPLORER



OPEN EDITORS



X JS minesweeper.test.js src\tests M

TP-DEVTALKS-BDD-REACT



&gt; .vscode

&gt; node\_modules

&gt; public

src

features

minesweeper.core.feature M

tests

JS minesweeper.test.js M

# App.css

JS App.js

JS App.test.js

# index.css

JS index.js

logo.svg

JS reportWebVitals.js

JS setupTests.js

.gitignore

{ } package-lock.json

{ } package.json

i README.md

yarn.lock

JS minesweeper.test.js M X

src &gt; tests &gt; JS minesweeper.test.js &gt; defineFeature() callback &gt; test('Starting game - All the cells should be hidden') callback

```
3 import { loadFeature, defineFeature } from 'jest-cucumber'
4
5 const featureFile = loadFeature('./src/features/minesweeper.core.feature', {
6   errors: {
7     missingScenarioInStepDefinitions: false, // Error when a scenario is in the feature file, but not
8     missingStepInStepDefinitions: false, // Error when a step is in the feature file, but not in the s
9     missingScenarioInFeature: false, // Error when a scenario is in the step definitions, but not in t
10    missingStepInFeature: false, // Error when a step is in the step definitions, but not in the featu
11  }
12 });
13
14 defineFeature(featureFile, test => {
15   test('Starting game - All the cells should be hidden', ({ given, then }) => {
16     given('the player opens the game'. () => {
```

PROBLEMS

TERMINAL

DEBUG CONSOLE

JUPYTER

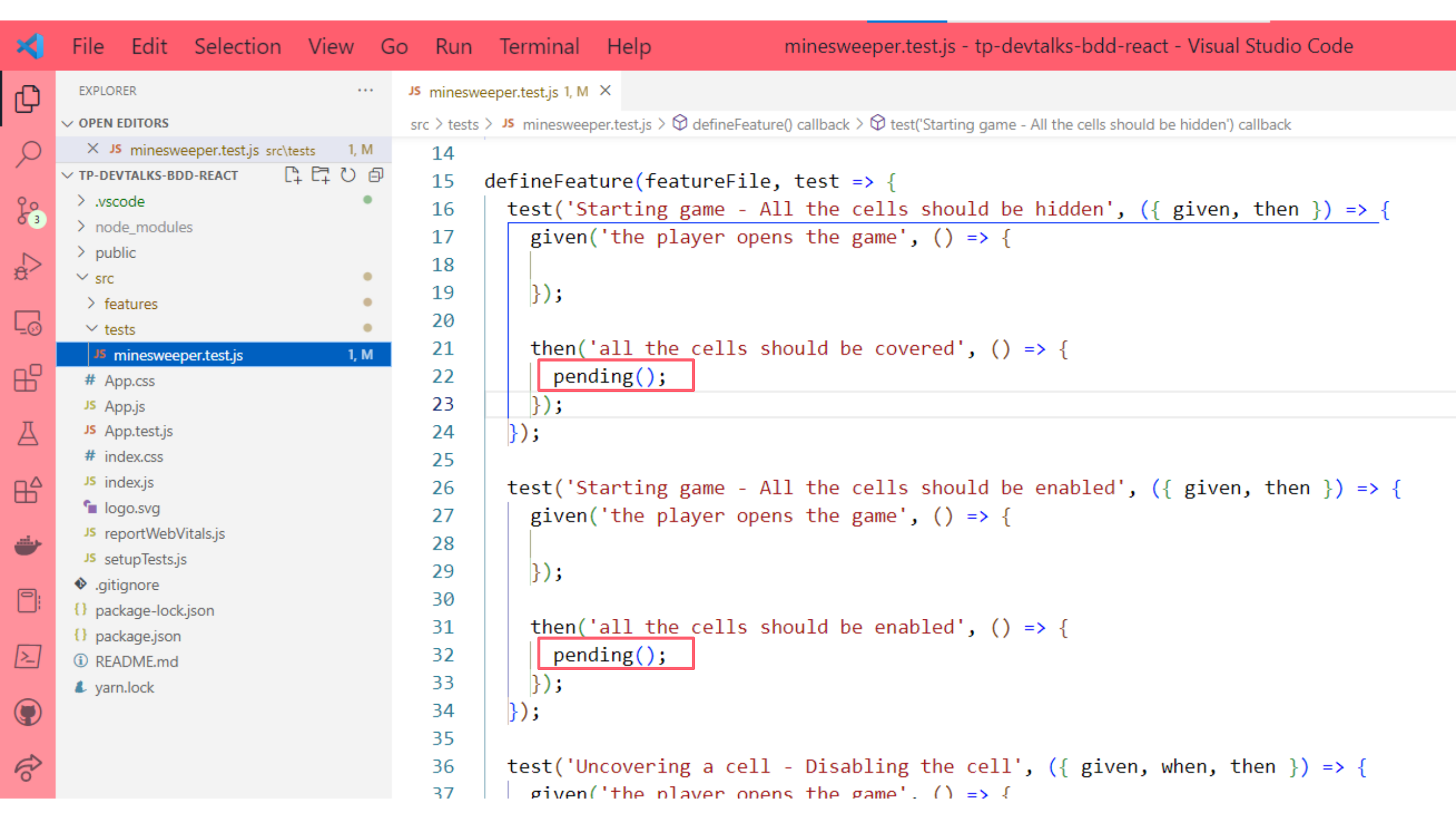
Test Suites: 1 passed, 1 total

Tests: 25 passed, 25 total

Snapshots: 0 total

Time: 2.078 s

Ran all test suites related to changed files.



FileEditSelectionViewGoRunTerminalHelpminesweeper.test.js - tp-devtalks-bdd-react - Vi

EXPLORER

OPEN EDITORS

TP-DEVTALKS-BDD-REACT

src

tests

JS minesweeper.test.js

# App.css

JS App.js

JS App.test.js

# index.css

JS index.js

logo.svg

JS reportWebVitals.js

JS setupTests.js

.gitignore

package-lock.json

package.json

README.md

yarn.lock

JS minesweeper.test.js 9+, M

src > tests > JS minesweeper.test.js > defineFeature() callback > test('Starting game - All the cells should be ena

5 const featureFile = loadFeature('./src/features/minesweeper.cor

12 });

13

14 defineFeature(featureFile, test => {

15 test('Starting game - All the cells should be hidden', ({ giv

16 given('the player opens the game', () => {

17

18 });

PASS src/App.test.js

Test Suites: 1 skipped, 1 passed, 1 of 2 total

Tests: 25 skipped, 1 passed, 26 total

Snapshots: 0 total

Time: 3.045 s

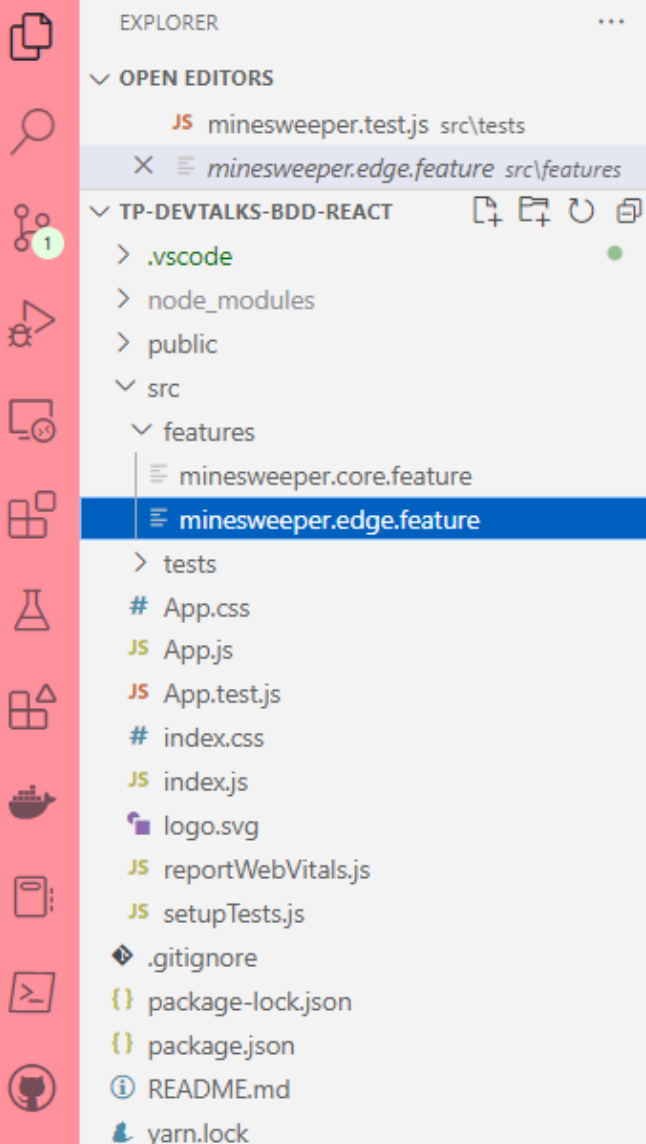
Ran all test suites.

Watch Usage: Press w to show more.

# STEP 5

Creating a second feature file





JS minesweeper.test.js

minesweeper.edge.feature X

src &gt; features &gt; minesweeper.edge.feature

```
1 Feature: Minesweeper - Edge cases specifics
2
3 Background:
4   Given the player opens the game
5
6 Scenario: Tagging as mined a revealed cell - No tagging allowed
7   Given the player loads the following mock data:
8     """
9     | * | o |
10    | o | o |
11    """
12   And the player uncovers the cell (2,2)
13   When the player tags as "mined" the cell (2,2)
14   Then the cell (2,2) should show: 1
15
16 Scenario: Tagging as mined a disabled cell - No tagging allowed
17   Given the player loads the following mock data:
18     """
19     | * | o |
20     | o | o |
21     """
22   And the player uncovers the cell (1,1)
23   When the player tags as "mined" the cell (1,2)
24   Then the cell (1,2) should not show: mined
25
26 Scenario: Tagging as uncertain a revealed cell - No tagging allowed
```

FileEditSelectionViewGoRunTerminalHelpminesweeper.edge.test.js - tp-devtalks-bdd-react - Visual Studio Code

EXPLORER

OPEN EDITORS

TP-DEVTALKS-BDD-REACT

src > tests > JS minesweeper.edge.test.js > ...

JS minesweeper.test.js src\tests

JS minesweeper.edge.test.js src\tests M

JS minesweeper.test.js

JS minesweeper.edge.test.js M

App.css

App.js

App.test.js

index.css

index.js

logo.svg

reportWebVitals.js

setupTests.js

.gitignore

package-lock.json

package.json

README.md

yarn.lock

4

5const featureFile = loadFeature('./src/features/minesweeper.edge.feature');

6

7defineFeature(featureFile, test => {

8

9test('Tagging as mined a revealed cell - No tagging allowed', ({ given, and, when, then })

10given('the player opens the game', () => {

11

12});

13

14given('the player loads the following mock data:', (docString) => {

15

16});

17

18and(/^the player uncovers the cell \((\d+),(\d+)\)\$/ , (arg0, arg1) => {

19

20});

21

22when(/^the player tags as "(.\*)" the cell \((\d+),(\d+)\)\$/ , (arg0, arg1, arg2) => {

23

24});

25

26then(/^the cell \((\d+),(\d+)\)\$/ should show: (\d+)\\$/ , (arg0, arg1, arg2) => {

27pending();



TESTING

Filter (e.g. text, !exclude, @tag) 🔍

0/0 tests passed (0.00%)

- ✓ tp-devtalks-bdd-react (auto-run-watch)
  - ✓ src
    - > ✓ App.test.js
    - ✓ tests
      - ✓ minesweeper.edge.test.js
        - ✓ Minesweeper - Edge cases specifics
          - 🔄 Detecting the absence of mines - C
          - 🔄 Detecting the absence of mines - V
          - 🔄 Tagging a cell as uncertain - Left m
          - 🔄 Tagging as mined a disabled cell - l
          - 🔄 Tagging as mined a revealed cell - l
          - 🔄 Tagging as uncertain a disabled cel
          - 🔄 Tagging as uncertain a revealed cel
          - 🔄 Untagging an uncertain cell - Left r
  - ✓ minesweeper.test.js
    - ✓ Minesweeper
      - 🔄 Discovering all the cells without mi
      - 🔄 Finishing game, disabling all the ce
      - 🔄 Starting game - All the cells should
      - 🔄 Starting game - All the cells should
      - 🔄 Suspecting that a cell is hiding a m
      - 🔄 Tagging a cell as mined using the n
      - 🔄 Uncovering a cell - Disabling the ce
      - 🔄 Uncovering a cell with a mine - Los
      - 🔄 Uncovering a cell with a mine - Shc
      - 🔄 Uncovering a cell with no mine - Di
      - 🔄 Uncovering a cell with no mine or r
      - 🔄 Uncovering a cell with the mouse -
      - 🔄 Uncovering an empty cell - Uncove
      - 🔄 Untagging a mined cell using the n
      - 🔄 Untagging the mined tag - Removi

```

JS minesweeper.test.js x JS minesweeper.edge.test.js
src > tests > JS minesweeper.test.js > defineFeature() callback > test('Starting game - All the cells should be enabled') callback > then('all
15 defineFeature(featureFile, test => {
    Debug
26 test('Starting game - All the cells should be enabled', ({ given, then }) =>
27   given('the player opens the game', () => {
28   }
29   });
30
31   then('all the cells should be enabled', () => {
32     pending();
33   });
34 });
35
36   Debug
37 test('Uncovering a cell - Disabling the cell', ({ given, when, then }) => {
38   given('the player opens the game', () => {
39   }
40   });
41   given('the player loads the following mock data:', (docString) => {

```

**PASS** src/App.test.js

**Test Suites:** 2 skipped, 1 passed, 1 of 3 total

**Tests:** 23 skipped, 1 passed, 24 total

**Snapshots:** 0 total

**Time:** 2.245 s

Ran all test suites.

Watch Usage: Press w to show more.



# STEP 6

Steps definitions implementation



EXPLORER

OPEN EDITORS

- JS minesweeper.test.js src\tests
- JS minesweeper.steps.js src\tests\steps 1
- JS minesweeper.edge.test.js src\tests

TP-DEVTALKS-BDD-REACT

- .vscode
  - settings.json
- node\_modules
- public
- src
  - features
  - tests
    - steps
      - JS minesweeper.steps.js 1
  - minesweeper.edge.test.js
  - minesweeper.test.js
- # App.css
- JS App.js
- JS App.test.js
- # index.css
- JS index.js
- logo.svg
- JS reportWebVitals.js
- JS setupTests.js
- .gitignore
- package-lock.json
- package.json
- README.md
- yarn.lock

```
src > tests > steps > JS minesweeper.steps.js > rightClickOnCell
1 import { render, screen, fireEvent } from '@testing-library/react' 'rende
2 import userEvent from '@testing-library/user-event'
3 // import Game from '../components/Game'
4
5 export const openTheGame = () => {
6   // render(<Game />)
7 }
8
9 export const loadMockData = (mockData) => {
10   // TODO
11 }
12
13 export const leftClickOnCell = (row, col) => {
14   userEvent.click(screen.getByTestId('cell-row' + row + '-col' + col))
15 }
16
17 export const rightClickOnCell = (row, col) => {
18   fireEvent.contextMenu(screen.getByTestId('cell-row' + row + '-col' + col))
19 }
20
21 export const tagCell = (row, col, tag) => {
22   // TODO
23 }
24
25 export const isGameOver = () => {
26   return screen.getByTestId('game-status').textContent === 'Game Over'
27 }
28
29 export const isGameWon = () => {
```

File Edit Selection View Go Run Terminal Helpmineswe

EXPLORER

OPEN EDITORS

JS minesweeper.test.js src\tests

JS minesweeper.steps.js src\tests\steps 1

JS minesweeper.edge.test.js src\tests

TP-DEVTALKS-BDD-REACT

.vscode

settings.json

node\_modules

public

src

features

tests

steps

JS minesweeper.steps.js 1

JS minesweeper.edge.test.js

JS minesweeper.test.js

# App.css

JS App.js

JS App.test.js

# index.css

JS index.js

logo.svg

reportWebVitals.js

setupTests.js

.gitignore

JS minesweeper.test.js

JS minesweeper.steps.js 1

JS minesweeper.test.js

src > tests > JS minesweeper.test.js > defineFeature() callback

6 const featureFile = loadFeature(  
/ errors: {  
12 }  
13 });  
14  
15 defineFeature(featureFile, test => {  
Debug  
16 test('Starting game - All the  
17 given('the player opens the  
18 steps.openTheGame()  
19 });  
20  
21 then('all the cells should be  
22 pending();  
23 });  
24 });  
25  
Debug  
26 test('Starting game - All the  
27 given('the player opens the  
28  
29  
30

File Edit Selection View Go Run Terminal Helpminesweeper.edge

EXPLORER

OPEN EDITORS

JS minesweeper.test.js src\tests

JS minesweeper.steps.js src\tests\steps 1

JS minesweeper.edge.test.js src\tests

TP-DEVTALKS-BDD-REACT

.vscode

settings.json

node\_modules

public

src

features

tests

steps

JS minesweeper.steps.js 1

JS minesweeper.edge.test.js

JS minesweeper.test.js

# App.css

JS App.js

JS App.test.js

# index.css

JS index.js

logo.svg

reportWebVitals.js

setupTests.js

.gitignore

package-lock.json

JS minesweeper.test.js

JS minesweeper.steps.js 1

JS minesweeper.test.js

src > tests > JS minesweeper.edge.test.js > defineFeature() callback >

1 /\* eslint-disable no-undef \*/  
2 /\* eslint-disable jest/no-jasmine-globa  
3 import { loadFeature, defineFeature } from 'jest-defineFeature';  
4 import \* as steps from './steps/minesweeper.steps';  
5  
6 const featureFile = loadFeature('./src/  
7  
8 defineFeature(featureFile, test => {  
9  
Debug  
10 test('Tagging as mined a revealed cell  
11 given('the player opens the game',  
12 steps.openTheGame()  
13 });  
14  
15 given('the player loads the followi  
16  
17 });  
18  
19 and(/^the player uncovers the cell  
20  
21 });  
22

```
steps.openTheGame()  
steps.tagCell(row, col, tag)  
steps.loadMockData(mockData)  
steps.leftClickOnCell(row, col)  
steps.righClickOnCell(row, col)  
steps.tagCell(row, col, tag)  
steps.isUncovered(row, col)  
steps.isGameOver()  
steps.isGameWon()  
steps.areAllCellsCovered()  
steps.areAllCellsEnabled()  
steps.getLeftMinesCounter()  
steps.getCellContent(row, col)  
steps.isMineFieldLookLike(expectedMineFieldStatus))
```

14

**Steps definitions  
implementations**

Then all the cells should be covered  
 Then all the cells should be enabled  
 Given the player loads the following mock data:  
 When the player uncovers the cell (1,2)  
 Then the cell (1,2) should be disabled  
 Given the player loads the following mock data:  
 When the player left clicks on the cell (1,2)  
 Then the cell (1,2) should be disabled  
 Given the player loads the following mock data:  
 When the player uncovers the cell (1,1)  
 Then the player should lose the game  
 Given the player loads the following mock data:  
 When the player uncovers the cell (1,1)  
 Then the cell (1,1) should show: a highlighted mine  
 Given the player loads the following mock data:  
 <boardData>  
 When the player uncovers the cell (2,2)  
 Then the cell (2,2) should show: <number>  
 Given the player loads the following mock data:  
 When the player uncovers the cell (<row>,<column>)  
 Then the cell (2,2) should show: empty  
 Given the player loads the following mock data:  
 When the player uncovers the cell (2,2)  
 Then the minefield should look like this:  
 When the player tags as "mined" the cell (1,1)  
 Then the cell (1,1) should show: mined  
 Given When the player tags as "mined" the cell (1,1)  
 When the player untags the cell (1,1)  
 Then the cell (1,1) should not show: mined  
 When the player right clicks on the cell (1,1)  
 Then the cell (1,1) should show: mined  
 Given the player tags as "mined" the cell (1,1)  
 When the player right clicks on the cell (1,1)  
 And the player right clicks on the cell (1,1)  
 Then the cell (1,1) should not show: mined  
 Given the player loads the following mock data:  
 When the player uncovers the cell (1,2)  
 Then the player should win the game

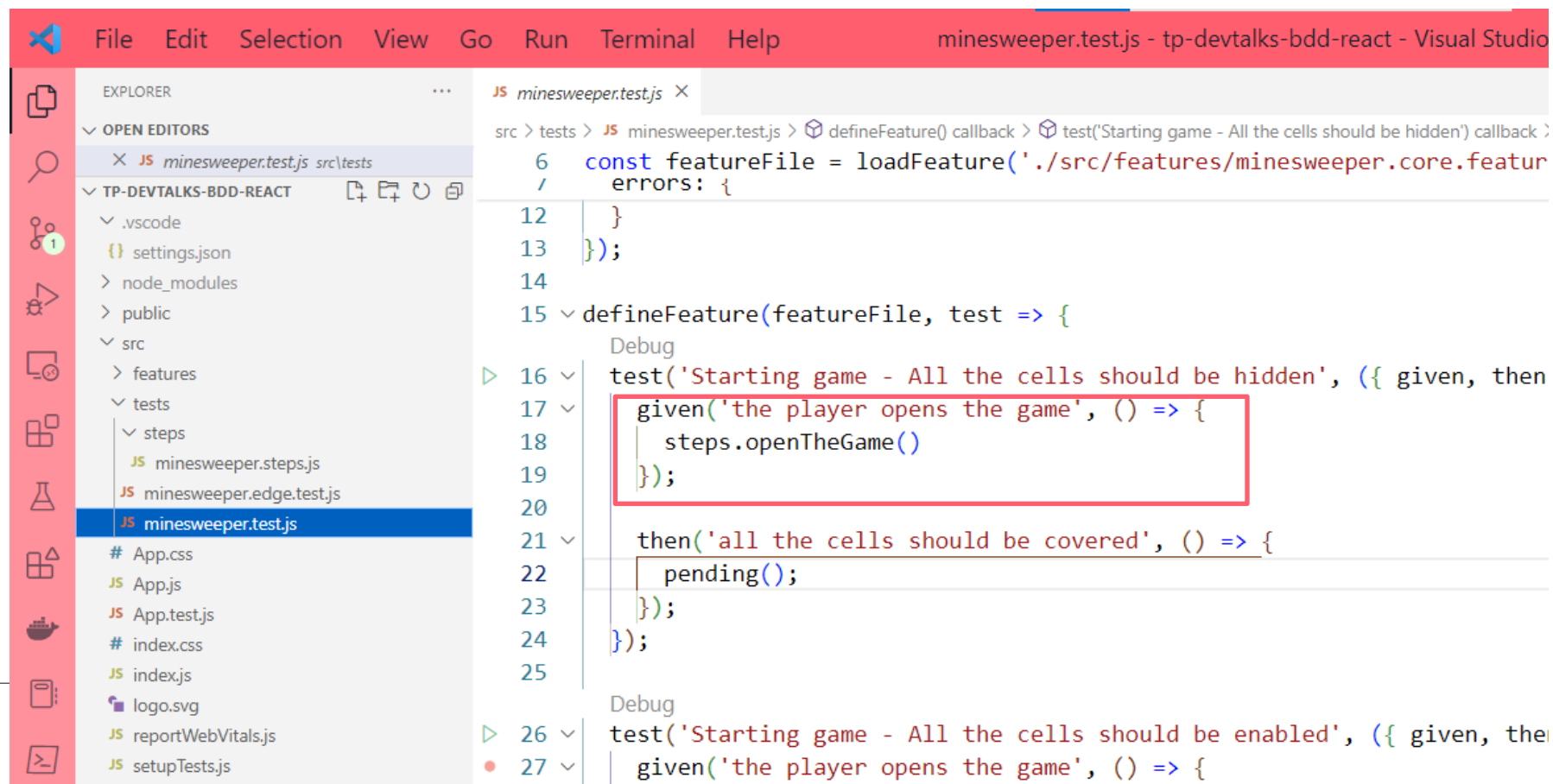
Given the player loads the following mock data:  
 When the player uncovers the cell (<row>,<col>)  
 Then all the cells should be disabled  
 Given the player loads the following mock data:  
 And the player uncovers the cell (2,2)  
 When the player tags as "mined" the cell (2,2)  
 Then the cell (2,2) should show: 1  
 Given the player loads the following mock data:  
 And the player uncovers the cell (1,1)  
 When the player tags as "mined" the cell (1,2)  
 Then the cell (1,2) should not show: mined  
 Given the player loads the following mock data:  
 And the player uncovers the cell (2,2)  
 When the player tags as "uncertain" the cell (2,2)  
 Then the cell (2,2) should show: 1  
 Given the player loads the following mock data:  
 And the player uncovers the cell (1,1)  
 When the player tags as "uncertain" the cell (1,2)  
 Then the cell (1,2) should not show: uncertain  
 Given the player loads the following mock data:  
 When the player tags as "uncertain" the cell (1,1)  
 Then the left mines counter should be 1  
 Given the player loads the following mock data:  
 And the player tags as "uncertain" the cell (1,1)  
 When the player untags the cell (1,1)  
 Then the left mines counter should be 1  
 Given the player loads the following mock data:  
 Then the player should win the game  
 Given the player loads the following mock data:  
 Then all the cells should be disabled

# 68

## Steps definitions to link

# 53

## Scenarios with the Background to be linked



The screenshot shows the Visual Studio Code interface with the Explorer on the left and the Editor on the right. The Explorer shows the project structure for 'TP-DEVTALKS-BDD-REACT', with the file 'minesweeper.test.js' selected in the 'tests' directory. The Editor displays the content of 'minesweeper.test.js', which is a BDD test file. The code includes a 'defineFeature' function and two test scenarios. The first scenario, 'Starting game - All the cells should be hidden', is highlighted with a red box around its 'given' block. The second scenario, 'Starting game - All the cells should be enabled', is partially visible at the bottom.

```
src > tests > JS minesweeper.test.js > defineFeature() callback > test('Starting game - All the cells should be hidden') callback >  
6  const featureFile = loadFeature('./src/features/minesweeper.core.feature'  
/    errors: {  
12  }  
13  });  
14  
15  defineFeature(featureFile, test => {  
    Debug  
16  test('Starting game - All the cells should be hidden', ({ given, then  
17  given('the player opens the game', () => {  
18    steps.openTheGame()  
19  });  
20  
21  then('all the cells should be covered', () => {  
22    pending();  
23  });  
24  });  
25  
    Debug  
26  test('Starting game - All the cells should be enabled', ({ given, the  
27  given('the player opens the game', () => {
```

121 → 14



# STEP 7

Steps definitions implementation autobinding



Then all the cells should be covered  
 Then all the cells should be enabled  
 Given the player loads the following mock data:  
 When the player uncovers the cell (1,2)  
 Then the cell (1,2) should be disabled  
 Given the player loads the following mock data:  
 When the player left clicks on the cell (1,2)  
 Then the cell (1,2) should be disabled  
 Given the player loads the following mock data:  
 When the player uncovers the cell (1,1)  
 Then the player should lose the game  
 Given the player loads the following mock data:  
 When the player uncovers the cell (1,1)  
 Then the cell (1,1) should show: a highlighted mine  
 Given the player loads the following mock data:  
 <boardData>  
 When the player uncovers the cell (2,2)  
 Then the cell (2,2) should show: <number>  
 Given the player loads the following mock data:  
 When the player uncovers the cell (<row>,<column>)  
 Then the cell (2,2) should show: empty  
 Given the player loads the following mock data:  
 When the player uncovers the cell (2,2)  
 Then the minefield should look like this:  
 When the player tags as "mined" the cell (1,1)  
 Then the cell (1,1) should show: mined  
 Given When the player tags as "mined" the cell (1,1)  
 When the player untags the cell (1,1)  
 Then the cell (1,1) should not show: mined  
 When the player right clicks on the cell (1,1)  
 Then the cell (1,1) should show: mined  
 Given the player tags as "mined" the cell (1,1)  
 When the player right clicks on the cell (1,1)  
 And the player right clicks on the cell (1,1)  
 Then the cell (1,1) should not show: mined  
 Given the player loads the following mock data:  
 When the player uncovers the cell (1,2)  
 Then the player should win the game

Given the player loads the following mock data:  
 When the player uncovers the cell (<row>,<col>)  
 Then all the cells should be disabled  
 Given the player loads the following mock data:  
 And the player uncovers the cell (2,2)  
 When the player tags as "mined" the cell (2,2)  
 Then the cell (2,2) should show: 1  
 Given the player loads the following mock data:  
 And the player uncovers the cell (1,1)  
 When the player tags as "mined" the cell (1,2)  
 Then the cell (1,2) should not show: mined  
 Given the player loads the following mock data:  
 And the player uncovers the cell (2,2)  
 When the player tags as "uncertain" the cell (2,2)  
 Then the cell (2,2) should show: 1  
 Given the player loads the following mock data:  
 And the player uncovers the cell (1,1)  
 When the player tags as "uncertain" the cell (1,2)  
 Then the cell (1,2) should not show: uncertain  
 Given the player loads the following mock data:  
 When the player tags as "uncertain" the cell (1,1)  
 Then the left mines counter should be 1  
 Given the player loads the following mock data:  
 And the player tags as "uncertain" the cell (1,1)  
 When the player untags the cell (1,1)  
 Then the left mines counter should be 1  
 Given the player loads the following mock data:  
 Then the player should win the game  
 Given the player loads the following mock data:  
 Then all the cells should be disabled

# 68

## Steps definitions to link

#### GIVEN

the player opens the game  
the player tags as “tag” the cell (row,col)  
the player loads the following mock data:

#### WHEN

the player left clicks on the cell (row,col)  
the player uncovers the cell (row,col)  
the player tags as “tag” the cell (row,col)  
the player untags the cell (row,col)  
the player right clicks on the cell (row,col)

#### THEN

the cell (row,col) should be disabled  
the player should lose the game  
the player should win the game  
the left mines counter should be 1  
the cell (row,col) should show: “tag”  
the cell (row,col) should not show: “tag”  
the minefield should look like this: docstring  
all the cells should be covered  
all the cells should be enabled  
all the cells should be disabled

# 18

## Steps definitions to link using parameters

```
15  defineFeature(featureFile, test => {  
    test('Starting game - All the cells should be hidden', ({ given, then }) => {  
      17    given('the player opens the game', () => {  
      18      steps.openTheGame()  
      19    });  
      20  
      21    then('all the cells should be covered', () => {  
      22      pending();  
      23    });  
      24  });  
      25  
    test('Starting game - All the cells should be enabled', ({ given, then }) => {  
      27    given('the player opens the game', () => {  
      28      steps.openTheGame()  
      29    });  
      30  
      31    then('all the cells should be enabled', () => {  
      32      pending();  
      33    });  
      34  });  
    }  
  });
```

Visual Studio Code interface showing the Explorer, Open Editors, and Editor views.

**Explorer View:** Displays the file structure of the project. The selected file is `minesweeper.test.js` in the `src/tests` directory.

**Open Editors View:** Shows the open files. The active file is `minesweeper.test.js`.

**Editor View:** Displays the code for `minesweeper.test.js`. The code is a Jest-Cucumber test file.

```
3 import { loadFeatures, autoBindSteps } from 'jest-cucumber'
4 import * as steps from './steps/minesweeper.steps.js'
5
6 const features = loadFeatures('./src/features/**/*.feature')
7
8 const stepsRef = ({ given, and, when, then }) => {
9   given('the player opens the game', () => {
10     steps.openTheGame()
11   })
12   given(/^When the player tags as "(.*)" the cell \((\d+)\s?,\s?(\d+)\)\$/, (tag, row, col) => {
13   })
14   given('the player loads the following mock data:', (mockData) => {
15   })
16   given(/^the player loads the following mock data: (.*)$/, (mockData) => {
17   })
18   when(/^the player left clicks on the cell \((\d+)\s?,\s?(\d+)\)\$/, (row, col) => {
19   })
20   when(/^the player uncovers the cell \((\d+)\s?,\s?(\d+)\)\$/, (row, col) => {
21   })
22   when(/^the player tags as "(.*)" the cell \((\d+)\s?,\s?(\d+)\)\$/, (tag, row, col) => {
23   })
24   when(/^the player untags the cell \((\d+)\s?,\s?(\d+)\)\$/, (row, col) => {
```

File Edit Selection View Go Run Terminal Help minesweeper.test.js - tp-devtalks-bdd-react - Visual Studio Code

EXPLORER

OPEN EDITORS

- JS minesweeper.test.js src\tests M
- JS minesweeper.tes\_...js src\tests U

TP-DEVTALKS-BDD-REACT

- .vscode
  - settings.json
- node\_modules
- public
- src
  - features
  - tests
    - steps
    - JS minesweeper.steps.js
    - JS minesweeper.edge.tes\_...js U
    - JS minesweeper.tes\_...js U
    - JS minesweeper.test.js M
  - # App.css
  - JS App.js
  - JS App.test.js
  - # index.css
  - JS index.is

JS minesweeper.test.js M X JS minesweeper.tes\_...js U

src > tests > JS minesweeper.test.js > stepsRef > when() callback

```
8 const stepsRef = ({ given, and, when, then }) => {
  then(/^the cell \((\d+)\s?,\s?(\d+)\) should show: (.*)$/, (row, col, content) => {
    pending()
  })
  then(/^the cell \((\d+)\s?,\s?(\d+)\) should not show: (.*)$/, (row, col, tag) => {
    pending()
  })
  then('the minefield should look like this:', (expectedMineFieldStatus) => {
    pending()
  })
}
60 autoBindSteps(features, [stepsRef])
61
```





# STEP 8

Tagging Scenarios



The screenshot shows the Visual Studio Code interface with the Explorer sidebar on the left and the Editor pane on the right. The Explorer sidebar shows the project structure with the file `minesweeper.edge.feature` selected. The Editor pane displays the content of `minesweeper.edge.feature`, which is a BDD test file. The file contains several scenarios, with the current view showing lines 6 through 27. The text is color-coded: blue for Gherkin keywords (Scenario, Given, When, Then), red for scenario titles, and black for the test steps. A red box highlights the `@wip` tag on line 16.

```
File Edit Selection View Go Run Terminal Help minesweeper.edge.fe

EXPLORER
OPEN EDITORS
  JS minesweeper.test.js src\tests 9+, M
  X minesweeper.edge.feature src\featu... M
TP-DEVTALKS-BDD-REACT
  .vscode
    settings.json
  > node_modules
  > public
  > src
    > features
      minesweeper.core.feature
      minesweeper.edge.feature M
    > tests
      > steps
      JS minesweeper.edge.tes_.js
      JS minesweeper.tes_.js
      JS minesweeper.test.js 9+, M
  # App.css
  JS App.js
  JS App.test.js
  # index.css

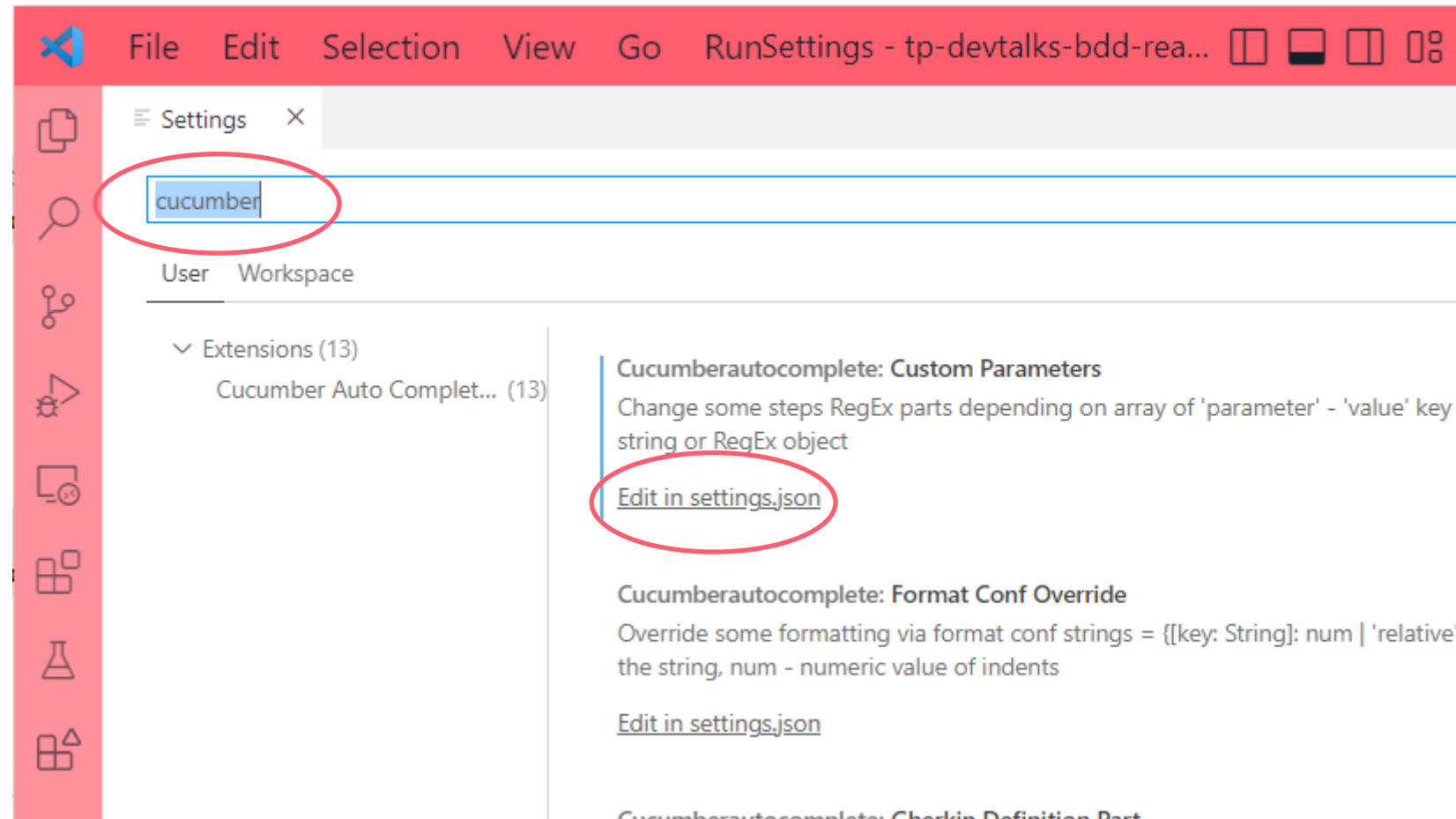
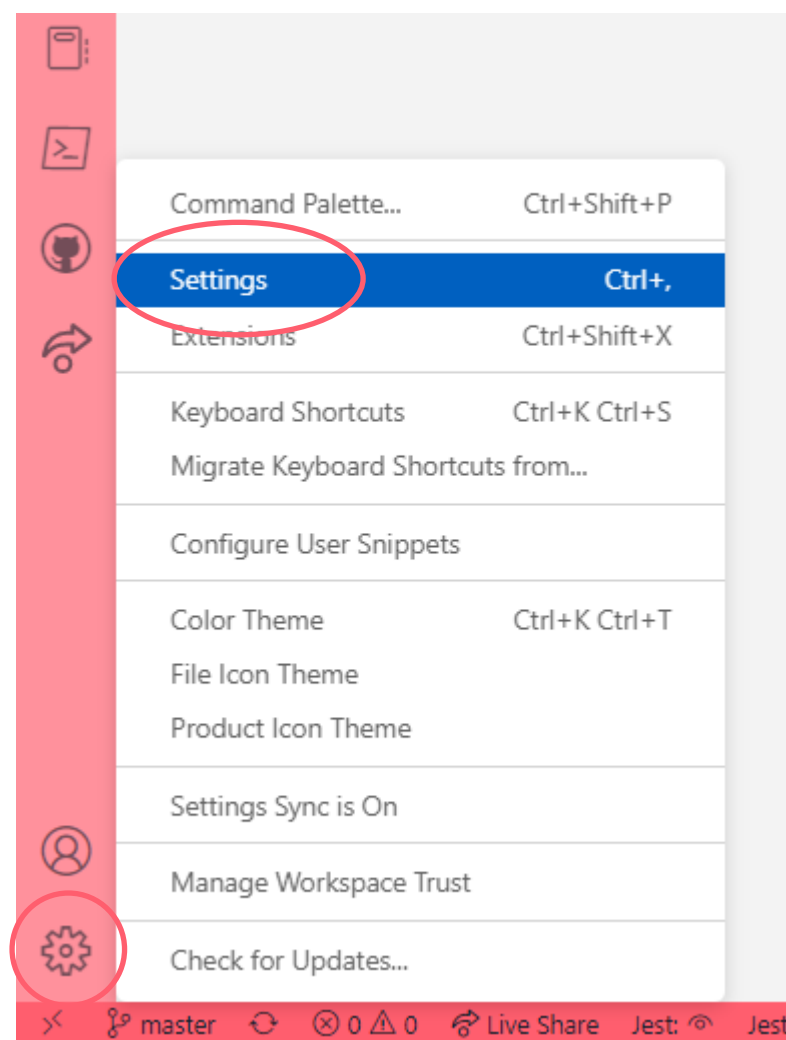
src > features > minesweeper.edge.feature
6 Scenario: Tagging as mined a revealed
11
12 And the player uncovers the cell (2,
13 When the player tags as "mined" the
14 Then the cell (2,2) should show: 1
15
16 @wip
17 Scenario: Tagging as mined a disabled
18 Given the player loads the following
19 ""
20 | * | o |
21 | o | o |
22 ""
23 And the player uncovers the cell (1,
24 When the player tags as "mined" the
25 Then the cell (1,2) should not show:
26
27 Scenario: Tagging as uncertain a rev
```



# STEP 9

Visual Studio Code tuning







```
97 ],
98 "editor.foldingMaximumRegions": 5500,
99 "eslint.run": "onSave",
100 "eslint.trace.server": "off",
101 "editor.guides.bracketPairs": true,
102 "window.zoomLevel": -2,
103 "cucumberautocomplete.syncfeatures": "src/features/*.feature",
104 "cucumberautocomplete.steps": ["src/tests/*.test.js"],
105 "editor.quickSuggestions": {
106   "strings": true
107 },
108 }
```

```

66 Scenario: Uncovering a cell with the mouse - Using mouse left click
67   Given the player loads the following mock data:
68       """
69       | * | o |
70       """
71   When the player left clicks on the cell (1,2)
72   Then the cell
73
74 Scenario: Uncovering a cell with the mouse - Using mouse right click
75   Given the player loads the following mock data:
76       """
77       | * | o |
78       """
79   When the player right clicks on the cell (1,2)

```

Was unable to find step for "Then the cell"

- ☐ the cell ((d+)s?,s?(d+)) should show...
- ☐ the cell ((d+)s?,s?(d+)) should not show...
- ☐ the cell ((d+)s?,s?(d+)) should be displayed...
- ☐ the player untags the cell ((d+)s?,s?(d+))
- ☐ the player uncovers the cell ((d+)s?,s?(d+))
- ☐ the player tags as "(.\*)" the cell ((d+)s?,s?(d+))
- ☐ the player left clicks on the cell ((d+)s?,s?(d+))
- ☐ the player right clicks on the cell ((d+)s?,s?(d+))

Compressing objects: 100% (8/8), done.  
 Writing objects: 100% (8/8), 1.82 KiB | 1.82 MiB/s, done.





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