Example M5: Testing and Code Review

1. Change History

Change Date	Modified Sections	Rationale
March 30, 2025	3.2	Updated required response time to 3s to match test implementation
March 30, 2025	2.3 & 2.4	Updated screenshots of coverage to reflect changes in implementation
March 30, 2025	5.1 - 5.3	Updated screenshots of codacy and commit hash where run to reflect changes in implementation
March 30, 2025	2.1	Updated links of backend tests and commit hash where run to reflect changes in implementation
March 30, 2025	3.1	Updated links of non-functional tests to reflect changes in implementation
April 2, 2025	3.2	Update description to mention 2 second response time requirement, update description with justification of 2 seconds and source, and update test logs to match new implementation
April 2, 2025	5.*	Update codacy screenshots and commit hash to account for code updates
April 2, 2025	2.1.3	Add database setup instructions based on feedback from M5

2. Back-end Test Specification: APIs

2.1. Locations of Back-end Tests and Instructions to Run Them

2.1.1. Tests

Interface	Describe Group Location, No Mocks	Describe Group Location, With Mocks
POST /discounts	`backend/__tests__/no_mock/NoMockDiscount.test.ts#L13`	`backend/__tests__/with_mock/WithMock`
GET /discounts/:id	`backend/__tests__/no_mock/NoMockDiscount.test.ts#L172`	`backend/__tests__/with_mock/WithMock`
GET /discounts	`backend/__tests__/no_mock/NoMockDiscount.test.ts#L252`	`backend/__tests__/with_mock/WithMock`
DELETE /discounts/:id	`backend/__tests__/no_mock/NoMockDiscount.test.ts#L341`	`backend/__tests__/with_mock/WithMock`
POST /notifications	`backend/__tests__/no_mock/NoMockNotification.test.ts#L10`	`backend/__tests__/with_mock/WithMock`
DELETE /notifications/:id	`backend/__tests__/no_mock/NoMockNotification.test.ts#L107`	`backend/__tests__/with_mock/WithMock`
POST /preferences/allergies	`backend/__tests__/no_mock/NoMockPreference.test.ts#L10`	`backend/__tests__/with_mock/WithMock`
GET /preferences/allergies/:id	`backend/__tests__/no_mock/NoMockPreference.test.ts#L74`	`backend/__tests__/with_mock/WithMock`
DELETE /preferences/allergies/:id/:allergy	`backend/__tests__/no_mock/NoMockPreference.test.ts#L114`	`backend/__tests__/with_mock/WithMock`
POST /recipes	`backend/__tests__/no_mock/NoMockRecipe.test.ts#L171`	`backend/__tests__/with_mock/WithMock`
GET /recipes/:id	`backend/__tests__/no_mock/NoMockRecipe.test.ts#L423`	`backend/__tests__/with_mock/WithMock`
DELETE /recipes/:id	`backend/__tests__/no_mock/NoMockRecipe.test.ts#L495`	`backend/__tests__/with_mock/WithMock`
POST /routes	`backend/__tests__/no_mock/NoMockRoute.test.ts#L52`	`backend/__tests__/with_mock/WithMock`
GET /routes/:id	`backend/__tests__/no_mock/NoMockRoute.test.ts#L341`	`backend/__tests__/with_mock/WithMock`
DELETE /routes/:id	`backend/__tests__/no_mock/NoMockRoute.test.ts#L402`	`backend/__tests__/with_mock/WithMock`
GET /users/:userID/routes	`backend/__tests__/no_mock/NoMockUser.test.ts#L11`	`backend/__tests__/with_mock/WithMock`

2.1.2. Commit Hash Where Tests Run

`252aa8c8160a75e9a6a253ed465435ff039d71bc`

2.1.3. Explanation on How to Run the Tests

1. **Clone the Repository**:
    - Open your terminal and run:

      ```
      git clone https://github.com/CPEN321-FoodTrip/FoodTrip.git
      ```

2. **Navigate to the backend directory:**
    - In the terminal, run:

   ```
   cd backend/
   ```

3. **Install the required dependencies:**
    - In the terminal, run:

   ```
   npm ci
   ```

4. **Setup a `.env` in the backend directory:**
    - In the terminal, run:

   ```
   touch .env
   ```

    - With the editor of your choice, add the following environment variables:

   ```
   EDAMAM_APP_ID=
   EDAMAM_API_KEY=
   FIREBASE_SERVICE_ACCOUNT_KEY=
   (Optional, only for performance test) GATEWAY_BASE_URL=
   ```

5. **Setup database for testing:**
    - The backend tests use an in-memory MongoDB server for testing. No actual database setup is required. However, ensure that your environment is set up to support it:
        - The tests use the `mongodb-memory-server` package to spin up a temporary in-memory MongoDB server for each test run.
        - The in-memory MongoDB server is automatically initialized and torn down before and after the tests. Ensure that MongoDB is not running on your system as the in-memory server will use available resources dynamically.

   Note: If you want to change the default MongoDB database names for testing, you can modify the `testDbs` array in the jest setup file.

6. **Run the tests with or without coverage:**
    - To run the tests **with** coverage, use the following command in the terminal:

   ```
   npm run test:coverage
   ```

    - To run the tests **without** coverage, use the following command in the terminal:

   ```
   npm run test
   ```

7. **[Optional] Run only the mocked or unmocked tests:**
    - To run the tests **with** mocks, use the following command in the terminal:

   ```
   npm run test __tests__/with_mock/
   ```

   - To run the tests **without** mocks, use the following command in the terminal:

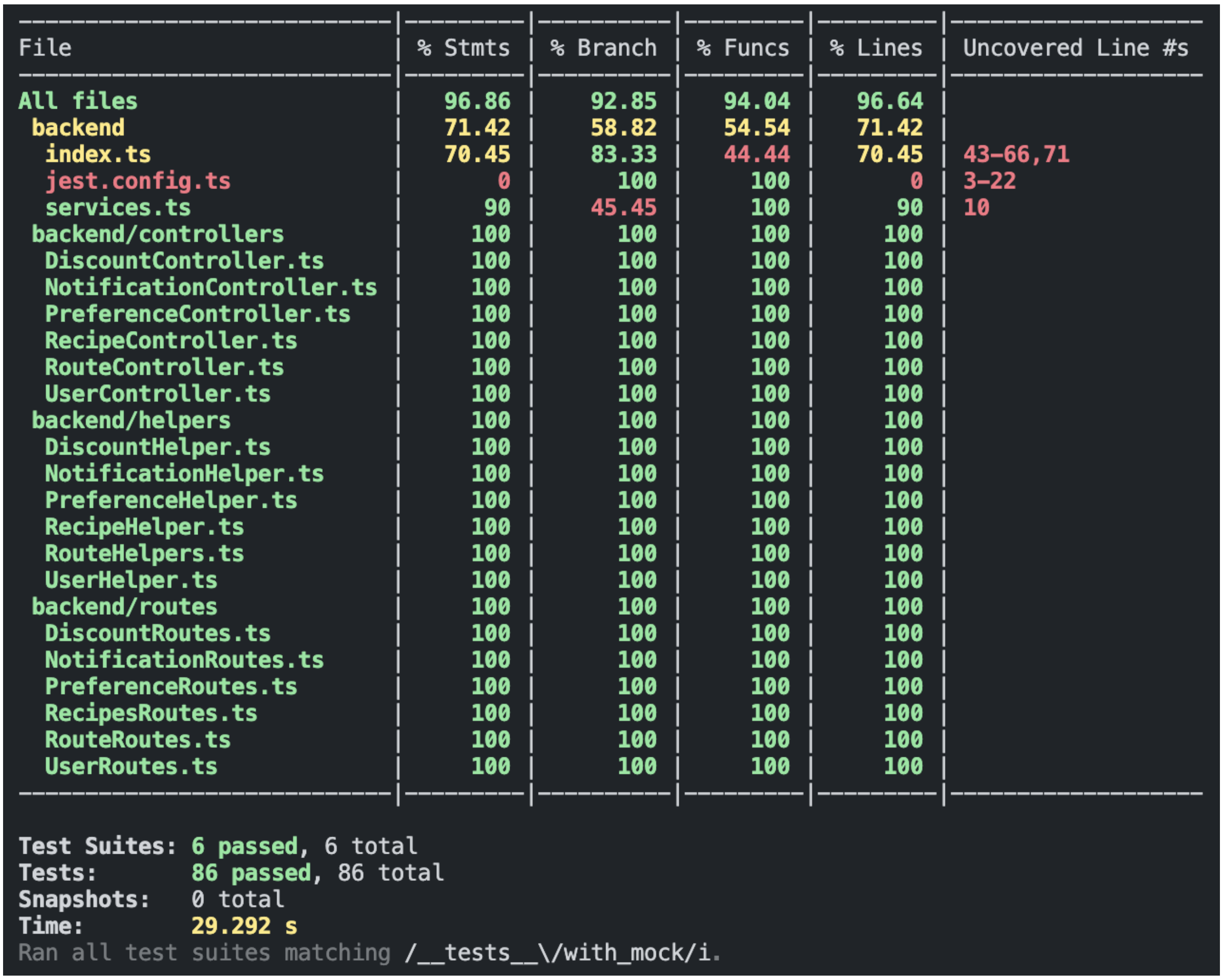
```
npm run test __tests__/no_mock/
```

8. **View the full coverage repo:**
   - Within the backend directory navigate to the `coverage/lcov-report` directory.
   - Open `index.html` in the browser.

2.2. GitHub Actions Configuration Location

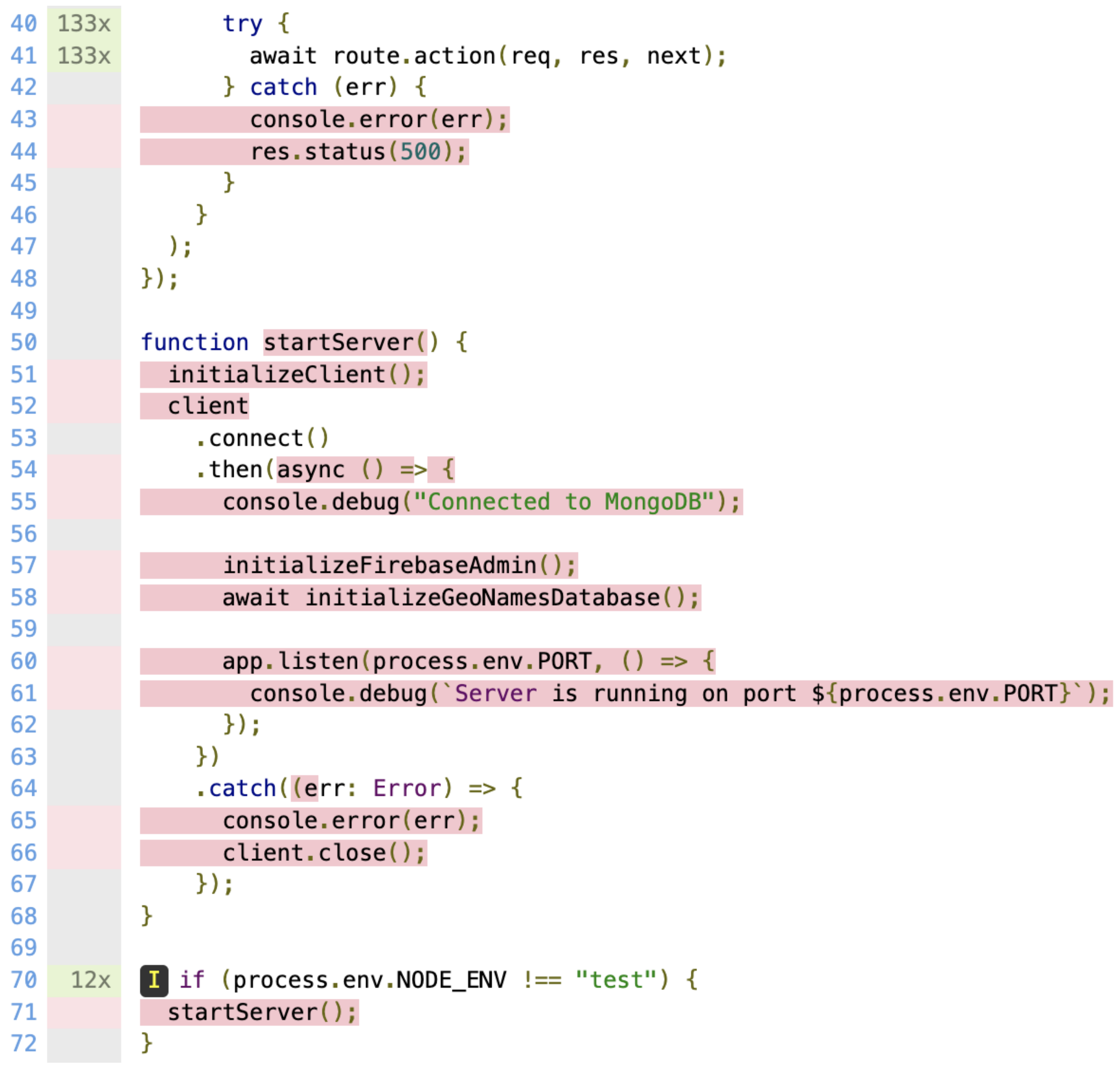
`~/.github/workflows/test-backend.yml`

2.3. Jest Coverage Report Screenshots With Mocks



```
-----------------------------|---------|----------|---------|---------|-------------------
File                         | % Stmts | % Branch | % Funcs | % Lines | Uncovered Line #s
-----------------------------|---------|----------|---------|---------|-------------------
All files                    |   96.86 |    92.85 |   94.04 |   96.64 |
 backend                     |   71.42 |    58.82 |   54.54 |   71.42 |
  index.ts                   |   70.45 |    83.33 |   44.44 |   70.45 | 43-66,71
  jest.config.ts             |       0 |      100 |     100 |       0 | 3-22
  services.ts                |      90 |    45.45 |     100 |      90 | 10
 backend/controllers         |     100 |      100 |     100 |     100 |
  DiscountController.ts      |     100 |      100 |     100 |     100 |
  NotificationController.ts  |     100 |      100 |     100 |     100 |
  PreferenceController.ts    |     100 |      100 |     100 |     100 |
  RecipeController.ts        |     100 |      100 |     100 |     100 |
  RouteController.ts         |     100 |      100 |     100 |     100 |
  UserController.ts          |     100 |      100 |     100 |     100 |
 backend/helpers             |     100 |      100 |     100 |     100 |
  DiscountHelper.ts          |     100 |      100 |     100 |     100 |
  NotificationHelper.ts      |     100 |      100 |     100 |     100 |
  PreferenceHelper.ts        |     100 |      100 |     100 |     100 |
  RecipeHelper.ts            |     100 |      100 |     100 |     100 |
  RouteHelpers.ts            |     100 |      100 |     100 |     100 |
  UserHelper.ts              |     100 |      100 |     100 |     100 |
 backend/routes              |     100 |      100 |     100 |     100 |
  DiscountRoutes.ts          |     100 |      100 |     100 |     100 |
  NotificationRoutes.ts      |     100 |      100 |     100 |     100 |
  PreferenceRoutes.ts        |     100 |      100 |     100 |     100 |
  RecipesRoutes.ts           |     100 |      100 |     100 |     100 |
  RouteRoutes.ts             |     100 |      100 |     100 |     100 |
  UserRoutes.ts              |     100 |      100 |     100 |     100 |
-----------------------------|---------|----------|---------|---------|-------------------

Test Suites: 6 passed, 6 total
Tests:       86 passed, 86 total
Snapshots:   0 total
Time:        29.292 s
Ran all test suites matching /__tests__\/with_mock/i.
```

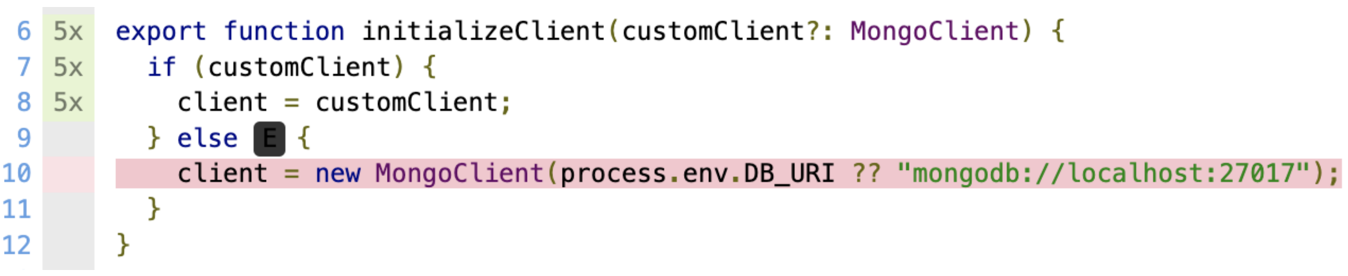
The `index.ts` file does not have 100% coverage because the server does not start or open a port during tests, and a different MongoDB client is used. As a result, the `startServer()` function is not executed.



```
   try {
    await route.action(req, res, next);
   } catch (err) {
    console.error(err);
    res.status(500);
   }
  }
 );
});

function startServer() {
 initializeClient();
 client
  .connect()
  .then(async () => {
   console.debug("Connected to MongoDB");

   initializeFirebaseAdmin();
   await initializeGeoNamesDatabase();

   app.listen(process.env.PORT, () => {
    console.debug(`Server is running on port ${process.env.PORT}`);
   });
  })
  .catch((err: Error) => {
   console.error(err);
   client.close();
  });
}

I if (process.env.NODE_ENV !== "test") {
 startServer();
}
```

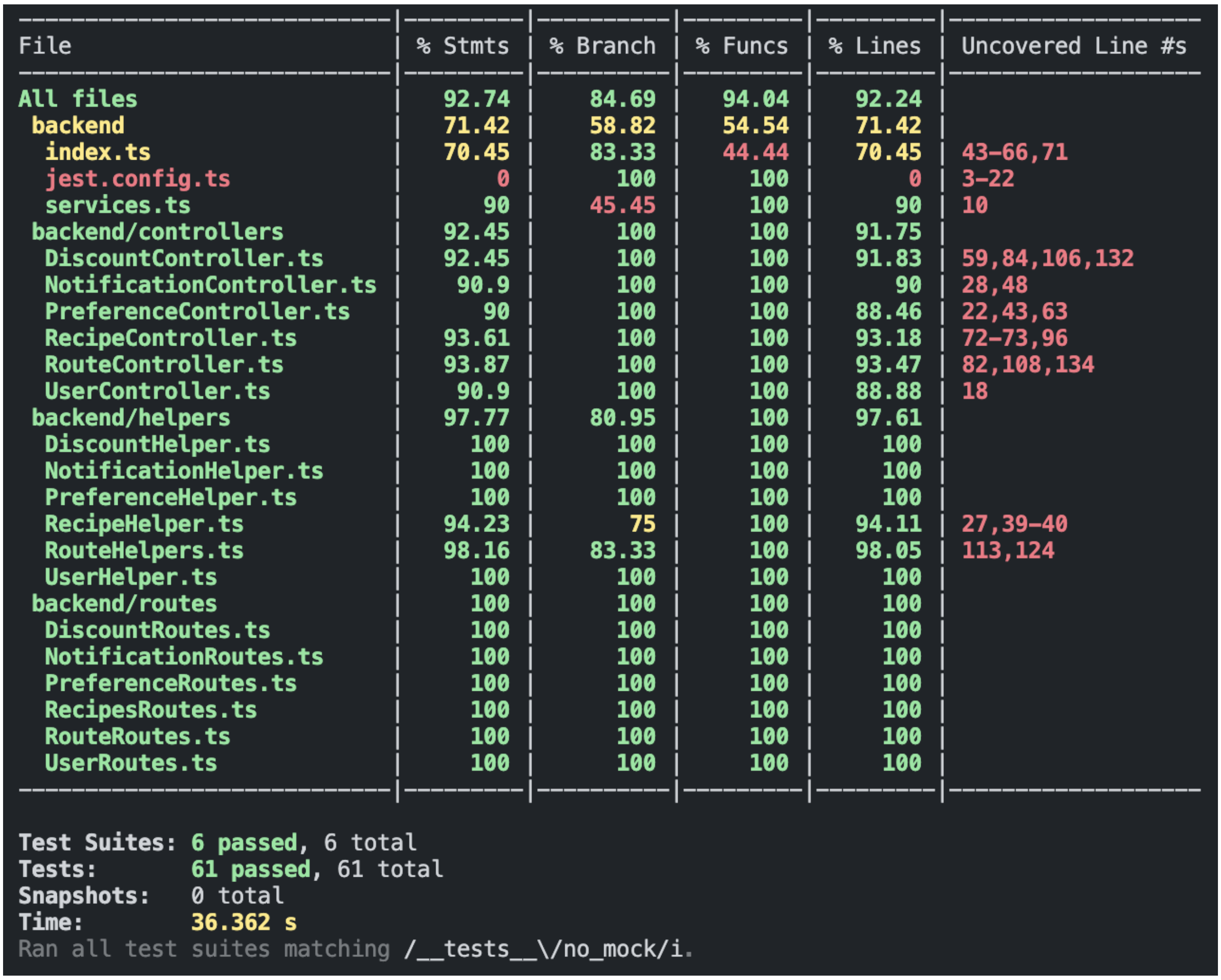
The reason the `jest.config.ts` file does not have any coverage is simply because it is for configuring our test environment and does not contribute to the functionality of the app.

The `services.ts` file has no coverage because, during testing, an in-memory MongoDB client is injected. As a result, one branch of an if statement, responsible for assigning the production client, is never executed.



```
export function initializeClient(customClient?: MongoClient) {
  if (customClient) {
    client = customClient;
  } else E {
    client = new MongoClient(process.env.DB_URI ?? "mongodb://localhost:27017");
  }
}
```

2.4. Jest Coverage Report Screenshots Without Mocks



```
-----------------------------|---------|----------|---------|---------|-------------------
File                         | % Stmts | % Branch | % Funcs | % Lines | Uncovered Line #s
-----------------------------|---------|----------|---------|---------|-------------------
All files                    |   92.74 |    84.69 |   94.04 |   92.24 |
 backend                     |   71.42 |    58.82 |   54.54 |   71.42 |
  index.ts                   |   70.45 |    83.33 |   44.44 |   70.45 | 43-66,71
  jest.config.ts             |       0 |      100 |     100 |       0 | 3-22
  services.ts                |      90 |    45.45 |     100 |      90 | 10
 backend/controllers         |   92.45 |      100 |     100 |   91.75 |
  DiscountController.ts      |   92.45 |      100 |     100 |   91.83 | 59,84,106,132
  NotificationController.ts  |    90.9 |      100 |     100 |      90 | 28,48
  PreferenceController.ts    |      90 |      100 |     100 |   88.46 | 22,43,63
  RecipeController.ts        |   93.61 |      100 |     100 |   93.18 | 72-73,96
  RouteController.ts         |   93.87 |      100 |     100 |   93.47 | 82,108,134
  UserController.ts          |    90.9 |      100 |     100 |   88.88 | 18
 backend/helpers             |   97.77 |    80.95 |     100 |   97.61 |
  DiscountHelper.ts          |     100 |      100 |     100 |     100 |
  NotificationHelper.ts      |     100 |      100 |     100 |     100 |
  PreferenceHelper.ts        |     100 |      100 |     100 |     100 |
  RecipeHelper.ts            |   94.23 |       75 |     100 |   94.11 | 27,39-40
  RouteHelpers.ts            |   98.16 |    83.33 |     100 |   98.05 | 113,124
  UserHelper.ts              |     100 |      100 |     100 |     100 |
 backend/routes              |     100 |      100 |     100 |     100 |
  DiscountRoutes.ts          |     100 |      100 |     100 |     100 |
  NotificationRoutes.ts      |     100 |      100 |     100 |     100 |
  PreferenceRoutes.ts        |     100 |      100 |     100 |     100 |
  RecipesRoutes.ts           |     100 |      100 |     100 |     100 |
  RouteRoutes.ts             |     100 |      100 |     100 |     100 |
  UserRoutes.ts              |     100 |      100 |     100 |     100 |
-----------------------------|---------|----------|---------|---------|-------------------

Test Suites: 6 passed, 6 total
Tests:       61 passed, 61 total
Snapshots:   0 total
Time:        36.362 s
Ran all test suites matching /__tests__\/no_mock/i.
```

The reason for not having 100% coverage on files in the `backend/controllers` and `backend/helpers` directories is because of internal error handling related to database and external api failures which cannot be tested without mocks. Typically, they are handled within try/catch blocks that call `next()` to pass the error to a central error handler or the helper function which is then caught in the controller.

The `index.ts`, `jest.config.ts` and `services.ts` files do not have 100% coverage due to the exact same reasons as the mocked tests.

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3. Back-end Test Specification: Tests of Non-Functional Requirements

3.1. Test Locations in Git

Non-Functional Requirement	Location in Git
Performance (Response Time)	`FoodTrip/backend/__tests__/non_functional_requirements/performance.test.ts`
Usability (Clicks to navigate)	`FoodTrip/frontend/app/src/androidTest/java/com/example/FoodTripFrontend/ExampleInstrumentedTest.kt`

3.2. Test Verification and Logs

- **Performance (Response Time)**
  - **Verification:** This test suite evaluates the performance of critical API endpoints in an unmocked environment, simulating real-world user interactions. It measures execution times for creating and deleting routes, recipes, discounts, notifications, and allergy preferences, ensuring each operation completes within 2 seconds. This is important for maintaining a smooth user experience, preventing delays, and ensuring the system can handle expected traffic. By logging execution times and validating responses, the tests help identify performance isssues and ensure the system is quick enough. 2 seconds was selected as the ideal time based on this report (https://odown.com/blog/what-is-a-good-api-response-time/) which states that for web applications you strive for response times under 2 seconds and for mobile applications, aim for 1-3 seconds.
  - **Log Output**

```
> backend@1.0.0 test
> NODE_ENV=test jest --testPathPattern=(/non_functional_requirements/)

console.debug
    Route Execution time: 1865ms

    at __tests__/non_functional_requirements/performance.test.ts:29:15

console.debug
    Recipe Execution time: 864ms

    at __tests__/non_functional_requirements/performance.test.ts:52:15

console.debug
    Route Teardown Execution time: 62ms

    at __tests__/non_functional_requirements/performance.test.ts:76:15

console.debug
    Recipe Teardown Execution time: 85ms

    at __tests__/non_functional_requirements/performance.test.ts:96:15

console.debug
    Add Discount Execution time: 301ms

    at __tests__/non_functional_requirements/performance.test.ts:125:13

console.debug
    Get Discount Execution time: 88ms

    at __tests__/non_functional_requirements/performance.test.ts:144:13

console.debug
    Delete Discount Execution time: 85ms

    at __tests__/non_functional_requirements/performance.test.ts:165:13

console.debug
    Add 10 Discounts Average Execution time: 191.5ms

    at __tests__/non_functional_requirements/performance.test.ts:205:13

console.debug
    Get All Discounts Execution time: 76ms

    at __tests__/non_functional_requirements/performance.test.ts:228:13

console.debug
    Delete 10 Discounts Average Execution time: 52.4ms

    at __tests__/non_functional_requirements/performance.test.ts:260:13

console.debug
    Add Notification Execution time: 34ms

    at __tests__/non_functional_requirements/performance.test.ts:287:13

console.debug
    Delete Notification Execution time: 31ms

    at __tests__/non_functional_requirements/performance.test.ts:313:13

console.debug
    Add 10 Notifications Average Execution time: 45.6ms

    at __tests__/non_functional_requirements/performance.test.ts:348:13

console.debug
    Delete 10 Notifications Average Execution time: 41.5ms

    at __tests__/non_functional_requirements/performance.test.ts:383:13

console.debug
    Add Allergy Execution time: 85ms

    at __tests__/non_functional_requirements/performance.test.ts:412:13

console.debug
    Get Allergy Execution time: 33ms
    at __tests__/non_functional_requirements/performance.test.ts:431:13

console.debug
    Delete Allergy Execution time: 68ms

    at __tests__/non_functional_requirements/performance.test.ts:456:13

PASS __tests__/non_functional_requirements/performance.test.ts (11.024 s)
Performance test
    ✓ Single route, 3 stops (2911 ms)
    ✓ Single discount (482 ms)
    ✓ 10 discount (2527 ms)
    ✓ Single notification (70 ms)
    ✓ 10 notification (878 ms)
    ✓ Single allergy (192 ms)

Test Suites: 1 passed, 1 total
Tests:       6 passed, 6 total
Snapshots:   0 total
Time:        11.064 s
Ran all test suites matching /(\/non_functional_requirements\/)/i.
```

- **Usability (Clicks to Navigate)**
  - **Verification:** This test suite simulates using the frontend app along with Espresso to mimic a user's behavior. The test is done by counting the number of valid click in a use case test. At the end of the test, it checks the number of clicks performed in the test. If the number of clicks is within 3 clicks, it passes, and vice versa.
  - **Log Output**

```
Usability Test Passed(0 clicks): GroceryActivityTest:checkElements
Usability Test Passed(1 clicks): GroceryActivityTest:discountSuccessTest
Usability Test Passed(1 clicks): GroceryActivityTest:backButton
Usability Test Passed(1 clicks): GroceryActivityTest:discountEmptyTest
Usability Test Passed(0 clicks): GroceryStoreActivityTest:checkElements
Usability Test Passed(1 clicks): GroceryStoreActivityTest:backButtonTest
Usability Test Passed(1 clicks): GroceryStoreActivityTest:emptyIngredientTest
Usability Test Passed(3 clicks): GroceryStoreActivityTest:postAndDeleteDiscountTest
Usability Test Passed(1 clicks): GroceryStoreActivityTest:zeroPriceTest
Usability Test Passed(1 clicks): GroceryStoreActivityTest:emptyPriceTest
Usability Test Failed(7 clicks): GroceryStoreActivityTest:deleteTest
Usability Test Failed(7 clicks): GroceryStoreActivityTest:changeSelectedTest
Usability Test Passed(0 clicks): LoginActivityTest:checkElements
Usability Test Passed(1 clicks): MainActivityAdminTest:setGroceriesButton
Usability Test Passed(0 clicks): MainActivityTest:checkElements
Usability Test Passed(1 clicks): MainActivityTest:checkAccount
Usability Test Passed(1 clicks): MainActivityTest:checkViewRecipe
Usability Test Passed(1 clicks): MainActivityTest:checkManageTrip
Usability Test Passed(1 clicks): MainActivityTest:checkPastTrips
Usability Test Passed(1 clicks): MainActivityTest:signOut
Usability Test Passed(0 clicks): PastTripActivityEmptyTest:checkElements
Usability Test Passed(0 clicks): PastTripActivityEmptyTest:emptyPastTrip
Usability Test Passed(1 clicks): PastTripActivityEmptyTest:backButton
Usability Test Passed(0 clicks): PastTripActivityTestPersonTest:checkElements
Usability Test Passed(3 clicks): PastTripActivityTestPersonTest:GeneralRecipeViewPastTrip
Usability Test Passed(1 clicks): PastTripActivityTestPersonTest:backButton
Usability Test Passed(3 clicks): RecipeTests:displayRecipe
Usability Test Passed(1 clicks): TripActivityTest:wrongEnd
Usability Test Passed(1 clicks): TripActivityTest:planRegularTripShort
Usability Test Passed(1 clicks): TripActivityTest:sameStartEnd
Usability Test Passed(1 clicks): TripActivityTest:missingInputsEnd
Usability Test Passed(1 clicks): TripActivityTest:wrongStart
Usability Test Passed(1 clicks): TripActivityTest:missingInputsStart
Usability Test Passed(1 clicks): TripActivityTest:missingInputsStops
Usability Test Passed(1 clicks): TripActivityTest:wrongStopsAmount
```

---

4. Front-end Test Specification

4.1. Location in Git of Front-end Test Suite:

`frontend/app/src/androidTest/java/com/example/FoodTripFrontend/ExampleInstrumentedTest.kt`

4.2. Tests

- **Use Case: View Past Trips Main Success Scenario:**

1. The user opens "Past Trip" screen.
2. The app shows a list of "past trip" text view, and a "Back" button.
3. The user clicks on any past trip.
4. A window pops up
5. The window shows the starting location, intermediate stops, destination, recipes for each stop, and a "Show Route" button.
6. The user presses the "Show Route" button
7. The user clicks on the first recipe

Extensions:

- 6a. The user is directed to the main page and a map of the route is displayed
- 7a. The window shows the details of the recipe and a recipe url
  - 7a1. The user clicks the recipe url.
  - 7a2. A webView shows up.

Failure Scenarios:

- 2a. The user has no past trip record
  - 2a1. The app shows no items in the list
- 2b. No internet connection
  - 2b1. The app displays an error message: "No internet connection"

Expected Behaviors:

Scenario Steps	Test Case Steps
1. User opens the view past trip.	Open Past Trip screen.
2. The app shows a list of past trip and a "Back" button.	Check the list is present on screen. Check the button is present on screen.
2a. The user has no past trip record	/
2a1. The app shows no items in the list	Check no items are present in the list on screen
3. The user click on any past trip.	Click any past trip text view
4. A window pops up.	Check the window activity is present on screen.
5. The window shows the starting location, intermediate stops, destination, recipes for each stop, and a "Show Route" button	Check first recipe is present on screen.
6. The user presses the show route button	Click on the show route button
6a. The user is directed to the main page and a map of the route is displayed	Check that the activity has switched to the Main Activity screen and check that the map is now displayed and visible on the screen
7. The user clicks on the first recipe	Click on the first recipe
7a. The window shows the details of the recipe and a recipe url	Check that the recipe text is displayed
7a1. The user clicks the recipe url	Click on the url text view
7a2. A webView of the recipe shows up	Check that the webView is now displayed

- **Test Logs:**

```
com.example.FoodTripFrontend.PastTripActivityEmptyTest
    4.77s passed checkElements
    3.48s passed emptyPastTrip
    8.47s passed backButton
com.example.FoodTripFrontend.PastTripActivityTestPersonTest
    6.84s  passed checkElements
    30.03s failed GeneralRecipeViewPastTrip
    12.57s passed backButton
```

- **Use Case: Manage Trip**

Main Success Scenario:

1. User Opens the Manage Trip screen
2. The app shows three text input fields and a Create Trip button
3. The user enters a starting city, ending city, and the number of desired stops, then presses the Create Trip button
4. The app opens the Main Screen
5. A google map is displayed showing the created route from the start to end city

Failure Scenarios:

- 3a. The user enters an invalid start/end city or an invalid number of stops and attempts to create a trip
  - 3a1. The app displays a pop-up saying that the associated field is invalid

- 3b. The user doesn't enter a input into any one of the text inputs and attempts to create a trip
  - 3b1. The app displays a pop-up saying that the associated field is missing
- 3c. The user enters the same city in the start and end fields and attempts to create a trip
  - 3c1. The app displays a pop-up saying that there can't be the same start and end city

Expected Behaviors:

Scenario Steps	Test Case Steps
1. User Opens the Manage Trip screen	Open Manage Trip screen
2. The app shows three text input fields and a Create Trip button	Check that there are three text input fields labeled Start City, End City, and Number of Stops and check that there is button with text Create Trip
3. The user enters a starting city, ending city, and the number of desired stops, then presses the Create Trip button	Input "Calgary" into the start city text field, "New York" into the end city text field, and "3" into the number of stops, then press the Create Trip button
3a. The user enters an invalid start/end city or an invalid number of stops and attempts to create a trip	Input adjfiolej as the start/end city or enter 0 as the number of stops, then click Create Trip button
3a1. The app displays a pop-up saying that the associated field is invalid	Check that a textfield is displayed with the text "Invalid Start City", "Invalid End City", or "Invalid Number of Stops"
3b. The user doesn't enter a input into any one of the text inputs and attempts to create a trip	Input a correct value (A real city or a number greater than or equal to 1) into two of the three text input fields and then click Create Trip Button
3b1. The app displays a pop-up saying that the associated field is missing	Check that a textfield is displayed with the text "Missing Start City", "Missing End City", or "Missing Number of Stops"
3c. The user enters the same city in the start and end fields and attempts to create a trip	Input "New York" into both the start and end city text fields and input 3 into the number of stop field. Press the Create Trip button
3c1. The app displays a pop-up saying that there can't be the same start and end city	Check that a textfield is displayed with the text "Same Start and End City"
4. The app opens the Main Screen	Check that the activity has switched to the Main Activity screen
5. A google map is displayed showing the created route from the start to end city	Check that the map is displayed and visible on the screen

- **Test Logs:**

```
com.example.FoodTripFrontend.TripActivityTest
    22.12s failed wrongEnd
    27.81s passed planRegularTripShort
    17.09s failed sameStartEnd
    15.52s failed missingInputsEnd
    15.48s passed wrongStart
    12.29s failed missingInputsStart
    13.37s failed missingInputsStops
    16.49s failed wrongStopsAmount
```

- **Use Case: Manage Discounts Main Success Scenario:**

1. The admin opens "Grocery Store" screen.
2. The app shows a list of discounts, an ingredient input text field, a price input text field, a "Delete" button, and a "Post" button.
3. The admin inputs a new ingredient and the price.
4. The admin presses the "Post" button.
5. The screen refreshes and the new discount is added into the list.

Extensions:

- 3a. The admin presses on a discount in the list.
  - 3a1. The admin presses the "Delete" button.
  - 3a2. The screen refreshes and the selected discount is removed.

Failure Scenarios

- 3ai. The admin doesn't select a discount to delete.
  - 3ai(1). The app display an error message prompting the admin to select the discount to be deleted
- 3b. The admin doesn't enter an input into any one of the text input fields and attempts to post a discount.
  - 3b1. The app displays an error message prompting the admin for the valid input.
- 3c. The admin enter 0 as the price and attempts to post a discount.
  - 3c1. The app displays an error message prompting the admin for the valid input.

Expected Behaviors:

Scenario Steps	Test Case Steps

Scenario Steps	Test Case Steps
1. Admin opens "Grocery Store" screen.	Open Grocery Store screen.
2. The app shows a list of discounts, an ingredient input text field, a price input text field, a "Delete" button, and a "Post" button.	Check the list is present on screen. Check the ingredient input text view is present on screen. Check the price input text view is present on screen. Check the delete button is present on screen. Check the post button is present on screen.
3. Admin inputs a new ingredient and price	Input "snack" for the ingredient. Input "10" for the price
3a. Admin presses on a discount in the list.	Press a discount on the list.
3ai. Admin doesn't select a discount to delete	Press button labelled "Delete"
3ai(1). The app display an error message prompting the admin to select the discount to be deleted.	Check dialog is opened with text: "Please select discount to be deleted"
3b. Admin doesn't enter an input into any one of the text input fields and attempts to post a discount.	Input "snack" for ingredient or input "10" for price. Press the "Post" button"
3b1.The app displays an error message prompting the admin for a valid input.	Check dialog is opened with text: "Please enter valid ingredient and price"
3c. Admin input enter 0 as the price and attempts to post a discount.	Input "snack" for ingredient Input "0" for price Press the "Post" button
3c1. The app displays an error message prompting the admin for a valid input.	Check dialog is opened with text: "Please enter valid ingredient and price"
4. Admin presses the "Post" button	Press the button labelled "Post"
5. The screen refreshes and the new discount is added into the list	Check textView with text "snack: $10" is present on screen.

- **Test Logs:**

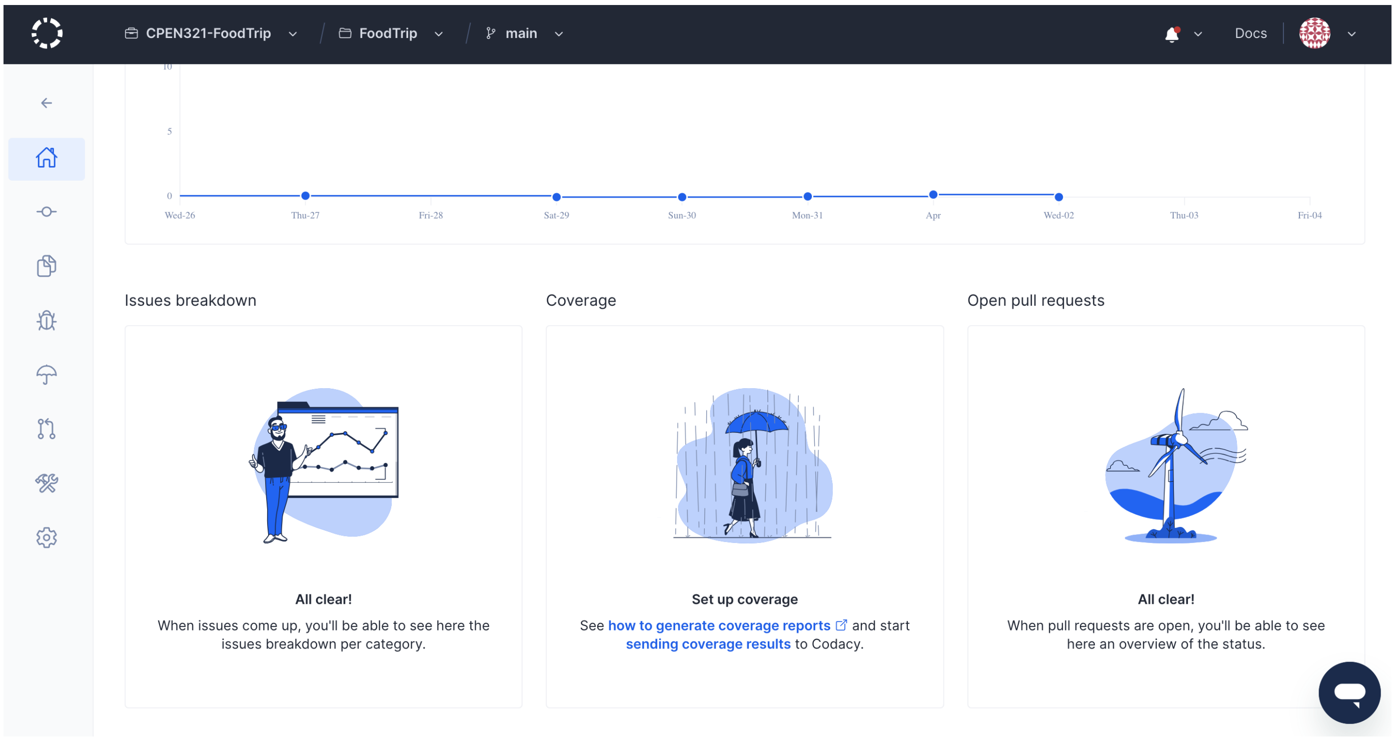
```
com.example.FoodTripFrontend.GroceryStoreActivityTest
10.67s passed checkElements
23.75s failed backButtonTest
19.48s passed emptyIngredientTest
59.08s passed postAndDeleteDiscountTest
21.38s passed zeroPriceTest
15.42s passed emptyPriceTest
22.86s passed deleteTest
26.65s passed changeSelectedTest
```

5. Automated Code Review Results

5.1. Commit Hash Where Codacy Ran

`c4af1f3921930b82a3fe69d18c0ba64f4b2c03f4`

5.2. Unfixed Issues per Codacy Category



Issues breakdown

All clear!

When issues come up, you'll be able to see here the issues breakdown per category.

Coverage

Set up coverage

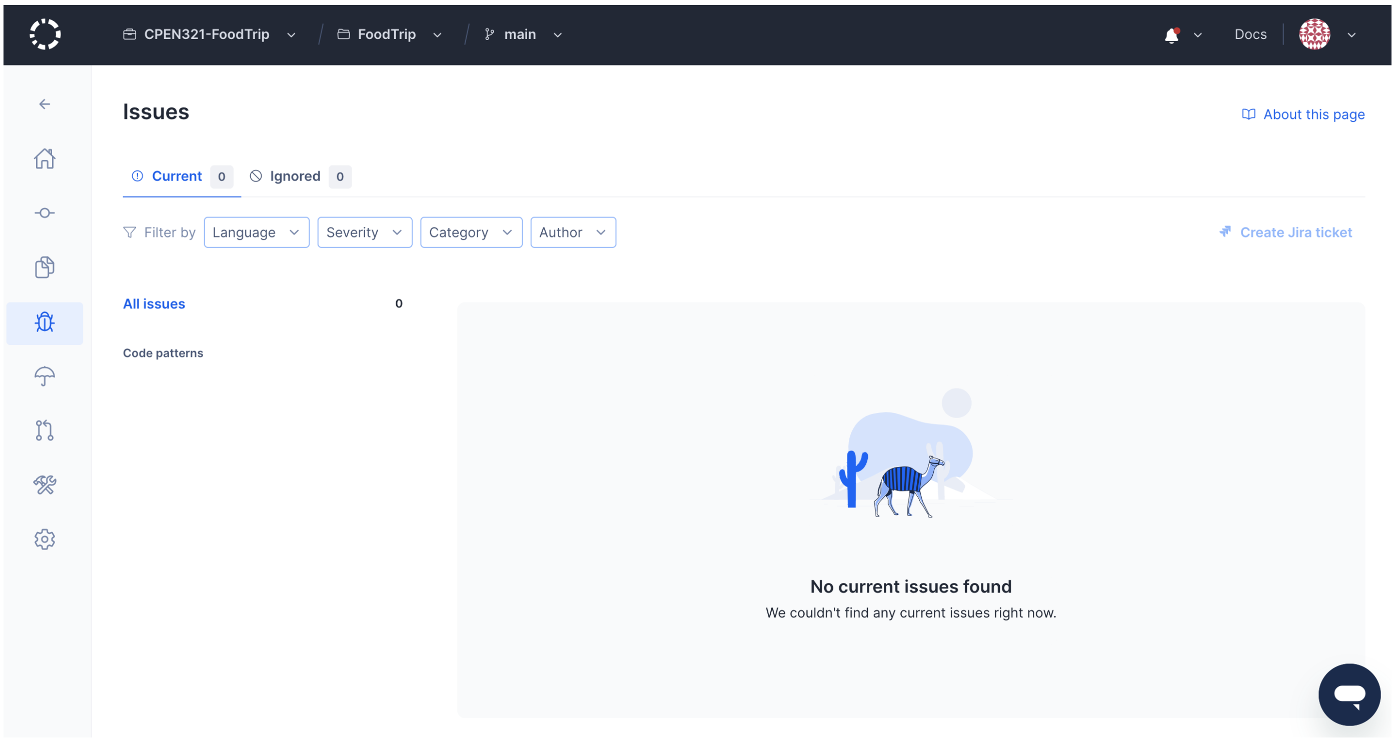
See how to generate coverage reports and start sending coverage results to Codacy.

Open pull requests

All clear!

When pull requests are open, you'll be able to see here an overview of the status.

5.3. Unfixed Issues per Codacy Code Pattern



Issues

All issues 0

Code patterns

No current issues found

We couldn't find any current issues right now.