

# Testing and Code Review

## 1. Change History

Change	Date	Modified Sections	Rationale
Nothing to show			

## 2. Back-end Test Specification: APIs

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

#### 2.1.1. Tests

Notes API			
Interface	Describe Group Location, No Mocks		Describe Group Location, With Mocks
POST /api/notes	backend/src/___tests___/unmocked/notes.normal.test.ts#L40	backend/src/___tests___/mocked/notes.mocked.test.ts#L51	not emi
PUT /api/notes/:id	#L282	#L202	not
DELETE /api/notes/:id	#L398	#L298	not
GET /api/notes/:id	#L462	#L253	not
GET /api/notes	#L528	#L343	not emi
GET /api/notes/:id/workspaces	#L893	#L620	woi
POST /api/notes/:id/share	#L662	#L665	not woi
POST /api/notes/:id/copy	#L784	#L764	not woi

Workspaces API			
Interface	Describe Group Location, No Mocks		Describe Group Location, With Mocks
POST /api/workspace	backend/src/___tests___/unmocked/workspace.normal.test.ts#L45	backend/src/___tests___/mocked/workspace.m	
GET /api/workspace/personal	#L167	#L277	
GET /api/workspace/user	#L290	#L330	
GET /api/workspace/:id	#L352	#L364	
GET /api/workspace/:id/members	#L410	#L398	
GET /api/workspace/:id/tags	#L454	#L448	
GET /api/workspace/:id/membership/:userId	#L536	#L482	
POST /api/workspace/:id/members	#L619	#L516	
POST /api/workspace/:id/leave	#L847	#L694	
PUT /api/workspace/:id	#L959	#L712	
PUT /api/workspace/:id/picture	#L1051	#L748	
DELETE /api/workspace/:id/members/:userId	#L1156	#L784	
DELETE /api/workspace/:id	#L1323	#L818	
GET /api/workspace/:id/poll	#L1429	#L852	

Authentication API			
Interface	Describe Group Location, No Mocks		Describe Group Location, With Mocks
POST /api/auth/signup	backend/src/___tests___/unmocked/auth.normal.test.ts#L123	backend/src/___tests___/mocked/auth.mocked.test.ts#L74	authService.i Google token ve workspaceServ
POST /api/auth/signin	#L151	#L290	authService.i
POST /api/auth/dev-login	#L68	#L394	authService.c

User API			
Interface	Describe Group Location, No Mocks		Describe Group Location, With Mocks
GET /api/users/profile	backend/src/___tests___/unmocked/user.normal.test.ts#L39		Mock
PUT /api/users/profile	#L57	backend/src/___tests___/mocked/user.mocked.test.ts#L48	userMock workspace
DELETE /api/users/profile	#L166	#L104	workspace notificati
POST /api/users/fcm-token	#L230	#L155	userMock
GET /api/users/:id	#L273	#L209	userMock

Interface	Describe Group Location, No Mocks	Describe Group Location, With Mocks	Mock
GET /api/users/email/:email	#L318	#L260	userMock

Message API

Interface	Describe Group Location, No Mocks	Describe Group Location, With Mock
GET /api/messages/workspace/:workspaceId	backend/src/__tests__/unmocked/message.normal.test.ts#L61	backend/src/__tests__/mocked/message.mocked
POST /api/messages/workspace/:workspaceId	#L188	#L91
DELETE /api/messages/:messageId	#L261	#L134

Media API

Interface	Describe Group Location, No Mocks	Describe Group Location, With Mocks	Mocked Co
POST /api/media/upload	backend/src/__tests__/unmocked/media.normal.test.ts#L56	backend/src/__tests__/mocked/media.mocked.test.ts#L55	storage.uploadFile file system stub

2.1.2. Commit Hash Where Tests Run

c5f46d61177b82ff74c9c30dfd32a5e24de5d683

2.1.3. How to Run the Tests

- 1. cd backend
- 2. npm install
- 3. npm test

2.2. GitHub Actions Configuration Location

~/.github/workflows/backend-tests.yml

2.3. Jest Coverage Report Screenshots (Without Mocking)

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Line
All files	81.78	61.56	88.35	81.9	
asyncHandler.util.ts	100	100	100	100	
auth.controller.ts	43.18	23.07	66.66	43.18	23-38,47,53,59,7
auth.middleware.ts	98.14	100	100	98.07	68
auth.routes.ts	100	100	100	100	
auth.service.ts	43.63	11.11	50	43.63	17-40,47,53,59-6
auth.types.ts	100	100	100	100	
constants.ts	100	100	100	100	
database.ts	0	0	0	0	1-44
errorHandler.middleware.ts	100	100	100	100	
logger.util.ts	100	50	100	100	7-11
media.controller.ts	94.11	80	100	94.11	48
media.routes.ts	100	100	100	100	
media.service.ts	89.28	78.26	100	89.09	72,81,104-105,1
message.model.ts	100	100	100	100	
message.routes.ts	86.95	76.92	100	86.95	18,53-54,64,98-9
message.types.ts	100	100	100	100	
note.model.ts	100	100	100	100	
notes.controller.ts	82.11	50	100	82.11	...6-27,35-36,6
notes.routes.ts	100	100	100	100	
notes.service.ts	73.45	65.9	76.47	76.69	40,146,161,221,2
notes.types.ts	100	100	100	100	
notification.service.ts	65	33.33	50	65	7,46-63
routes.ts	100	100	100	100	
sanitizeInput.util.ts	100	100	100	100	
storage.ts	94.73	66.66	100	94.73	13
user.controller.ts	65.43	12	100	65.43	15-16,33,39,49-5
user.model.ts	75.4	80	90	75.4	113-114,122-123
user.routes.ts	100	100	100	100	
user.types.ts	100	100	100	100	
validation.middleware.ts	91.66	100	100	90.9	23
workspace.controller.ts	82.95	54.44	100	82.95	...-286,321,329
workspace.model.ts	100	100	100	100	
workspace.routes.ts	100	100	100	100	
workspace.service.ts	99.46	97.91	100	99.42	50
workspace.types.ts	100	100	100	100	
Test Suites: 6 passed, 6 total					
Tests: 218 passed, 218 total					
Snapshots: 0 total					
Time: 8.724 s, estimated 15 s					
Ran all test suites matching /__tests__\/unmocked/i.					

image info

## 2.4. Jest Coverage Report Screenshots (With Mocking)

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Line
All files	71.61	57.22	69.17	71.99	
asyncHandler.util.ts	75	100	66.66	100	
auth.controller.ts	100	92.3	100	100	112
auth.middleware.ts	38.88	0	50	36.53	18-22,27-31,41-
auth.routes.ts	100	100	100	100	
auth.service.ts	92.72	88.88	100	92.72	108-109,126-127
auth.types.ts	100	100	100	100	
constants.ts	100	100	100	100	
database.ts	100	100	100	100	
errorHandler.middleware.ts	90.9	100	50	88.88	6
logger.util.ts	100	100	100	100	
media.controller.ts	88.23	60	100	88.23	16,24
media.routes.ts	100	100	100	100	
media.service.ts	80.35	65.21	80	81.81	22,34,45,96,102
message.model.ts	100	100	100	100	
message.routes.ts	81.15	23.07	100	81.15	24,31,35,41,51,
message.types.ts	100	100	100	100	
note.model.ts	100	100	100	100	
notes.controller.ts	79.67	75	100	79.67	...121,129-130,
notes.routes.ts	100	100	100	100	
notes.service.ts	67.25	56.81	64.7	66.01	58,70-107,122,1
notes.types.ts	100	100	100	100	
notification.service.ts	100	100	100	100	
routes.ts	100	100	100	100	
sanitizeInput.util.ts	88.88	0	100	83.33	7
storage.ts	94.73	66.66	100	94.73	39
user.controller.ts	75.3	88	100	75.3	19,44,70-86,120
user.model.ts	73.77	20	90	73.77	85-90,102-111,1
user.routes.ts	100	100	100	100	
user.types.ts	100	100	100	100	
validation.middleware.ts	83.33	0	66.66	81.81	13-16
workspace.controller.ts	71.59	65.55	100	71.59	...404-405,431,
workspace.model.ts	100	100	100	100	
workspace.routes.ts	100	100	100	100	
workspace.service.ts	21.5	10.41	15.78	21.96	13-38,53-118,13
workspace.types.ts	100	100	100	100	
Test Suites: 6 passed, 6 total					
Tests: 184 passed, 184 total					
Snapshots: 0 total					
Time: 17.137 s, estimated 27 s					
Ran all test suites matching /__tests__\/mocked/i.					

image info

## 2.5. Combined Jest Coverage Reports (With & Without Mocking)

File	% Stmts	% Branch	% Funcs	% Lines	Unc
All files	100	100	100	100	
asyncHandler.util.ts	100	100	100	100	
auth.controller.ts	100	100	100	100	
auth.middleware.ts	100	100	100	100	
auth.routes.ts	100	100	100	100	
auth.service.ts	100	100	100	100	
auth.types.ts	100	100	100	100	
constants.ts	100	100	100	100	
database.ts	100	100	100	100	
errorHandler.middleware.ts	100	100	100	100	
logger.util.ts	100	100	100	100	
media.controller.ts	100	100	100	100	
media.routes.ts	100	100	100	100	
media.service.ts	100	100	100	100	
message.model.ts	100	100	100	100	
message.routes.ts	100	100	100	100	
message.types.ts	100	100	100	100	
note.model.ts	100	100	100	100	
notes.controller.ts	100	100	100	100	
notes.routes.ts	100	100	100	100	
notes.service.ts	100	100	100	100	
notes.types.ts	100	100	100	100	
notification.service.ts	100	100	100	100	
routes.ts	100	100	100	100	
sanitizeInput.util.ts	100	100	100	100	
storage.ts	100	100	100	100	
user.controller.ts	100	100	100	100	
user.model.ts	100	100	100	100	
user.routes.ts	100	100	100	100	
user.types.ts	100	100	100	100	
validation.middleware.ts	100	100	100	100	
workspace.controller.ts	100	100	100	100	
workspace.model.ts	100	100	100	100	
workspace.routes.ts	100	100	100	100	
workspace.service.ts	100	100	100	100	
workspace.types.ts	100	100	100	100	
Test Suites: 13 passed, 13 total					
Tests: 403 passed, 403 total					
Snapshots: 0 total					
Time: 35.87 s					
Ran all test suites.					

image info

### 3. Back-end Non-functional Requirements

#### 3.1. Test Locations

Non-Functional Requirement	Location in Git
Backend – Search Speed	ThingSpace.ts/backend/src/__tests__/notes.latency.test.ts
Frontend – Two-Click Navigation	frontend/app/src/androidTest/java/com/cpen321/usermanagement/TestReachWithTwoClicks.kt

##### Backend – Search Speed (notes.latency.test.ts)

- **How to run:** cd backend && npm test -- \_\_tests\_\_/non-func-tests
- **What it checks:** Seeds 400 notes, issues three representative search queries, and reports the mean latency. Latest runs average ~1.1s/query, comfortably under the 5s budget.

##### Frontend – Two-Click Navigation (TestReachWithTwoClicks.kt)

- **How to run:** cd frontend && ./gradlew connectedAndroidTest -Pandroid.testInstrumentationRunnerArguments.class=com.cpen321.usermanagement.TestReachWithTwoClicks
- **What it checks:** Starting from the main workspace screen, the test traverses to note, template, and chat views—both within the current workspace and across other workspaces—counting taps to confirm every note-bearing screen is reachable in ≤2 clicks.

3.2. Test Verification and Logs

Performance: Search Speed

- Creates 400 notes, runs 3 queries, average ~1.1s (<5s target)
- Logs:

Chat Data Security

- Verification:
- Logs:

4. Front-end Test Specification

This includes the non-functional requirement that every note/message containing screen must be reachable from the main screen within two clicks. This non-functional requirement can only be verified via frontend tests, hence it is included here as `TestReachWith2Clicks.kt`.

4.1. Location in Git

`./Frontend/app/src/androidTest/java/com.cpen321.usermanagement`

4.2. Tests Included

TestCollaborate.kt – Collaborate Feature

- **Prerequisites**
  - Two user accounts: a workspace manager and a workspace member
  - The manager account must have a workspace named `Test`
  - The manager account must not have access to workspaces named `Study` or `Study v2`

Create Workspace

Scenario steps	Test case steps
1. The user opens the “Create Workspace” screen.	Open the “Create Workspace” screen.
2. The app shows input fields for title and a “Create Workspace” button that is disabled.	Check that the “Pick a workspace name” field is visible. Check that button labelled “Create Workspace” is present and disabled.
3a. The user inputs a workspace title that is already taken	Before the test, a separate workspace called “Test” should be created. Then, open the “Create Workspace” screen and input “Test” in the title field. Click “Create”.
3a1. The app displays an error message telling user that the creation failed	Check the dialog shows: “Failed to create workspace.”
3. The user enters valid information.	Input “Studies” in the title field. Check that button labelled “Create” is now enabled.
4. The user clicks the “Create” button.	Click “Create”. Verify system shows “Manage Workspace Profile” for user to make edits and that the “Save” button is disabled until a workspace bio is inputted. Verify workspace “Studies” appears in the workspace list.

Update Workspace (Manager)

Scenario steps	Test case steps
10. The manager navigates to the “Edit Workspace” icon.	As the workspace manager account, navigate to the workspace screen. Click the “Pencil” icon next to the “Studies” workspace.
11. The manager edits the title and bio.	Change title to “Studies v2” and the bio to “Study group” and click the “Save” button. Check the confirmation message: “Profile updated successfully.”

Invite to Workspace

Scenario steps	Test case steps
5. A workspace member selects “Invite User”.	Click “Studies” workspace’s “Manage Workspace” icon (pencil icon). Click the “Invite User” icon on the bottom navbar (icon with person and cogwheel).
6. The app shows an input field for email and a “Invite to the Workspace” button.	Check input field and “Invite to the Workspace” button are visible.
7a. The inviter inputs invalid email.	Input “invalidemail” and click “Invite to the workspace”.
7a1. The app displays an error message about no user with the email existing	Check message: “Could not retrieve profile matching the given email!”
7. The inviter inputs a valid email	Input the email of another account (your teammate’s account on the app). Click the “Invite to the Workspace” button. Check the confirmation message: “The user got added to the workspace.”
7b. The invitee is already in the workspace.	Input the email of the teammate already in the workspace and click “Invite to the workspace”.
7b1. The app displays an error message indicating that the invitee is already in the workspace.	Check message: “The user is already a member!”

Send Chat Message

Scenario steps	Test case steps
8. The user opens workspace chat.	Go to Workspaces Screen. Click the “Chat” icon next to the “Studies” workspace. Check that the system displays the workspace chat screen.
9a. The message is empty.	Leave input blank or simply spaces and click the “Send” icon. Check that nothing occurs in the chat screen.
9. The user types a valid message and presses send.	Input “Hello team!” in the chat box and click the “Send” icon. Check the chat log shows “Hello team!” with the sender’s profile picture and timestamp.

Update Workspace (Non-Manager)

Scenario steps	Test case steps
10a. A non-manager user attempts to update the workspace.	Log in as a non-manager user and navigate to the "Edit Workspace" icon. Check that the input fields are greyed out.

Leave Workspace (Non-Manager)

Scenario steps	Test case steps
12. The user (non-manager) selects "Leave Workspace".	Open "Studies" manage workspace screen (pencil icon) using your non-manager account and click "Leave Workspace" (door icon).
13. App removes user from the workspace	Check that the "Studies" workspace doesn't show up in the workspace list screen.

Ban Users

Scenario steps	Test case steps
14. The manager opens the Members screen (Profile icon in manage workspace screen).	"Studies" workspace → Manage Workspace → Members screen (profile icon).
15. Manager chooses the user to ban	Click the trash bin icon next to the user.
16. App bans user from the workspace permanently	Verify the banned user doesn't show up in the Members screen anymore. Verify the user cannot be invited anymore and system shows an error message: "This user is banned."

Delete Workspace (Manager)

Scenario steps	Test case steps
17. The manager selects "Delete Workspace".	Open "Studies" settings and click "Delete Workspace" (trash bin icon).
18. App deletes the workspace	Verify the workspace "Studies" doesn't show up in the workspace list screen. Verify the workspace "Studies" can be created.

Logs:

Test of the non-functional requirement that every note-containing screen is reachable from the main screen within two clicks or fewer (`TestReachWith2Clicks.kt`). Starting at the main content screen in a workspace, the test navigates to templates or chat screens in the current workspace, as well as content, templates, or chat in other workspaces. Each route tracks the number of taps performed and asserts that the destination is reached in two clicks or less.

5. Automated Code Review Results

5.1. Commit Hash Where Codacy Ran

c5f46d61177b82ff74c9c30dfd32a5e24de5d683

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.

image info

### 5.3. Unfixed Issues per Codacy Code Pattern

## Issues

🚨 **Current** 0 🚫 Ignored 0

🔍 Filter by Languages Severities Categori

**All issues**

0

image info

### 5.4. Justifications for Unfixed Issues

- **Usage of Deprecated Modules**
  - Location: `src/services/chatService.js#L31`
  - Justification: