

# 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	No Mocks	With Mocks	Mocked Components
<code>POST /api/notes</code>	<code>src/tests/notes.normal.test.ts#L38</code>	<code>src/tests/notes.mocked.test.ts#L63</code>	Notes Service, Notes DB, OpenAI API
<code>PUT /api/notes/:id</code>	L135	L85	Notes Service
<code>DELETE /api/notes/:id</code>	L197	L116	Notes Service
<code>GET /api/notes/:id</code>	L248	L102	Notes Service, Notes DB
<code>GET /api/notes</code>	L301	L130, 147	Notes Service, Workspace DB, OpenAI API
<code>GET /api/notes/:id/workspaces</code>	L605	L280	Notes Service
<code>POST /api/notes/:id/share</code>	L402	L294, 541, 623	Notes Service, Notes DB, Workspace DB
<code>POST /api/notes/:id/copy</code>	L510	L311, 328, 566	Notes Service, Notes DB

Workspaces API

Interface	No Mocks	With Mocks	Mocked Components
<code>POST /api/workspaces</code>	<code>src/tests/workspace.normal.test.ts#L41</code>	L44	Workspace Service
<code>GET /api/workspaces/personal</code>	L101	L84	Workspace Service
<code>GET /api/workspaces/user</code>	L183	L118	Workspace Service
<code>GET /api/workspaces/:id</code>	L231	L152	Workspace Service
<code>GET /api/workspaces/:id/members</code>	L275	L186	Workspace Service
<code>GET /api/workspaces/:id/tags</code>	L306	L236	Workspace Service
<code>GET /api/workspaces/:id/membership/:userId</code>	L441	L270	Workspace Service
<code>POST /api/workspaces/:id/members</code>	L524	L304	Workspace Service
<code>POST /api/workspaces/:id/leave</code>	L738	L374	Workspace Service
<code>PUT /api/workspaces/:id</code>	L836	L392	Workspace Service
<code>PUT /api/workspaces/:id/picture</code>	L897	L428	Workspace Service
<code>DELETE /api/workspaces/:id/members/:userId</code>	L955	L464	Workspace Service
<code>DELETE /api/workspaces/:id</code>	L1112	L498	Workspace Service
<code>GET /api/workspaces/:id/poll</code>	L1204	L532	Workspace Service

Authentication API

Interface	No Mocks	With Mocks	Mocked Components
<code>POST /api/auth/signup</code>	<code>src/tests/auth.normal.test.ts#L123</code>	L77	Auth Service, Workspace Service, User DB, Google OAuth
<code>POST /api/auth/signin</code>	L151	L290	Auth Service
<code>POST /api/auth/dev-login</code>	L68	L394	Auth Service

User API

Interface	No Mocks	With Mocks	Mocked Components
<code>GET /api/users/profile</code>	<code>src/tests/user.normal.test.ts#L39</code>	—	—
<code>PUT /api/users/profile</code>	L57	L48	User DB, Workspace DB
<code>DELETE /api/users/profile</code>	L166	L104	Workspace DB
<code>POST /api/users/fcm-token</code>	L230	L155	User DB
<code>GET /api/users/:id</code>	L273	L209	User DB
<code>GET /api/users/email/:email</code>	L318	L260	User DB

Message API

Interface	No Mocks	With Mocks	Mocked Components
<code>GET /api/messages/workspace/:workspaceId</code>	<code>src/tests/message.normal.test.ts#L61</code>	L67	Message DB
<code>POST /api/messages/workspace/:workspaceId</code>	L188	L91	Message DB, Workspace DB
<code>DELETE /api/messages/:messageId</code>	L261	L134	Message DB, Workspace DB

Media API

Interface	No Mocks	With Mocks	Mocked Components
POST /api/media/upload	src/tests/media.normal.test.ts#L56 L55		Media Service, File System

### 2.1.2. Commit Hash Where Tests Run

### 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	% Stmt	% 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	23-38,47,53,59,71
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	17-40,47,53,59-61
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	72,81,104-105,111
message.model.ts	100	100	100	100	
message.routes.ts	86.95	76.92	100	86.95	18,53-54,64,98-99
message.types.ts	100	100	100	100	
note.model.ts	100	100	100	100	
notes.controller.ts	82.11	50	100	82.11	...6-27,35-36,60
notes.routes.ts	100	100	100	100	
notes.service.ts	73.45	65.9	76.47	76.69	40,146,161,221,222
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	15-16,33,39,49-50
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	% Stmt	% 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	% Stmt	% 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
Search Speed	ThingSpace.ts/backend/src/_tests_/notes.latency.test.ts

#### 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

1. The user opens the “Create Workspace” screen.
2. The app shows input fields for title and a “Create Workspace” button that is disabled.
- 3a. The user inputs a workspace title that is already taken
- 3a1. The app displays an error message telling user that the creation failed
3. The user enters valid information.
4. The user clicks the “Create” button.

###### Test case steps

- Open the “Create Workspace” screen.  
Check that the “Pick a workspace name” field is visible. Check that button labelled “Create Workspace” is present and disabled.  
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’.  
Check the dialog shows: “Failed to create workspace.”  
Input “Studies” in the title field. Check that button labelled “Create” is now enabled.  
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

10. The manager navigates to the “Edit Workspace” icon.
11. The manager edits the title and bio.

###### Test case steps

- As the workspace manager account, navigate to the workspace screen. Click the “Pencil” icon next to the “Studies” workspace.  
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

5. A workspace member selects “Invite User”.
6. The app shows an input field for email and a “Invite to the Workspace” button.
- 7a. The inviter inputs invalid email
- 7a1. The app displays an error message about no user with the email existing
7. The inviter inputs a valid email
- 7b. The invitee is already in the workspace.
- 7b1. The app displays an error message indicating that the invitee is already in the workspace.

###### Test case steps

- Click “Studies” workspace’s “Manage Workspace” icon (pencil icon). Click the “Invite User” icon on the bottom navbar (icon with person and cogwheel).  
Check input field and “Invite to the Workspace” button are visible.  
Input “invalidemail” and click “Invite to the workspace”.  
Check message: “Could not retrieve profile matching the given 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.”  
Input the email of the teammate already in the workspace and click “Invite to the workspace”.  
Check message: “The user is already a member!”

##### Send Chat Message

###### Scenario steps

8. The user opens workspace chat.
- 9a. The message is empty.
9. The user types a valid message and presses send.

###### Test case steps

- Go to Workspaces Screen. Click the “Chat” icon next to the “Studies” workspace.  
Check that the system displays the workspace chat screen.  
Leave input blank or simply spaces and click the “Send” icon. Check that nothing occurs in the chat screen.  
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

- 10a. A non-manager user attempts to update the workspace.

###### Test case steps

- 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

12. The user (non-manager) selects “Leave Workspace”.
13. App removes user from the workspace

###### Test case steps

- Open “Studies” manage workspace screen (pencil icon) using your non-manager account and click “Leave Workspace” (door icon).  
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.

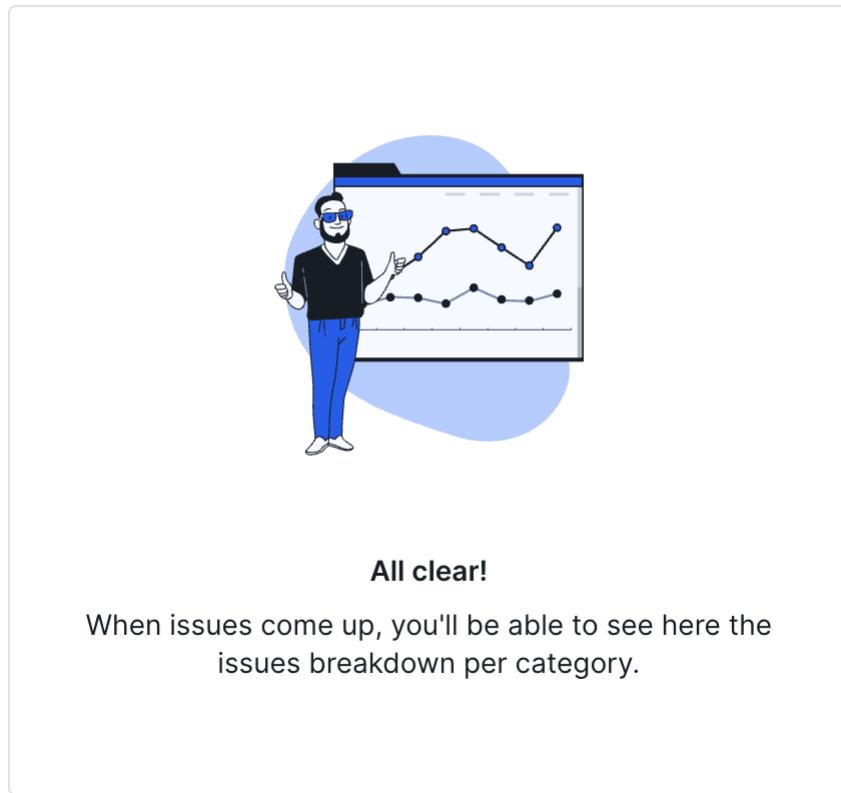
Logs:

## 5. Automated Code Review Results

### 5.1. Commit Hash Where Codacy Ran

### 5.2. Unfixed Issues per Codacy Category

#### Issues breakdown



[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: