

# Testing and Code Review

## 1. Change History

| Change Date            | Modified Sections | Rationale |
|------------------------|-------------------|-----------|
| <i>Nothing to show</i> |                   |           |

## 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                     | Mocked Components                                 |
|--------------------------------|---|---|---|
| POST /api/notes                | backend/src/__tests__/\unmocked/notes.normal.\test.ts#L40 | backend/src/__tests__/\mocked/notes.mocked.\test.ts#L51 | noteService.createNote, OpenAI embeddings client  |
| PUT /api/notes/:id             | #L282   | #L202   | noteService.updateNoteById                        |
| DELETE /api/notes/:id          | #L398   | #L298   | noteService.deleteNote                            |
| GET /api/notes/:id             | #L462   | #L253   | noteService.getNoteById                           |
| GET /api/notes                 | #L528   | #L343   | noteService.searchNotes, OpenAI embeddings        |
| GET /api/notes/:id/\workspaces | #L893   | #L620   | workspaceModel.findById                           |
| POST /api/notes/:id/\share     | #L662   | #L665   | noteService.\shareNoteToWorkspace, workspaceModel |
| POST /api/notes/:id/\copy      | #L784   | #L764   | noteService.copyNote, workspaceModel              |

##### Workspaces API

| Interface                   | Describe Group Location, No Mocks                             | Describe Group Location, With Mocks                          | Mocked Components                       |
|-----------------------------|---|--|---|
| POST /api/workspace         | backend/src/__tests__/\unmocked/workspace.normal.\test.ts#L45 | backend/src/__tests__/\mocked/workspace.mocked.\test.ts#L237 | workspaceService.\createWorkspace       |
| GET /api/workspace/personal | #L167   | #L277  | workspaceService.\getPersonalWorkspaces |
| GET /api/workspace/user     | #L290   | #L330  | workspaceService.\getUserWorkspaces     |
| GET /api/workspace/:id      | #L352   | #L364  | workspaceService.\getWorkspaceById      |

| Interface                                   | Describe Group Location, No Mocks | Describe Group Location, With Mocks | Mocked Components                                       |
|---|-----------------------------------|-------------------------------------|---|
| GET /api/workspace/:id/members              | #L410                             | #L398                               | workspaceService.getMembers, notificationService        |
| GET /api/workspace/:id/tags                 | #L454                             | #L448                               | workspaceService.\`getWorkspaceTags                     |
| GET /api/workspace/:id/\`membership/:userId | #L536                             | #L482                               | workspaceService.getMembership                          |
| POST /api/workspace/:id/members             | #L619                             | #L516                               | workspaceService.addMembers, notificationService        |
| POST /api/workspace/:id/leave               | #L847                             | #L694                               | workspaceService.\`leaveWorkspace                       |
| PUT /api/workspace/:id                      | #L959                             | #L712                               | workspaceService.\`updateWorkspace                      |
| PUT /api/workspace/:id/picture              | #L1051                            | #L748                               | workspaceService.\`updateWorkspacePicture, storage      |
| DELETE /api/workspace/:id/\`members/:userId | #L1156                            | #L784                               | workspaceService.removeMember                           |
| DELETE /api/workspace/:id                   | #L1323                            | #L818                               | workspaceService.\`deleteWorkspace, notificationService |
| GET /api/workspace/:id/poll                 | #L1429                            | #L852                               | workspaceService.\`getWorkspaceWithPolling              |

## Authentication API

| Interface                | Describe Group Location, No Mocks                           | Describe Group Location, With Mocks                      | Mocked Components   |
|--------------------------|---|--|---|
| POST /api/auth/signup    | backend/src/__tests__/\`unmocked/auth.normal.\`test.ts#L123 | backend/src/__tests__/\`mocked/auth.mocked.\`test.ts#L74 | authService.signUp, Google token verifier, workspaceService |
| POST /api/auth/signin    | #L151   | #L290  | authService.signIn  |
| POST /api/auth/dev-login | #L68  | #L394  | authService.devLogin  |

## User API

| Interface                 | Describe Group Location, No Mocks                          | Describe Group Location, With Mocks                      | Mocked Components                    |
|---------------------------|--|--|--------------------------------------|
| GET /api/users/profile    | backend/src/__tests__/\`unmocked/user.normal.\`test.ts#L39 | —  | —                                    |
| PUT /api/users/profile    | #L57   | backend/src/__tests__/\`mocked/user.mocked.\`test.ts#L48 | userModel.updateOne, workspaceModel  |
| DELETE /api/users/profile | #L166  | #L104  | workspaceModel, notification service |
| POST /api/users/fcm-token | #L230  | #L155  | userModel.updateOne                  |

| Interface                   | Describe Group Location, No Mocks | Describe Group Location, With Mocks | Mocked Components       |
|-----------------------------|-----------------------------------|-------------------------------------|-------------------------|
| GET /api/users/:id          | #L273                             | #L209                               | userManager.findById    |
| GET /api/users/email/:email | #L318                             | #L260                               | userManager.findByEmail |

## Message API

| Interface                                   | Describe Group Location, No Mocks                             | Describe Group Location, With Mocks                         | Mocked Components                   |
|---|---|---|-------------------------------------|
| GET /api/messages/\ workspace/:workspaceId  | backend/src/__tests__/\ unmocked/message.normal.\ test.ts#L61 | backend/src/__tests__/\ mocked/message.mocked.\ test.ts#L67 | messageModel.findByWorkspace        |
| POST /api/messages/\ workspace/:workspaceId | #L188   | #L91  | messageModel.create, workspaceModel |
| DELETE /api/messages/: messageId            | #L261   | #L134   | messageModel.deleteOne              |

## Media API

| Interface              | Describe Group Location, No Mocks                           | Describe Group Location, With Mocks                       | Mocked Components                      |
|------------------------|---|---|--|
| POST /api/media/upload | backend/src/__tests__/\ unmocked/media.normal.\ test.ts#L56 | backend/src/__tests__/\ mocked/media.mocked.\ test.ts#L55 | storage.uploadImage, file system stubs |

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

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### 2.2. GitHub Actions Configuration Location

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

### 2.3. Jest Coverage Report Screenshots (Without Mocking)

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

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

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## 3. Back-end Non-functional Requirements

### 3.1. Test Locations

| File                       | %Stmts | %Branch | %Funcs | %Lines | Uncovered Line #s   |
|----------------------------|--------|---------|--------|--------|---|
| 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  | 23-38,47,53,59,74-106,121-131   |
| 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  | 17-40,47,53,59-96   |
| 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  | 72,81,104-105,112,128   |
| message.model.ts           | 100    | 100     | 100    | 100    |   |
| message.routes.ts          | 86.95  | 76.92   | 100    | 86.95  | 18,53-54,64,98-99,109,130-131   |
| message.types.ts           | 100    | 100     | 100    | 100    |   |
| note.model.ts              | 100    | 100     | 100    | 100    |   |
| notes.controller.ts        | 82.11  | 50      | 100    | 82.11  | ...6-27,35-36,60-61,81-82,98-99,107-108,141,149-150,175-176,183,206-207 |
| notes.routes.ts            | 100    | 100     | 100    | 100    |   |
| notes.service.ts           | 73.45  | 65.9    | 76.47  | 76.69  | 40,146,161,221,251-287  |
| 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  | 15-16,33,39,49-57,65,91-99,107,117,126-134,161-169,178,196-204          |
| user.model.ts              | 75.4   | 80      | 90     | 75.4   | 113-114,122-123,137-138,146-162   |
| 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  | ...-286,321,329-330,370,378-379,409,417-418,449,457-458,489,496-497,517 |
| 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.`

Figure 1: image info

| File                       | %Stmts | %Branch | %Funcs | %Lines | Uncovered Line #s  | Add to Chat  |
|----------------------------|--------|---------|--------|--------|--|---|
| 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  | 18-22,27-31,41-45,53-57,61-65,79-120                                   |   |
| 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  | 22,34,45,96,102,116-124  |   |
| message.model.ts           | 100    | 100     | 100    | 100    |  |   |
| message.routes.ts          | 81.15  | 23.07   | 100    | 81.15  | 24,31,35,41,51,70,77,81,96,114,120,124,128                             |   |
| message.types.ts           | 100    | 100     | 100    | 100    |  |   |
| note.model.ts              | 100    | 100     | 100    | 100    |  |   |
| notes.controller.ts        | 79.67  | 75      | 100    | 79.67  | ...121,129-130,137-138,157-158,163,171-172,179-180,192,215-216,219-220 |   |
| notes.routes.ts            | 100    | 100     | 100    | 100    |  |   |
| notes.service.ts           | 67.25  | 56.81   | 64.7   | 66.01  | 58,70-107,122,125,131,137,149,163-207,227,236,243                      |   |
| 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   | 19,44,70-86,120-121,143,150-156,185-191                                |   |
| user.model.ts              | 73.77  | 20      | 90     | 73.77  | 85-90,102-111,132,188-206  |   |
| 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  | ...404-405,431,440-441,444-445,467,476-477,480-481,484-485,503,512-513 |   |
| 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  | 13-38,53-118,130,138-189,196,202,208,214,220,226,255,271-477           |   |
| 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.`

Figure 2: image info

| File                       | % Stmt | % Branch | % Funcs | % Lines | Uncovered Line #s |
|----------------------------|--------|----------|---------|---------|-------------------|
| 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.

```

Figure 3: image info

| 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/copen321/\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.copen321.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:

```
console.log
  Search latency test passed: average 1120.00ms < 5000ms

  at Object.<anonymous> (src/\_\_tests\_\_/notes.latency.test.ts:224:15)

PASS [ Backend Tests | src/\_\_tests\_\_/notes.latency.test.ts (8.436 s) ]
  Notes API – Latency Test (Non-Functional Requirement)
    GET /api/notes – Search Latency Test
      ✓ Search query latency should be under 5 seconds with 400 notes (5898 ms)

  Test Suites: 1 passed, 1 total
  Tests:       1 passed, 1 total
  Snapshots:   0 total
  Time:        8.562 s
  Ran all test suites matching /notes.latency.test.ts/i.
  ◉ (base) Andrew's MacBook Air 3:backend Andrew$
```

Figure 4: image info

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## 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.copen321.usermanagement`

## 4.2. Tests Included

### Test of the “Collaborate” Feature (`TestCollaborate.kt`)

#### Prerequisite:

1. Need 2 user accounts:
  - Workspace Manager
  - Workspace Member
2. Workspace Manager must have a workspace named “**Test**”
3. There must be **no existing workspaces** named “*Study*” or “*Study v2*”

#### Scenario Steps and Test Case Steps

| Scenario Steps  | Test Case Steps   |
|---|---|
| <b>Create Workspace</b><br>1. The user opens the “Create Workspace” screen.<br>2. The app shows input fields and a disabled button.<br><br>3a. User enters workspace title already taken.<br><br>3a1. App shows error.<br>3. User enters valid title.<br>4. User clicks “Create”. | Open the “Create Workspace” screen.<br>Verify “Pick a workspace name” and disabled “Create Workspace” button.<br>Pre-create workspace “Test”. Enter “Test” and click Create.<br>Check for dialog: <b>“Failed to create workspace.”</b><br>Enter “Studies”. Verify “Create” button enabled.<br>Click “Create”. Verify workspace setup screen shown and “Studies” appears in list.  |
| <b>Update Workspace</b><br>10. Manager navigates to “Edit Workspace”.<br><br>11. Edit title and bio.  | <After workspace creation, one is already at the edit workspace screen><br>Change title to “Studies v2” and bio “Study group”; click Save; expect “Profile updated successfully.”   |
| <b>Invite to Workspace</b><br>5. Member selects “Invite User”.<br>6. App shows input and button.<br><br>7a. Enter invalid email.<br>7a1. Error message shown.<br><br>7. Enter valid email.<br><br>7b. Invite already-member user.<br>7b1. Error message.                          | Open Studies v2 → Manage Workspace → Invite icon.<br>Verify email field + “Invite to Workspace” button visible.<br>Enter “invalidemail”, click Invite.<br>Check: <b>“Could not retrieve profile matching the given email!”</b><br>Input teammate email → click Invite → expect <b>“The user got added to the workspace.”</b><br>Enter existing member email and click Invite.<br><b>“The user is already a member!”</b> |
| <b>Send Chat Message</b><br>8. User opens workspace chat.<br>9a. Empty message.<br>9. Valid message.  | Open chat icon; verify chat screen shown.<br>Send blank message; verify no change.<br>Send “Hello team!”; verify appears with picture & timestamp.  |
| <b>Update Workspace as Non-Manager</b><br>10a. Non-manager tries editing workspace.   | Log out as the manager. Open edit screen as non-manager → fields should be greyed out.  |
| <b>Leave Workspace (Non-Manager)</b><br>12. Non-manager clicks Leave.<br>13. App removes user.  | Open Studies v2 → Leave Workspace.<br>Studies v2 no longer appears in workspace list.   |
| <b>Ban Users</b><br>14. Manager opens Members screen.<br><br>15. Manager bans user.   | Log in as manager → Workspaces Screen → <select “Studies v2”> → Manage Workspace → Members icon.<br>Click trash next to user.   |

| Scenario Steps                 | Test Case Steps  |
|--------------------------------|--|
| 16. User banned permanently.   | User removed, cannot be re-invited → “ <b>That user is banned</b> ” message should show upon an invite attempt |
| <b>Delete Workspace</b>        |  |
| 17. Manager deletes workspace. | Click Delete Workspace (trash icon).   |
| 18. Workspace deleted.         | Studies v2 disappears and an appropriate success message is shown.   |

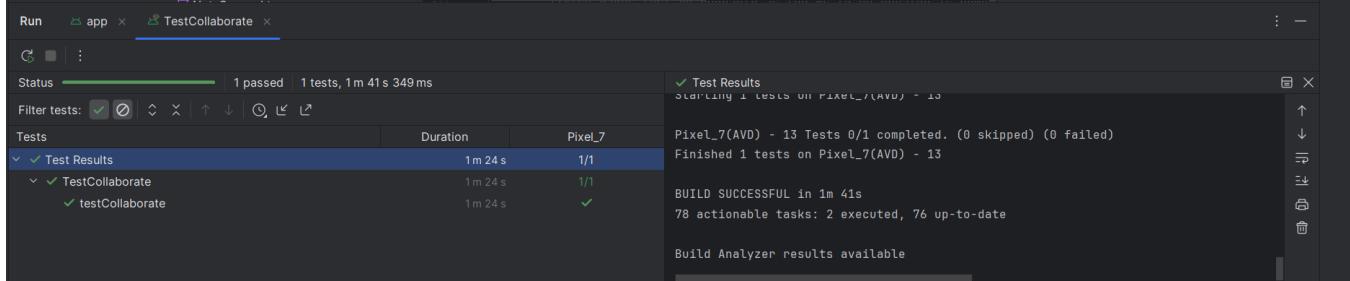


Figure 5: image info

### Test of the “Manage Notes” Feature (TestNotes.kt)

#### Prerequisite:

Two pre-existing workspaces.

| Scenario Steps  | Test Case Steps   |
|---|---|
| <b>Create Note</b>  |   |
| 1. Open “Create Note” screen.<br>2. App shows metadata fields and create button.<br>3a. Create note with no fields.<br>3a1. Error.<br>3b. Create note with empty field label.<br>3b1. Error.<br>3. User fills fields.<br>4. Click Create.<br>5. Note created. | Tap pencil icon.<br>Verify “Note Type”, “Tags”, “Fields”.<br>Click Create with no fields.<br><b>“Please add at least one field”</b><br>Add field but leave label blank; click Create.<br><b>“All fields must have a label”</b><br>Add tag(s), add field “Notes”, enter content. |
| <b>Update Note</b>  | Verify note appears.  |
| 6. Open note to edit.<br>7. App shows editable fields.<br>8. Modify content & tags.<br>9. Click Save.<br>10. Note updated.  | Click pencil icon on note.<br>Verify tag add/remove.  |
| <b>Share Note</b>   | Verify new values.  |
| 11. Select “Share Note”.<br>12. Workspace selection dialog.<br>13. Select workspace & confirm.<br>14. Note shared.  | Click Share icon.<br>Verify “Share Note” + workspace list.<br>Click Share.<br><b>“Note shared to workspace successfully”</b> , note moves workspaces.   |
| <b>Copy Note</b>  |   |
| 15. Select “Copy Note”.<br>16. Workspace selection.<br>17. Select workspace.<br>18. Note copied.  | Click Copy icon.<br>Verify UI.<br>Click Copy.<br>Appears in both workspaces.  |

| Scenario Steps            | Test Case Steps                    |
|---------------------------|------------------------------------|
| <b>Delete Note</b>        |                                    |
| 19. Select “Delete Note”. | Tap trash.                         |
| 20. Confirmation dialog.  | “Are you sure... cannot be undone” |
| 21. Confirm.              | Click Delete.                      |
| 22. Note deleted.         | Verify removal.                    |

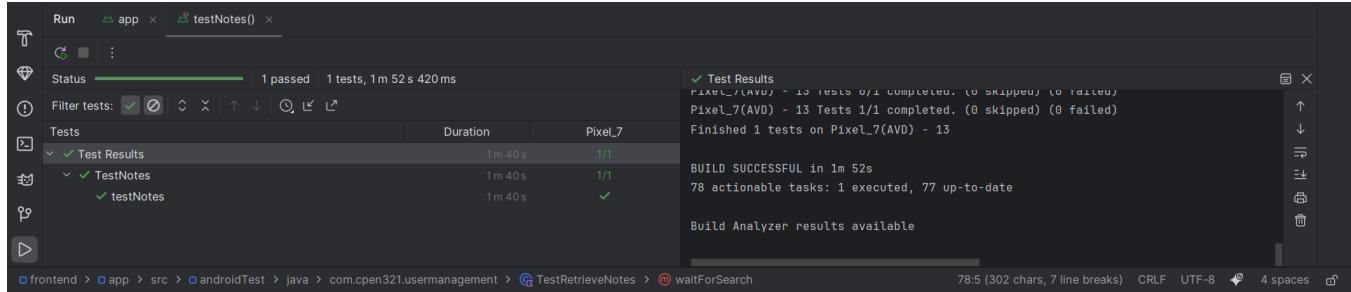


Figure 6: image info

### Test of the “Retrieve Notes” Feature (TestRetrieveNotes.kt)

#### Prerequisite:

Existing workspace with notes.

| Scenario Steps              | Test Case Steps  |
|-----------------------------|--|
| <b>Search Notes</b>         |  |
| 1. Open workspace.          | Navigate to workspace.                                     |
| 2. Search bar visible.      | Verify presence.   |
| 3a. Empty query.            | Search blank.  |
| 3a1. All notes shown.       | Verify list.   |
| 3. Enter query.             | Input string → Search.                                     |
| 4. Matching notes shown.    | Relevant notes at top.                                     |
| <b>Filter Notes by Tags</b> |  |
| 5. Click filter icon.       | Verify “All” + checkboxes.                                 |
| 6. Tag selection screen.    | All tags selected.   |
| 7. Select “All”.            | All tags cleared.  |
| 9. Deselect “All”.          |  |
| 11. Select specific tags.   |  |
| 12. Go back.                |  |
| 13. Filter applied.         | Only matching notes. Ordered according to the search query |

### Test: Reach Note Screens in 2 Clicks (TestReachWith2Clicks.kt)

This test verifies that from a workspace main screen, users can reach:

- templates screen
- chat screen
- content/templates/chat of another workspace

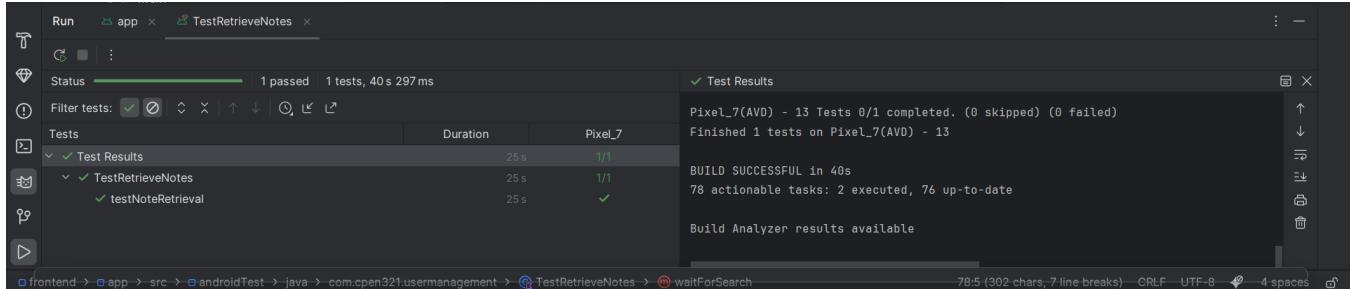


Figure 7: image info

All screens must be reachable in **2 clicks or fewer**.

The test counts the number of clicks for each navigation path.

## Test Logs

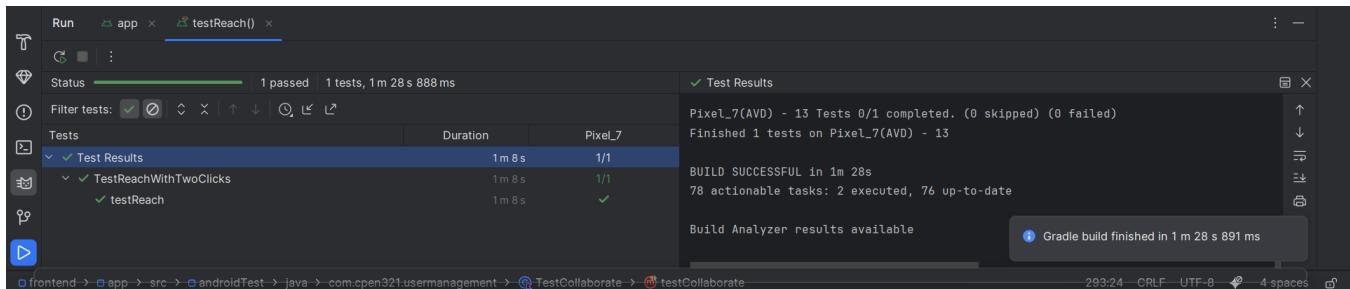


Figure 8: image info

## 5. Automated Code Review Results

### 5.1. Commit Hash Where Codacy Ran

96e4c5520f47503662f56029212714c229f3617f

### 5.2. Unfixed Issues per Codacy Category

### 5.3. Unfixed Issues per Codacy Code Pattern

#### 5.4. Justifications for Unfixed Issues

#### No unfixed codacy issues

## Issues breakdown



**All clear!**

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

Figure 9: image info

# Issues

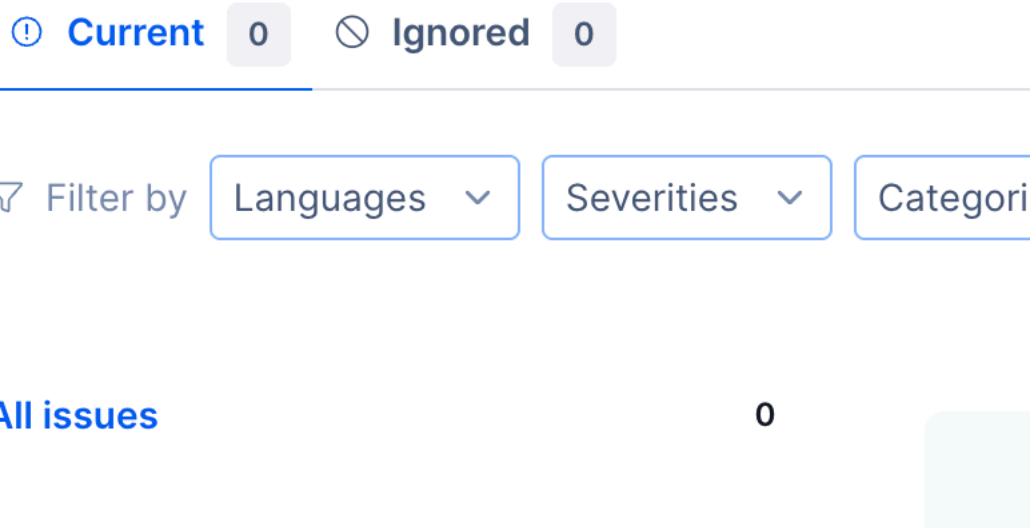


Figure 10: image info