

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	W
POST /api/notes	src/tests/notes.normal.test.ts#L38	src/tests/noti
PUT /api/notes/:id	L135	L85
DELETE /api/notes/:id	L197	L116
GET /api/notes/:id	L248	L102
GET /api/notes	L301	L130,147
GET /api/notes/:id/workspaces	L605	L280
POST /api/notes/:id/share	L402	L294,541,623
POST /api/notes/:id/copy	L510	L311,328,566

Workspaces API

Interface	No Mocks
POST /api/workspaces	src/tests/workspace.normal.test.ts#L
GET /api/workspaces/personal	L101
GET /api/workspaces/user	L183
GET /api/workspaces/:id	L231
GET /api/workspaces/:id/members	L275
GET /api/workspaces/:id/tags	L306
GET /api/workspaces/:id/membership:userId	L441
POST /api/workspaces/:id/members	L524
POST /api/workspaces/:id/leave	L738
PUT /api/workspaces/:id	L836
PUT /api/workspaces/:id/picture	L897
DELETE /api/workspaces/:id/members:userId	L955
DELETE /api/workspaces/:id	L1112
GET /api/workspaces/:id/poll	L1204

Authentication API

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

User API

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

Message API

Interface	No Mocks
GET /api/messages/workspace/:workspaceId	src/tests/message.normal.test.ts#L61
POST /api/messages/workspace/:workspaceId	L188
DELETE /api/messages/:messageId	L261

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	% 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	28-38, 47, 53, 59, 74-106, 121-131
auth.middleware.ts	89.34	100	100	89.87	64
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, 149-158, 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, 40-57, 65, 91-99, 107, 117, 126-134, 161-169, 178, 196-204
user.model.ts	75.4	100	90	72.4	113-114, 122-123, 137-138, 146-152
user.routes.ts	100	100	100	100	
user.types.ts	100	100	100	100	
validation.middleware.ts	91.66	100	100	98.9	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.					

image info

2.4. Jest Coverage Report Screenshots (With Mocking)

File	% Stmts	% Branch	% Funcs	% Lines	Uncovered Line #s
All files	71.61	57.22	69.17	71.99	
asyncHandler.util.ts	75	100	66.66	100	112
auth.controller.ts	100	92.3	100	100	
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	98.9	100	50	88.08	6
logger.util.ts	100	100	100	100	
media.controller.ts	80.22	40	100	88.23	16, 24
media.routes.ts	100	100	100	100	
media.service.ts	88.35	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	66.81	58, 78-107, 122, 125, 131, 137, 149, 183-207, 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	88.68	0	100	83.33	7
storage.ts	94.73	66.66	100	94.73	39
user.controller.ts	75.3	65	100	75.3	18, 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	... 484-485, 431, 440-441, 444-445, 467, 470-477, 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.					

image info

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

File	% Stmts	% 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: 35.107 s					
Ran all test suites.					

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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

Use Case	Test File
Collaborate	TestCollaborate.kt
Manage Notes	TestNotes.kt
Retrieve Notes	TestRetrieveNotes.kt
Reach Note Screens in ≤ 2 Clicks	TestReachWith2Clicks.kt

Logs:

5. Automated Code Review Results

5.1. Commit Hash Where Codacy Ran

5.2. Unfixed Issues per Codacy Category

(Placeholder)

5.3. Unfixed Issues per Codacy Code Pattern

(Placeholder)

5.4. Justifications for Unfixed Issues

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