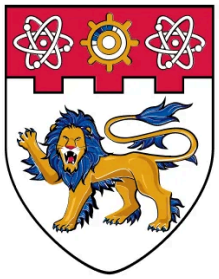


NANYANG TECHNOLOGICAL UNIVERSITY
SINGAPORE

SC2006 Software Engineering

Lab 4 Deliverables

Lab Group	STA1	
Team	OneCDC	
Members	Atharshlakshmi Vijayakumar	U2421029D
	Chen Kangxiang	U2421851B
	Cynthia Ng Geok Hwee	U2420179K
	Sherman Chan	U2423031C
	Yong Tze Fon Timothy	U2421340F

1. Black Box Testing

I. authController

Chosen control class: authController

authController class coordinates user registration (for both Shopper and Owner), login (for Owners, Administrators, and Shoppers), profile management, and password change, which are major application logic that directly affects security and access control.

Authentication is core to the application since it is an important control flow. It also interacts with multiple subsystems and the logic includes rich input validation.

For user registration, authController collects information from user, validates the inputs, and ensures passwords are securely hashed before storing them in the database. Each new user is assigned a unique user ID, which is then used to identify and manage user-specific data. For the role of an Owner, additional information (shop's Unique Entity Number) is required while general users (e.g. Shoppers) only require information such as Email, Password, and Name. After registration, authController generates an email verification token and sends it to the user's inbox to ensure account authenticity.

For user login, authController collects the user's email and password, validating the input for correctness and completeness. It then interacts with authService to retrieve the stored hashed password for the given email and compares it against the password keyed in by the user. Successful validation grants the user role-specific access while invalid credentials will result in the relevant error response. The information managed by authController in this login process is therefore the email and password.

The googleAuthController complements authController by managing login through Google OAuth. It verifies Google ID token,s checks if the user already exists in the database, creates a new user if not, and generates a JWT token for session management. Information handled by googleAuthController includes Google credential token, email, name, and profile picture.

In short, authController, together with googleAuthcontroller, serves as a central component in managing secure user access, authentication flows, and user data integrity across OneCDC.

II. Equivalence Class and Boundary Value Testing

Equivalence Class Testing

A key aspect of black box testing is identifying equivalent classes (EC). Equivalent Class Testing is where we partition input values into EC. A set of input values form an EC provided they are supposed to produce the same output, when one value catches a bug, the others will catch the bug too, and when one value does not catch a bug, the other values in the EC will likely not catch the bug either. Test cases should cover each EC at least once.
Both valid and invalid ECs should be tested in defensive testing. For valid ECs, the system should handle them normally whereas invalid ECs should be rejected by the system with appropriate error responses. Only one invalid input from an AC of one input parameter should be tested at the same time, all other input parameters should be valid inputs. On the other hand, when testing valid inputs, we test valid inputs of several parameters at the same time (i.e. per test case)
We test the module with invalid inputs to see whether it behaves as expected (i.e. does not cause unforeseen errors or abnormal system behavior such as sudden program termination)

Boundary Value Testing (BVT)

BVT is only applicable to continuous (range of) values, not discrete values. We focus on the boudnaries of the EC, selecting a minimal set of valid and invalid inputs for testing, namely values on-the-boundary, just-below, or just-above boundaries).
The system should handle just-below and just-above boundaries input as invalid and on-the-boundary values as valid.

Test ECs and BVTs

1. Login

Valid EC: Emails and passwords in the correct format (eg proper email format, password should have at least 8 characters, include at least one uppercase, at least one lowercase, and at least one number.)
Invalid EC: Emails and passwords with incorrect format and missing fields.

Boundary Values:
- Minimum password lengths
- Empty strings for email and password

2. Register User

a. If user is Shopper:

Valid EC: Name, Email, Password, Confirm Password with correct format, and Password matches Confirm Password.
Invalid EC: Missing fields, Name, Email, Password, Confirm Password with incorrect format, Password does not match Confirm Password.

Boundary values:
- Minimum length of strings for Password

b. If user is Owner:

Valid EC: Name, Email, Business Registration Number (UEN), Password, and Confirm Password with correct format, and Password matches Confirm Password.
Invalid EC: Missing fields. Name, Email, Business Registration Number (UEN), Password, with incorrect format. Password does not match Confirm Password.

Boundary values:
- Minimum lengths for strings for Password

3. Change password

Valid EC: Current password and new password are correct and with correct format.
- Current password matches the existing password in the database
- New password has at least 8 characters, at least one uppercase letter, at least one lowercase letter, at least one numerical character.
- User account exists and is authenticated and registered via local login (authProvider = ‘local’)

Invalid EC: Missing either current password or new password, new password format invalid, current password does not match the stored password, User not found (invalid or expired token, deleted account), user registered via social login (ie Google)

Boundary values:

- Minimum password lengths
- Expired or invalid JWT token (authentication boundary)

III. Test Cases and Results

1. Login

Input parameters: Email and Password

No.	Test input	Expected output	Actual output	Pass?
1	**(Valid)** Email: “shermanc913@gmail.com” **(Valid)** Password: “Passw0rd”	“Successful login”	“Successful login”	Yes
2	**(Invalid)** Email: “” **(Valid)** Password: “Passw0rd”	Not able to click Sign in button	Not able to click Sign in button	Yes
3	**(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “”	Not able to click Sign in button	Not able to click Sign in button	Yes
4	**(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “Passw0r”	“Invalid email or password”	“Invalid email or password”	Yes
5	**(Invalid)** Email: “shermanc913” **(Valid)** Password: “Password”	Not able to click Sign in button	Not able to click Sign in button	Yes
6	**(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “Password”	“Invalid email or password”	“Invalid email or password”	Yes
7	**(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “passw0rd”	“Invalid email or password”	“Invalid email or password”	Yes
8	**(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “PASSW0RD”	“Invalid email or password”	“Invalid email or password”	Yes

2. Register user

User: Shopper
Input parameters: Name, Email, Phone Number, Address, Password

No.	Test input	Expected output	Actual output	Pass?
1	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Check your email” “Verifying…” “Email verified successfully. Redirecting to login…”	“Check your email” “Verifying…” “Email verified successfully. Redirecting to login…”	Yes
2	**(Valid)** Name: “Sherman Chan” **(Invalid)** Email: “shermanc913” **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Enter a valid email”	“Enter a valid email”	Yes
3	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “Passw0r” **(Valid)** Confirm Password: “Passw0r”	“At least 8 characters”	“At least 8 characters”	Yes
4	**(Invalid)** Name: “” **(Valid)** Email: “shermanc913” **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Name is required”	“Name is required”	Yes
5	**(Valid)** Name: “Sherman Chan” **(Invalid)** Email: “” **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Email is required”	“Email is required”	Yes
6	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “” **(Valid)** Confirm Password: “Passw0rd”	“Password is required”	“Password is required”	Yes
7	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** Password: “Passw0rd”	“Confirm your password”	“Confirm your password”	Yes

	(Invalid) Confirm Password: “”			
8	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “passw0rd” **(Valid)** Confirm Password: “passw0rd”	“Need at least one uppercase letter”	“Need at least one uppercase letter”	Yes
9	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “PASSW0RD” **(Valid)** Confirm Password: “PASSW0RD”	“Need at least one lowercase letter”	“Need at least one lowercase letter”	Yes
10	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Invalid)** Password: “Password” **(Valid)** Confirm Password: “Password”	“Need at least one number”	“Need at least one number”	Yes
11	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** Password: “Passw0rd” **(Invalid)** Confirm Password: “Passw4rd”	“Passwords do not match”	“Passwords do not match”	Yes

User: Owner
Input parameters: Name, Email, Phone Number, Business Registration Number (UEN), Password

No.	Test input	Expected output	Actual output	Pass?
1	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 201912345K **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Check your email” “Verifying…” “Email verified successfully. Redirecting to login…”	“Check your email” “Verifying…” “Email verified successfully. Redirecting to login…”	Yes
2	**(Valid)** Name: “Sherman Chan” **(Invalid)** Email: “shermanc913” **(Valid)** UEN: 201912345K **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Enter a valid email”	“Enter a valid email”	Yes
3	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 201912345K **(Invalid)** Password: “Passw0r” **(Valid)** Confirm Password: “Passw0r”	“At least 8 characters”	“At least 8 characters”	Yes
4	**(Invalid)** Name: “” **(Valid)** Email: “shermanc913” **(Valid)** UEN: 201912345K **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Name is required”	“Name is required”	Yes
5	**(Valid)** Name: “Sherman Chan” **(Invalid)** Email: “” **(Valid)** UEN: 201912345K **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Email is required”	“Email is required”	Yes
6	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 201912345K **(Invalid)** Password: “” **(Valid)** Confirm Password: “Passw0rd”	“Password is required”	“Password is required”	Yes

7	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 201912345K **(Valid)** Password: “Passw0rd” **(Invalid)** Confirm Password: “”	“Confirm your password”	“Confirm your password”	Yes
8	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 201912345K **(Invalid)** Password: “passw0rd” **(Valid)** Confirm Password: “passw0rd”	“Need at least one uppercase letter”	“Need at least one uppercase letter”	Yes
9	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 201912345K **(Invalid)** Password: “PASSW0RD” **(Valid)** Confirm Password: “PASSW0RD”	“Need at least one lowercase letter”	“Need at least one lowercase letter”	Yes
10	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 201912345K **(Invalid)** Password: “Password” **(Valid)** Confirm Password: “Password”	“Need at least one number”	“Need at least one number”	Yes
11	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 201912345K **(Valid)** Password: “Passw0rd” **(Invalid)** Confirm Password: “Passw4rd”	“Passwords do not match”	“Passwords do not match”	Yes
12	**(Valid)** Name: “Sherman Chan” **(Valid)** Email: “shermanc913@gmail.com” **(Valid)** UEN: 20 **(Valid)** Password: “Passw0rd” **(Valid)** Confirm Password: “Passw0rd”	“Invalid UEN format. Please use a valid Singapore UEN (e.g. 201912345K or T12LP3456A).”	“Invalid UEN format. Please use a valid Singapore UEN (e.g. 201912345K or T12LP3456A).”	Yes

3. Change password

Input parameters: Current password, New password

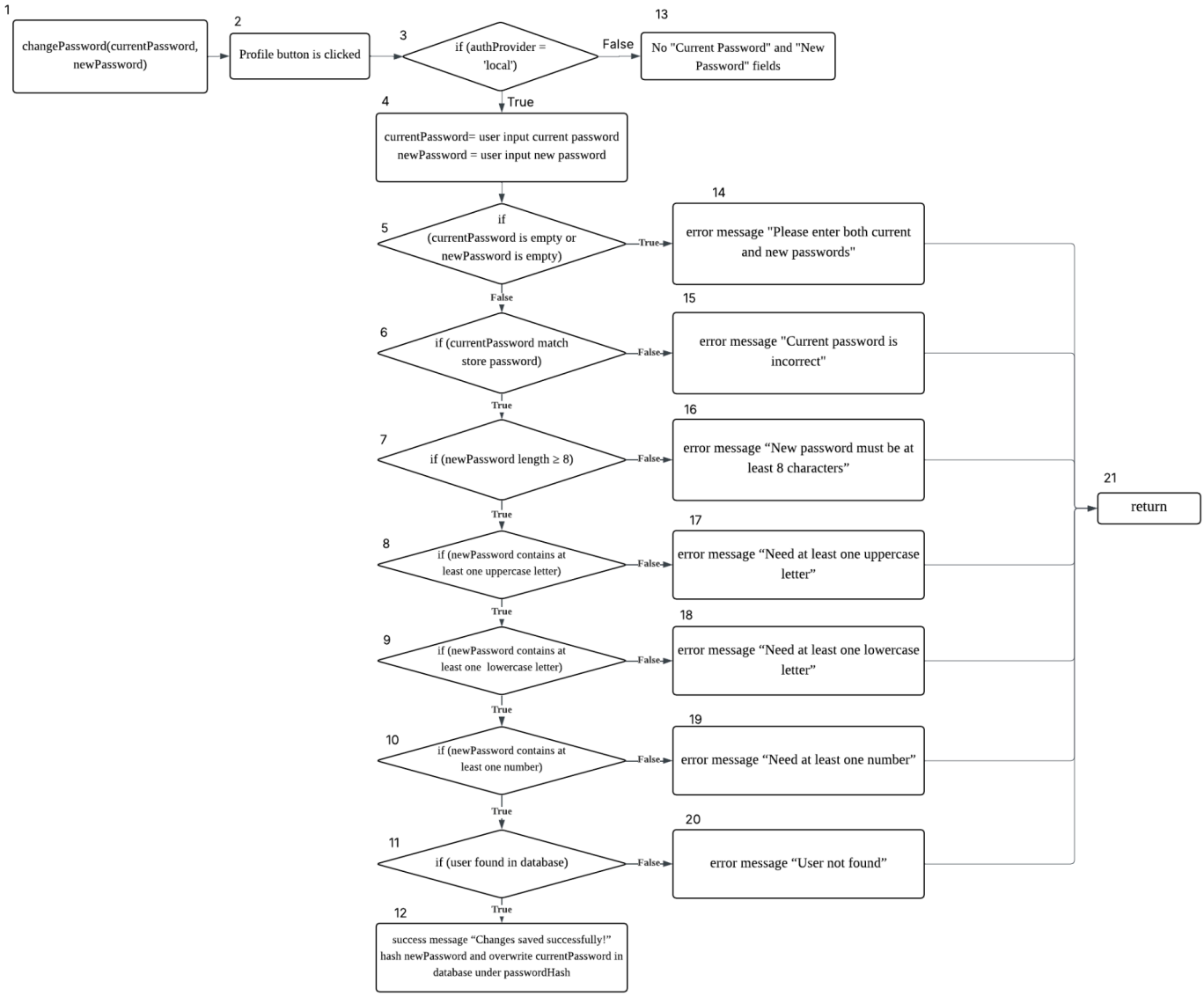
No.	Test input	Expected output	Actual output	Pass?
1	**(Valid)** Current password: “Passw0rd” **(Valid)** New password: “Passwo4d”	“Changes saved successfully!”	“Changes saved successfully!”	Yes
2	**(Invalid)** Current password: “” **(Valid)** New password: “Passwo4d”	“Please enter both current and new passwords”	“Please enter both current and new passwords”	Yes
3	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “”	“Please enter both current and new passwords”	“Please enter both current and new passwords”	Yes
4	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “Passw0r”	“New password must be at least 8 characters”	“New password must be at least 8 characters”	Yes
5	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “Password”	“Need at least one number”	“Need at least one number”	Yes
6	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “passwo4d”	“Need at least one uppercase letter”	“Need at least one uppercase letter”	Yes
7	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “PASSW0RD”	“Need at least one lowercase letter”	“Need at least one lowercase letter”	Yes
8	**(Invalid)** Current password: “Passwor” **(Valid)** New password: “Passw0rd”	“Current password is incorrect”	“Current password is incorrect”	Yes
9	**(Invalid)** User logged in via social login **(Valid)** Current password: “Password” **(Valid)** New password: “Passw0rd”	No Current Password and New Password fields available	No Current Password and New Password fields available	Yes
10	**(Invalid)** User not found	“User not found”	“User not found”	Yes

	(Valid) Current password: “Password” **(Valid)** New password: “Passw0rd”			

2. White Box Testing

1. Change password

1.1 Control Flow Graph



1.2 Basic Path Testing

Cyclomatic complexity: |decisionpoints| + 1 = 8 + 1 = 9 (since all decision points are binary)

Basis paths:

1. Baseline path: 1 2 3 4 5 6 7 8 9 10 11 12
2. Basis path 2: 1 2 3 13
3. Basis path 3: 1 2 3 4 5 14 21
4. Basis path 4: 1 2 3 4 5 6 15 21
5. Basis path 5: 1 2 3 4 5 6 7 16 21
6. Basis path 6: 1 2 3 4 5 6 7 8 17 21
7. Basis path 7: 1 2 3 4 5 6 7 8 9 18 21
8. Basis path 8: 1 2 3 4 5 6 7 8 9 10 19 21
9. Basis path 9: 1 2 3 4 5 6 7 8 9 10 11 20 21

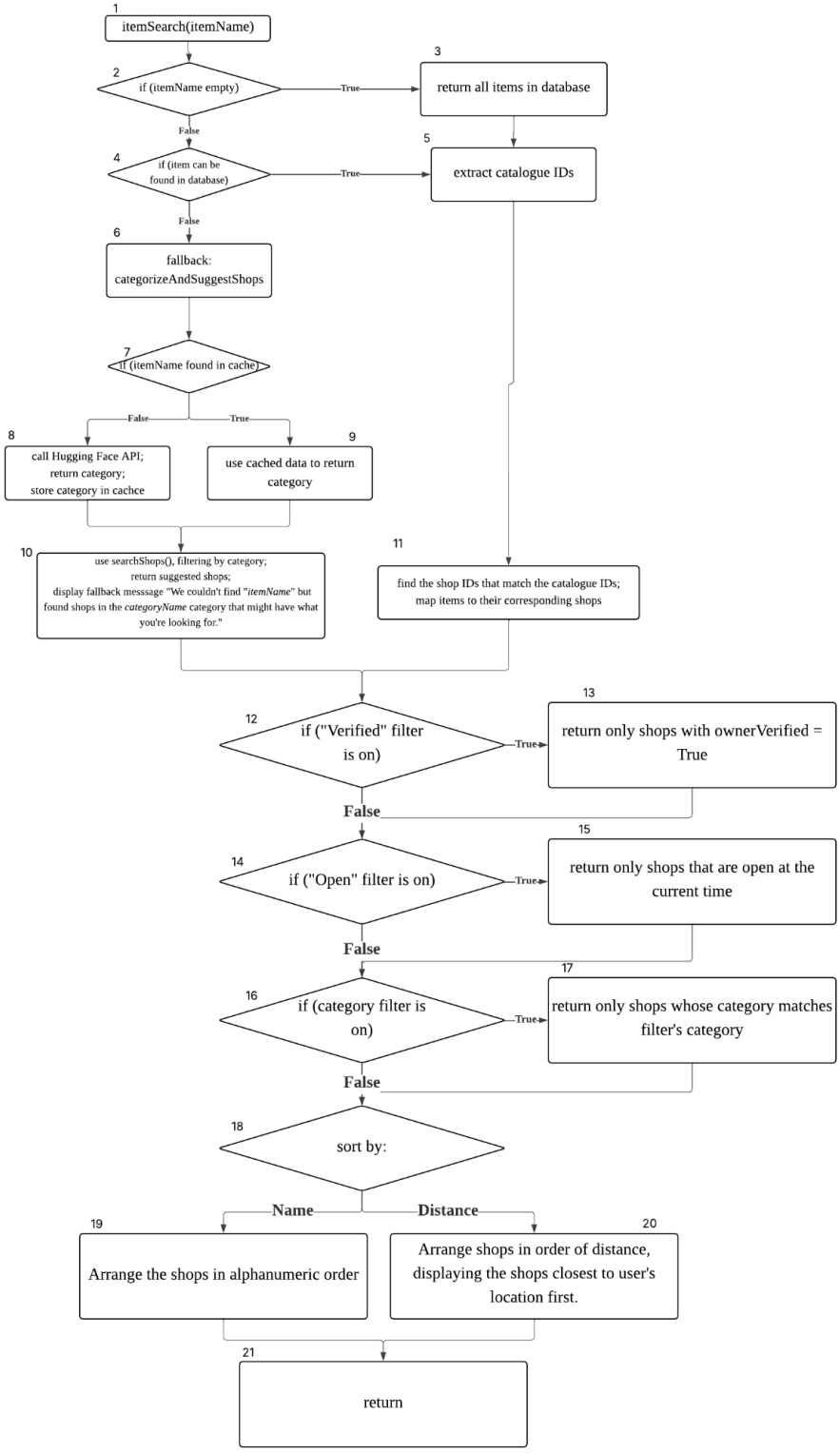
1.3 Test cases and Results

No.	Test input	Expected output	Actual output	Pass?
1	**(Valid)** Current password: “Passw0rd” **(Valid)** New password: “Passwo4d”	“Changes saved successfully!”	“Changes saved successfully!”	Yes
2	**(Invalid)** User logged in via social login **(Valid)** Current password: “Password” **(Valid)** New password: “Passw0rd”	No Current Password and New Password fields available	No Current Password and New Password fields available	Yes
3	**(Invalid)** Current password: “” **(Valid)** New password: “Passwo4d”	“Please enter both current and new passwords”	“Please enter both current and new passwords”	Yes
4	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “”	“Please enter both current and new passwords”	“Please enter both current and new passwords”	Yes
5	**(Invalid)** Current password: “Passwor” **(Valid)** New password: “Passw0rd”	“Current password is incorrect”	“Current password is incorrect”	Yes

6	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “Passw0r”	“New password must be at least 8 characters”	“New password must be at least 8 characters”	Yes
7	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “passwo4d”	“Need at least one uppercase letter”	“Need at least one uppercase letter”	Yes
8	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “PASSW0RD”	“Need at least one lowercase letter”	“Need at least one lowercase letter”	Yes
9	**(Valid)** Current password: “Passw0rd” **(Invalid)** New password: “Password”	“Need at least one number”	“Need at least one number”	Yes
10	**(Invalid)** User not found **(Valid)** Current password: “Password” **(Valid)** New password: “Passw0rd”	“User not found”	“User not found”	Yes

2. Searchitems

2.1 Control Flow Graph



2.2 Basic Path Testing

Cyclomatic complexity: 7 + 1 = 8

Basis paths:

1. Baseline path: 1 2 3 5 11 12 14 16 18 19 21
2. Basis path 2: 1 2 4 5 11 12 14 16 18 19 21
3. Basis path 3: 1 2 4 6 7 8 10 12 14 16 18 19 21
4. Basis path 4: 1 2 4 6 7 9 10 12 14 16 18 19 21
5. Basis path 5: 1 2 3 5 11 12 13 14 16 18 19 21
6. Basis path 6: 1 2 3 5 11 12 14 15 16 18 19 21
7. Basis path 7: 1 2 3 5 11 12 14 16 17 18 19 21
8. Basis path 8: 1 2 3 5 11 12 14 16 18 20 21

2.3 Test cases and Results

Inputs: itemName, isVerifiedFilter, openNowFilter, categoryFilter, sortBy

No.	Test input	Expected output	Actual output	Pass?
1	itemName = “” isVerifiedFilter = False openNowFilter = False categoryFilter = False sortBy = Name	All items in database displayed, with items sorted by alphanumeric order	All items in database displayed, sorted by alphanumeric order	Yes
2	itemName = “chicken rice” isVerifiedFilter = False openNowFilter = False categoryFilter = False sortBy = Name	All items in database that matches “chicken rice” displayed, with shops sorted by alphanumeric order	All items in database that matches “chicken rice” displayed, with shops sorted by alphanumeric order	Yes
3	itemName = “Apple Watch Series 11” isVerifiedFilter = False openNowFilter = False categoryFilter = False sortBy = Name	Error message: “We couldn't find "Apple Watch Series 11" but found shops in the Electronics category that might have what you're looking for.” Displays all shops whose category = “Electronics”, sorted in alphanumeric order.	Error message: “We couldn't find "Apple Watch Series 11" but found shops in the Electronics category that might have what you're looking for.” Displays all shops whose category = “Electronics”, sorted in alphanumeric order.	Yes

4	itemName = “Apple Watch Series 11” isVerifiedFilter = False openNowFilter = False categoryFilter = False sortBy = Name	Error message: “We couldn't find "Apple Watch Series 11" but found shops in the Electronics category that might have what you're looking for.” Displays all shops whose category = “Electronics”, sorted in alphanumeric order. Backend terminal displays “Cache hit for "Apple Watch Series 11": electronics (age: xxxs)	Error message: “We couldn't find "Apple Watch Series 11" but found shops in the Electronics category that might have what you're looking for.” Displays all shops whose category = “Electronics”, sorted in alphanumeric order. Backend terminal displays “Cache hit for "Apple Watch Series 11": electronics (age: 139s)	Yes
5	itemName = “” isVerifiedFilter = True openNowFilter = False categoryFilter = False sortBy = Name	All items in database displayed, with items sorted by alphanumeric order, displaying only items from shops that are verified by owner (indicated by green tick beside shop name)	All items in database displayed, with items sorted by alphanumeric order, displaying only items from shops that are verified by owner (indicated by green tick beside shop name)	Yes
6	itemName = “” isVerifiedFilter = False openNowFilter = True categoryFilter = False sortBy = Name	All items in database displayed, with items sorted by alphanumeric order, displaying only items from shops that are open now.	All items in database displayed, with items sorted by alphanumeric order, displaying only items from shops that are open now	Yes
7	itemName = “” isVerifiedFilter = False openNowFilter = False categoryFilter = Food & Beverage sortBy = Name	Displays all shopes whose category = “Food & Beverage”, with items sorted by alphanumeric order.	Displays all shopes whose category = “Food & Beverage”, with items sorted by alphanumeric order.	Yes
8	itemName = “” isVerifiedFilter = False openNowFilter = False categoryFilter = False sortBy = Distance	All items in database displayed, with shops sorted by distance, displaying the shops closest to my current	All items in database displayed, with shops sorted by distance, displaying the shops closest to my current	Yes

		location first (distance from my current location displayed beside each shop)	location first (distance from my current location displayed beside each shop)	

3. Demo Outline

Data

New Shopper: cynthiashopper@gmail.com cynthiaIsShopper1
Google Shopper: onecdctest@gmail.com, Onecdctest123
Owner: shopowner@gmail.com shopOwner1
NEW Owner: Owner lakshmi@gmail.com

Demo Flow

Shopper

1. Register: Cynthia Ng cynthiashopper@gmail.com
2. Login
3. Search Shop: “Lite Mobile”
    a. Look at the shop details and catalogue
    b. Add to cart
4. Search Item: “sony”
    a. Should get: “Sony Headphone”
    b. Click on item
    c. Go to shop
    d. Go to catalogue
    e. Click on Sony Headphone & Go to reviews
    f. Report the bad review
5. Search Item: “Apple Watch Series 11”
    a. Item does not exist so LLM categorises
    b. Item status is “Maybe”
    c. Click on “Aces Mobile Toa Payoh”
    d. Go to catalogue
    e. Add Item
        i. Name: Apple Watch Series 11
        ii. Category: Electronics
        iii. Price: $599
        iv. Description: Apple Watch
        v. Photo:
    f. Leave a review
        i. Available
        ii. Photo:
        iii. Description: managed to buy it with cdc vouchers!
    g. Add shop to cart
6. Generate MER with 1 shop, 2 shops
7. Log out

8. Log in with google: onecdctest
9. Show profile page
    a. Reviews
    b. Flagged
10. Log out

Owner

1. Register as a new owner:
    a. Name: Lakshmi
    b. Email: lakshmiowner@gmail.com
    c. UEN: 23456789A
2. Login
3. Add a shop
    a. Name: Extreme Evolution Handphone Shop
    b. Description: Cell phone store in Singapore
    c. Location: 183 Toa Payoh Central, #01-256, Singapore 310183
    d. Phone: 6635 7117
    e. Add image
4. Add an item
    a. Name: Samsung Galaxy Z Flip 7
    b. Price: 1828
    c. Description: Newest flip phone by Samsung
    d. Add image
5. Logout

Admin

1. Log in as admin: admin@onecdc.com
2. Show all the tabs first
3. Resolve the false report
4. Remove review of the true report

Demo Script

1. Shopper

1.1 Register and Login

Script:

"First, we'll demonstrate the shopper flow. I register a new shopper account using the name *Cynthia Ng* and email *cynthiashopper@gmail.com*."

Screen:

Fill in registration form → click **Register** → success message.

Script:

"After registering, I log in using the same credentials."

Screen:

Login page → enter email & password → click **Login**.

1.2 : Search for Shop

Script:

"Next, I'll search for a shop called *Lite Mobile*."

Screen:

Search bar → type "Lite Mobile" → press enter.

Shop results appear.

Script:

"I can click on the shop to view its details and catalogue."

Screen:

Click shop → view details → scroll through catalogue.

1.3: Add to Cart

Script:

"I can also add this shop to my cart for easy access later."

Screen:

Click **Add to Cart**.

1.4: Search for an Item in our Database

Script:

"Now, let's search for an item, for example *Sony*."

Screen:

Search bar → type "Sony".

Script:

"The result shows *Sony Headphone*. Clicking on the item brings me to its shop and reviews."

Screen:

Click item → view shop → open reviews tab.

Script:

"I'll report a bad review here."

Screen:

Click **Report Review** → select reason → confirm.

1.5: Search for a Item not in our database

Script:

"Next, I search for *Apple Watch Series 11*. Since this item doesn't exist, the system uses the LLM to categorize it and labels the item status as *Maybe*."

Screen:

Search bar → type "Apple Watch Series 11" → result shows "Maybe".

Script:

"I click on *Aces Mobile Toa Payoh* to add this new item into their catalogue."

Screen:

Click shop → click **Add Item**.

Fill in:

- Name: Apple Watch Series 11
- Category: Electronics
- Price: $599
- Description: Apple Watch
- Upload photo (local image)

Click **Add Item**.

1.6: Leave a Review

Script:

"After adding the item, I'll leave a review stating that it's available."

Screen:

Click **Add Review** → enter:

- Description: "Managed to buy it with CDC vouchers!"
- Upload photo → Submit.

Script:

"I can also add this shop to my cart."

Screen:

Click **Add Shop to Cart**.

1.7: Generate MER

Script:

"Finally, I generate the Monthly Expenditure Report (MER) for one and two shops."

Screen:

Go to MER page → click **Generate** → show summary charts.

1.8: Google Login

Script:

"Now I log out and sign in using my Google account."

Screen:

Logout → click **Login with Google** → select `onecdctest@gmail.com`.

Script:

"The Google account shopper's profile page shows their reviews and flagged items."

Screen:
Go to profile → show Reviews tab → show Flagged tab.
Logout.

2. Owner
2.1: Register
Script:
"Next, we demonstrate the shop owner flow. The new owner *Lakshmi* registers with her email and UEN."
Screen:
Fill registration form → click **Register** → success message.

2.2: Add Shop
Script:
"After logging in, the owner adds a new shop called *Extreme Evolution Handphone Shop*."
Screen:
Click **Add Shop** → fill in:

- Name: Extreme Evolution Handphone Shop
- Description: Cell phone store in Singapore
- Location: 183 Toa Payoh Central, #01-256, Singapore 310183
- Phone: 6635 7117
- Upload shop image

Click **Submit**.

2.3: Add Item
Script:
"Next, the owner adds a new item under the shop."
Screen:
Click **Add Item** → fill in:

- Name: Samsung Galaxy Z Flip 7
- Price: $1828
- Description: Newest flip phone by Samsung
- Upload image
  Click **Submit**.

Script:
"The item is now successfully added to the shop catalogue."
Logout.

3. Admin
3.1 : Login and View Dashboard
Script:
"Finally, we demonstrate the admin dashboard. The admin logs in and views all tabs."
Screen:
Login page → enter admin credentials → show dashboard tabs (Users, Reports, Reviews,

Shops).

3.2: Manage Reports

Script:

"The admin resolves a false report and removes the review from a true report."

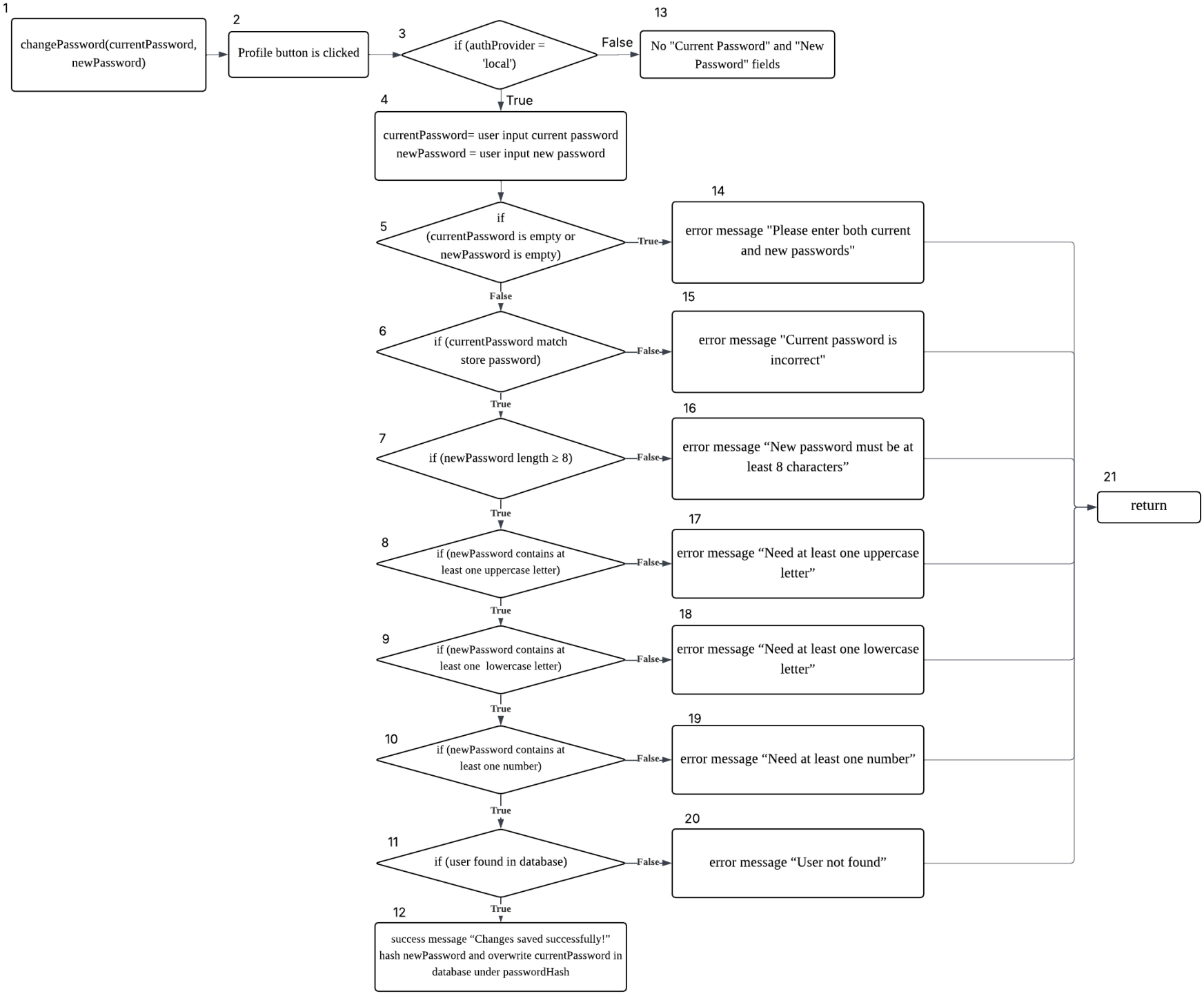
Screen:

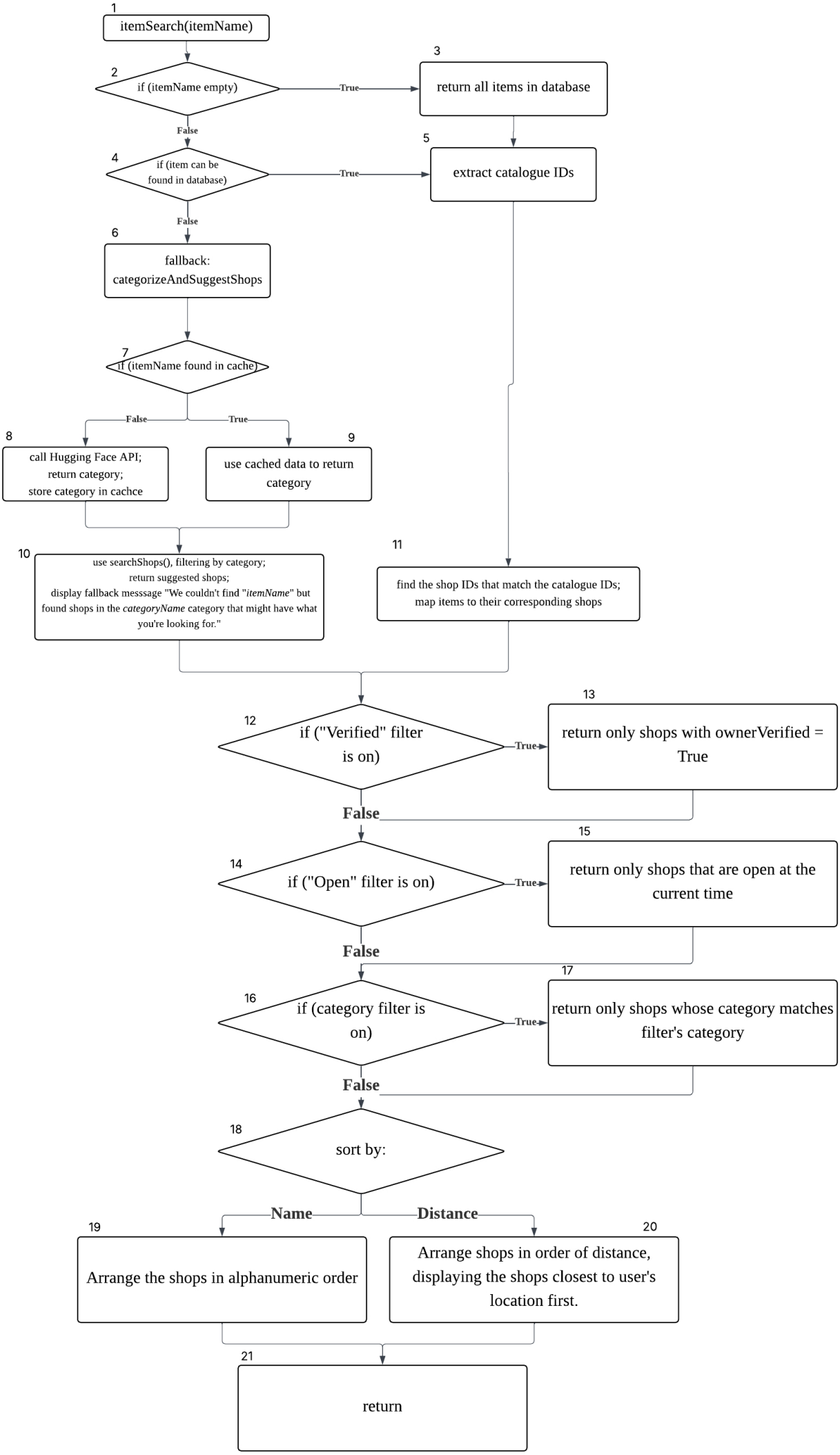
Click on Reports tab → select one false report → click **Resolve**.

Select one true report → click **Remove Review**.

Script:

"This ensures that review moderation is properly handled within the system."


1
changePassword(currentPassword, newPassword)
2
Profile button is clicked
3
if (authProvider = 'local')
False
13
No "Current Password" and "New Password" fields
True
4
currentPassword= user input current password
newPassword = user input new password
5
if (currentPassword is empty or newPassword is empty)
True
14
error message "Please enter both current and new passwords"
False
6
if (currentPassword match store password)
False
15
error message "Current password is incorrect"
True
7
if (newPassword length ≥ 8)
False
16
error message “New password must be at least 8 characters”
True
8
if (newPassword contains at least one uppercase letter)
False
17
error message “Need at least one uppercase letter”
True
9
if (newPassword contains at least one lowercase letter)
False
18
error message “Need at least one lowercase letter”
True
10
if (newPassword contains at least one number)
False
19
error message “Need at least one number”
True
11
if (user found in database)
False
20
error message “User not found”
True
12
success message “Changes saved successfully!”
hash newPassword and overwrite currentPassword in database under passwordHash
21
return


1
itemSearch(itemName)
2
if (itemName empty)
True
3
return all items in database
False
4
if (item can be found in database)
True
5
extract catalogue IDs
False
6
fallback: categorizeAndSuggestShops
7
if (itemName found in cache)
False
True
8
call Hugging Face API; return category; store category in cachce
9
use cached data to return category
10
use searchShops(), filtering by category; return suggested shops; display fallback messsage "We couldn't find "itemName" but found shops in the categoryName category that might have what you're looking for."
11
find the shop IDs that match the catalogue IDs; map items to their corresponding shops
12
if ("Verified" filter is on)
True
13
return only shops with ownerVerified = True
False
14
if ("Open" filter is on)
True
15
return only shops that are open at the current time
False
16
if (category filter is on)
True
17
return only shops whose category matches filter's category
False
18
sort by:
Name
Distance
19
Arrange the shops in alphanumeric order
20
Arrange shops in order of distance, displaying the shops closest to user's location first.
21
return