CEBU INSTITUTE OF TECHNOLOGY
UNIVERSITY

IT342-G6
SYSTEMS INTEGRATION AND ARCHITECTURE 1

FUNCTIONAL REQUIREMENTS SPECIFICATION (FRS)

Project Title: Laboratory Activity: Mini App – User Registration & Authentication

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Version: 1.0

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1. Introduction

1.1. Purpose

Design the system flow for User Registration, Login, and Logout.

1.2. Scope

This activity focuses only on documentation and diagrams.

1.3. Definitions, Acronyms, and Abbreviations

FRS – Functional Requirements Specification

ERD – Entity Relationship Diagram

2. Overall Description

2.1. System Perspective

N/A

2.2. User Classes and Characteristics

Guest User - A user who has not logged in; can register and log in.

Authenticated User - A logged-in user who can access protected pages and log out.

2.3. Operating Environment

Draw.io / diagrams.net for the diagrams.

2.4. Assumptions and Dependencies

N/A

3. System Features and Functional Requirements

3.1. Feature 1: User Registration

Description: Allows new users to create an account by providing a unique username, email, and password.

Functional Requirements:

3.1. The system shall validate that the username and email are not already taken in the database.
3.2. The system shall hash the user's password using BCrypt before storing it in the MySQL database.
3.3. The system shall return a success message upon successful data persistence.

3.2. Feature 2: User Authentication (Login/Logout)

Description: Enables registered users to access the protected dashboard and securely end their session.

Functional Requirements:

- The system shall verify credentials by comparing the input password with the hashed password stored in the database.
- The system shall create a virtual session by storing user data in the browser's local storage upon successful login.
- The system shall provide a logout function that clears the local storage and redirects the user to the login page.

3.3. Feature 3: Protected Dashboard

Description: A restricted area accessible only to authenticated users.

Functional Requirements:

- The system shall display the authenticated user's specific information (Username, Email) fetched from the database.
- The system shall prevent unauthenticated guest users from accessing the dashboard view.

4. Non-Functional Requirements

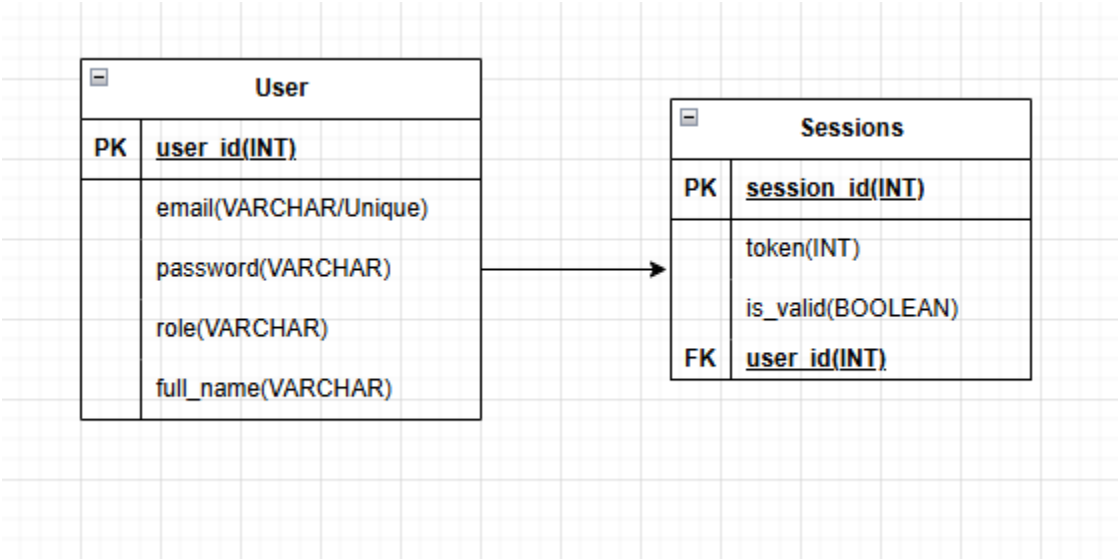
Security: All user passwords must be encrypted using industry-standard hashing (BCrypt).

Usability: The web interface must provide clear error messages for invalid login attempts or duplicate registrations.

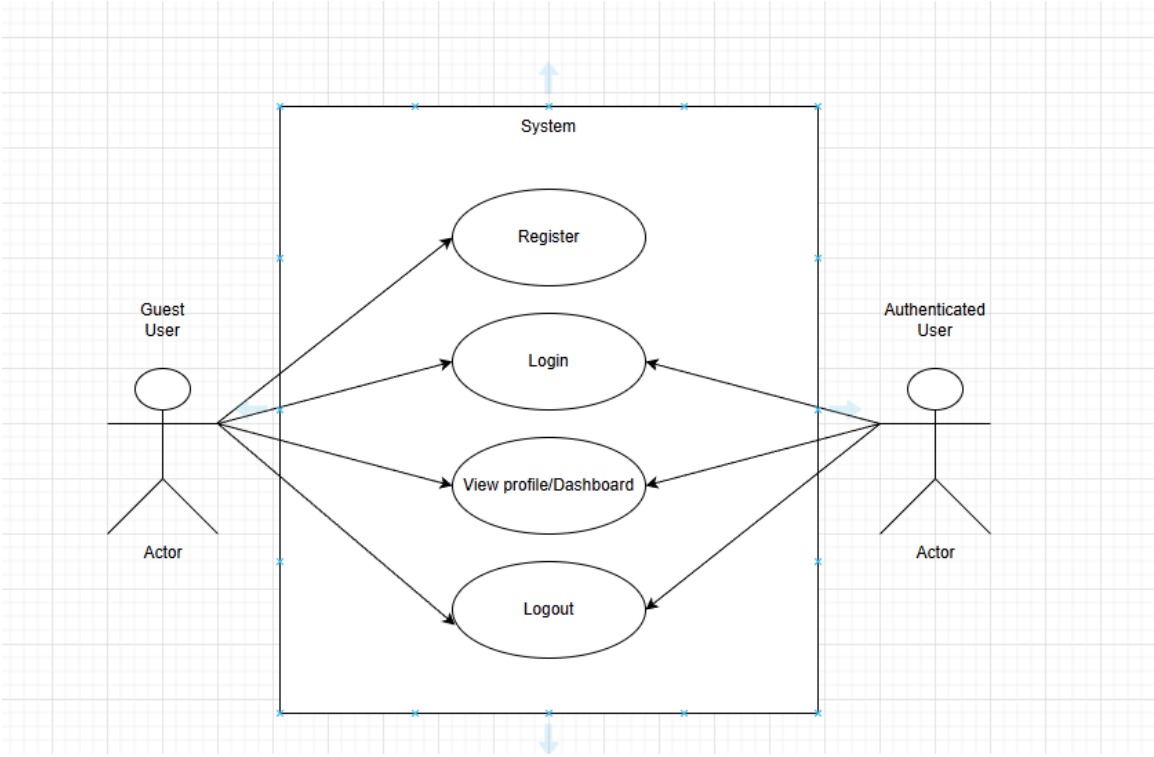
Availability: The backend (Spring Boot) and database (MySQL) must be operational for the frontend (React) to process requests.

5. System Models (Diagrams)

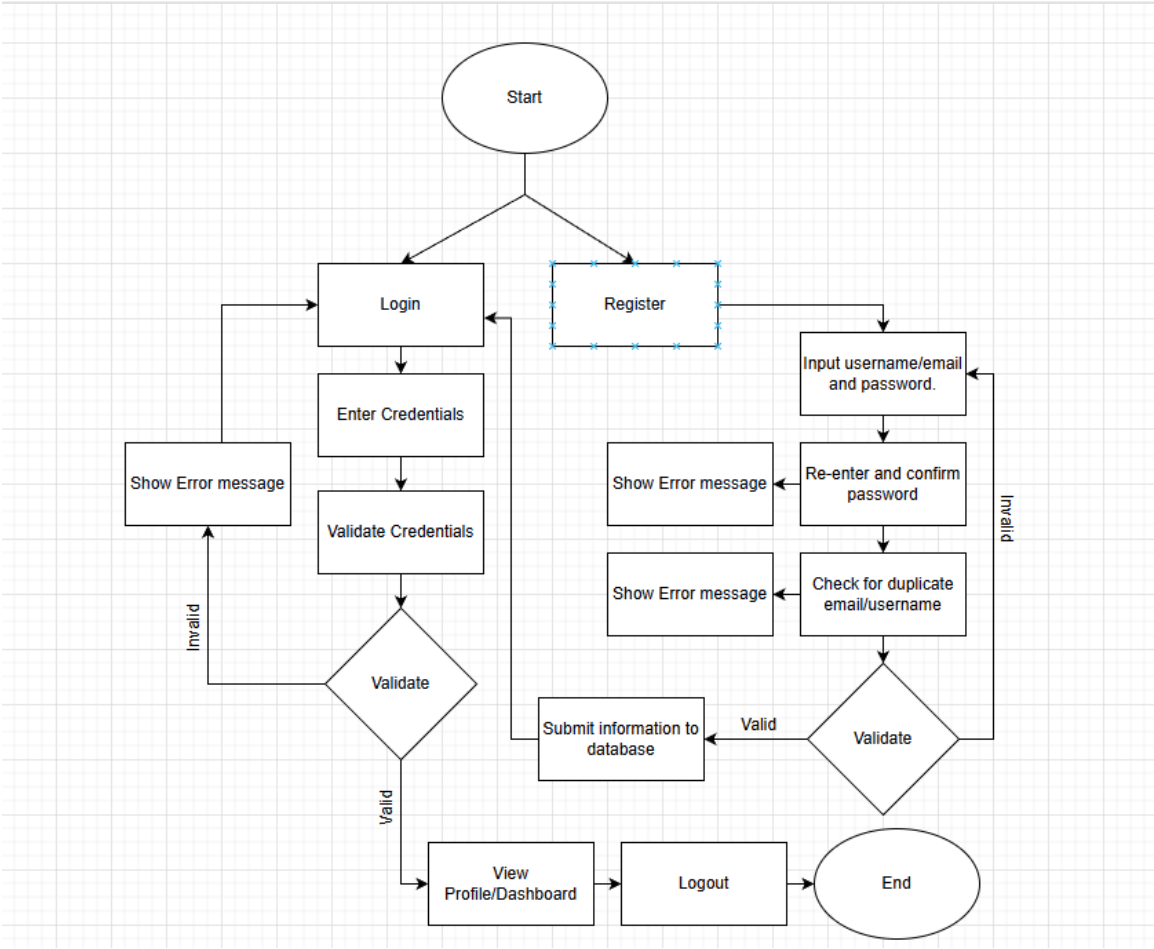
5.1. ERD



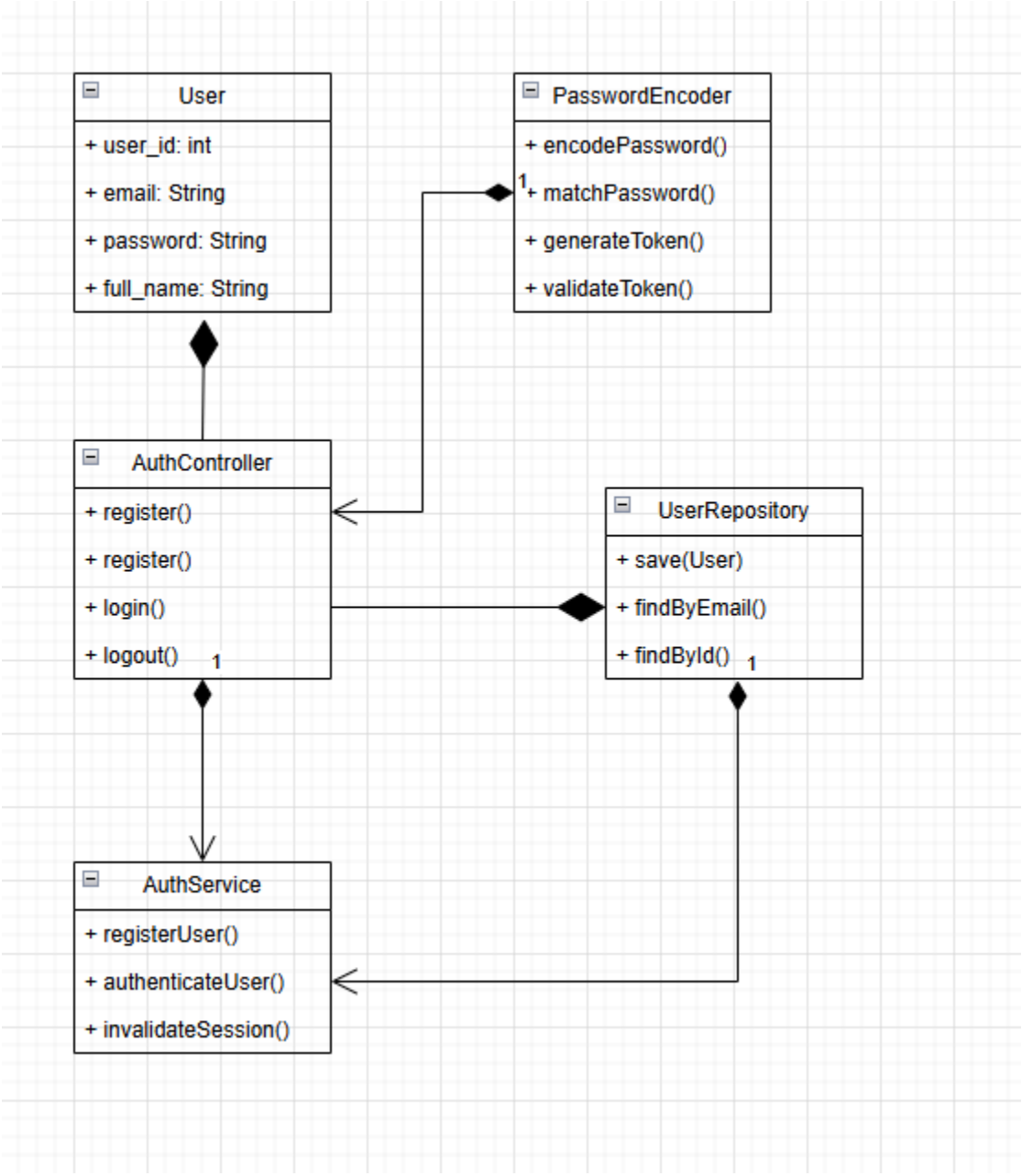
5.2. Use Case Diagram



5.3. Activity Diagram



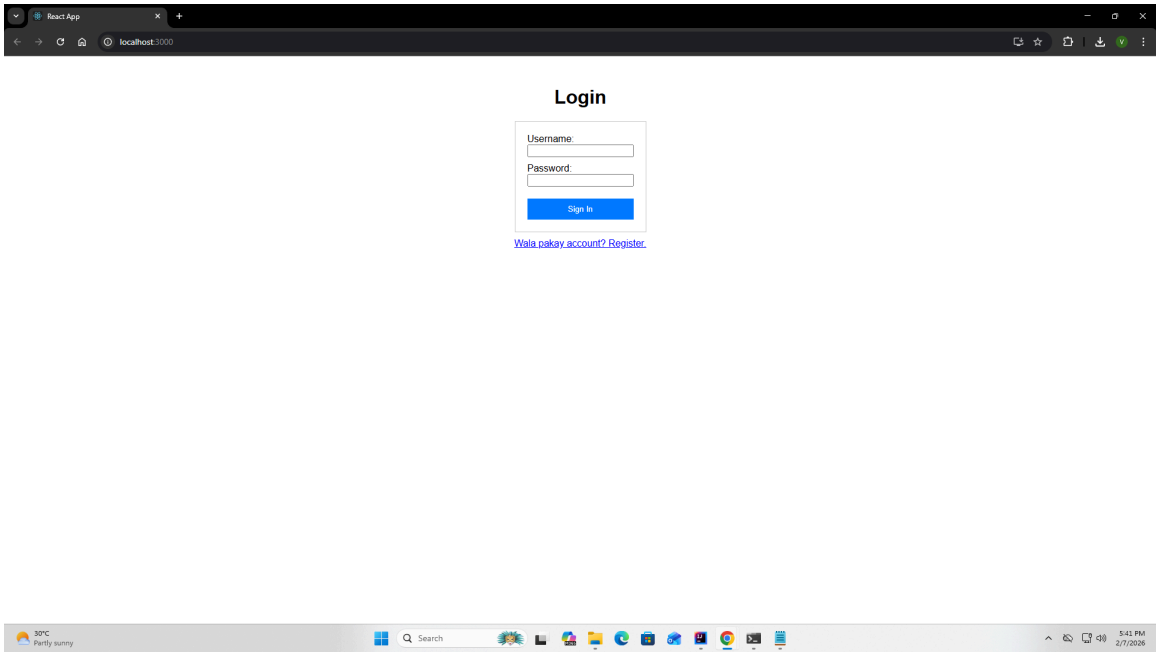
5.4. Class Diagram



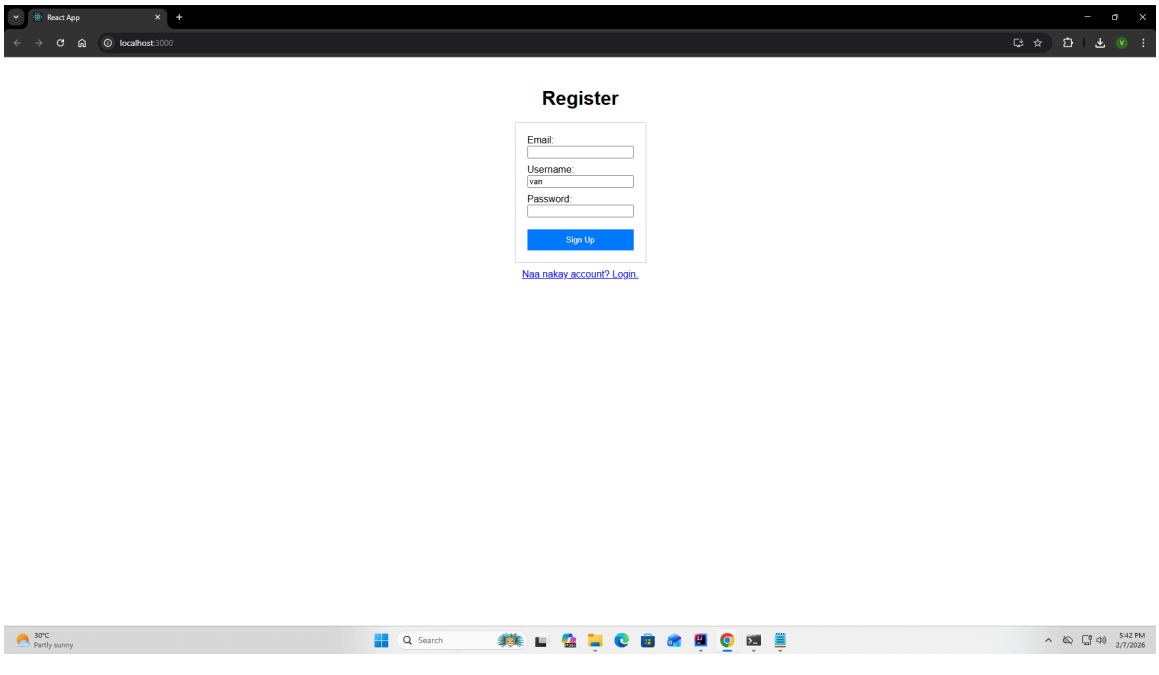
5.5. Sequence Diagram

N/A

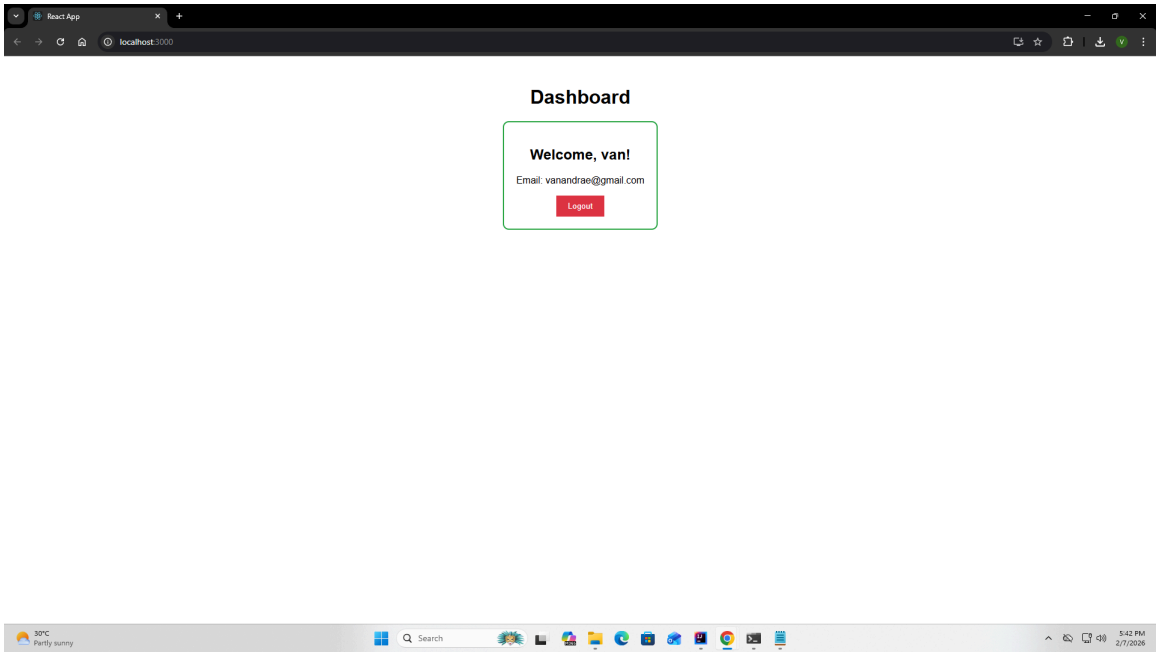
6. Appendices

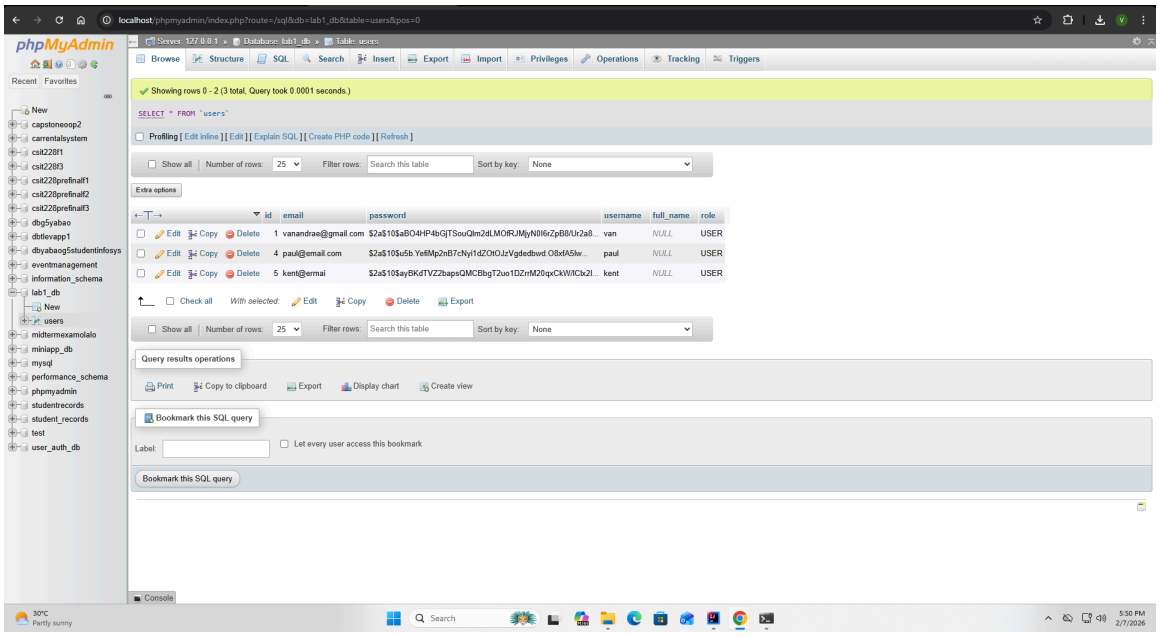

React App
localhost:3000
Login
Username:
Password:
Sign In
Wala pakay account? Register.

30°C
Partly sunny
Search
5:42 PM
2/7/2026


React App
localhost:3000
Register
Email:
Username:
van
Password:
Sign Up
Naa nakay account? Login.

30°C
Partly sunny
Search
5:42 PM
2/7/2026


React App
localhost:3000
Dashboard
Welcome, van!
Email: vanandrae@gmail.com
Logout


localhost/phpmyadmin/index.php?route=/sql&db=lab1_db&table=users&pos=0
phpMyAdmin
Server: 127.0.0.1 » Database: lab1_db » Table: users
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Tracking
Triggers
Showing rows 0 - 2 (3 total, Query took 0.0001 seconds.)
SELECT * FROM `users`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all
Number of rows: 25
Filter rows: Search this table
Sort by key: None
Extra options
id
email
password
username
full_name
role
1 vanandrae@gmail.com $2a$10$aBO4HP4bGjT5ouQlm2dLMOfRJMjyN0l6rZpB8/Ur2a8... van NULL USER
4 paul@email.com $2a$10$u5b.Ye6Mp2nB7cNyi1dZOtOJzVgdedbwd.O8xfA5lw... paul NULL USER
5 kent@ermai $2a$10$ayBKdTVZZbapsQMCBbgT2uo1DZrrM20qxCkW/ICIx2l... kent NULL USER
Check all
With selected:
Edit
Copy
Delete
Export
Query results operations
Print
Copy to clipboard
Export
Display chart
Create view
Bookmark this SQL query
Label:
Let every user access this bookmark
Bookmark this SQL query
Console
New
capstoneoop2
carrentalsystem
csit228f1
csit228f3
csit228prefinalf1
csit228prefinalf2
csit228prefinalf3
dbg5yabao
dbtlovapp1
dbyabaog5studentinfosys
eventmanagement
information_schema
lab1_db
New
users
midtermexamolalo
miniapp_db
mysql
performance_schema
phpmyadmin
studentrecords
student_records
test
user_auth_db