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

Prepared By: Kent Michael E.Bebita

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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

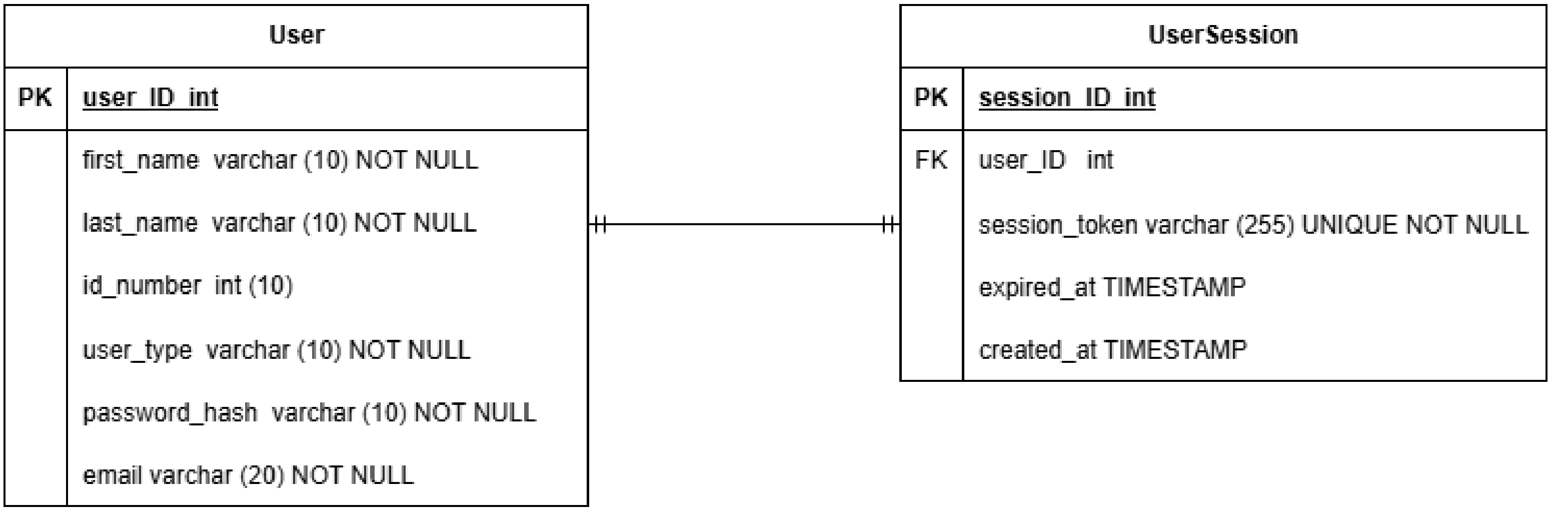
Security: All user passwords must be encrypted using industry-standard hashing (BCrypt).

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)

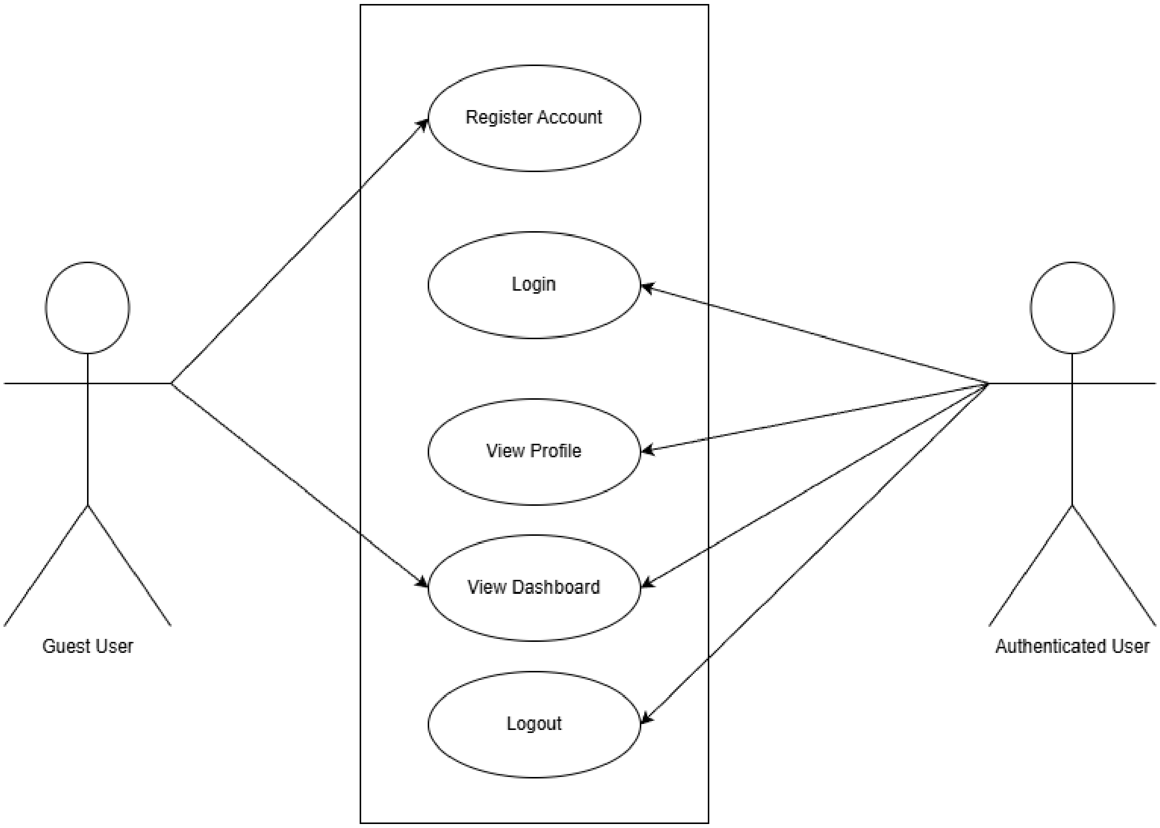
5.1. ERD



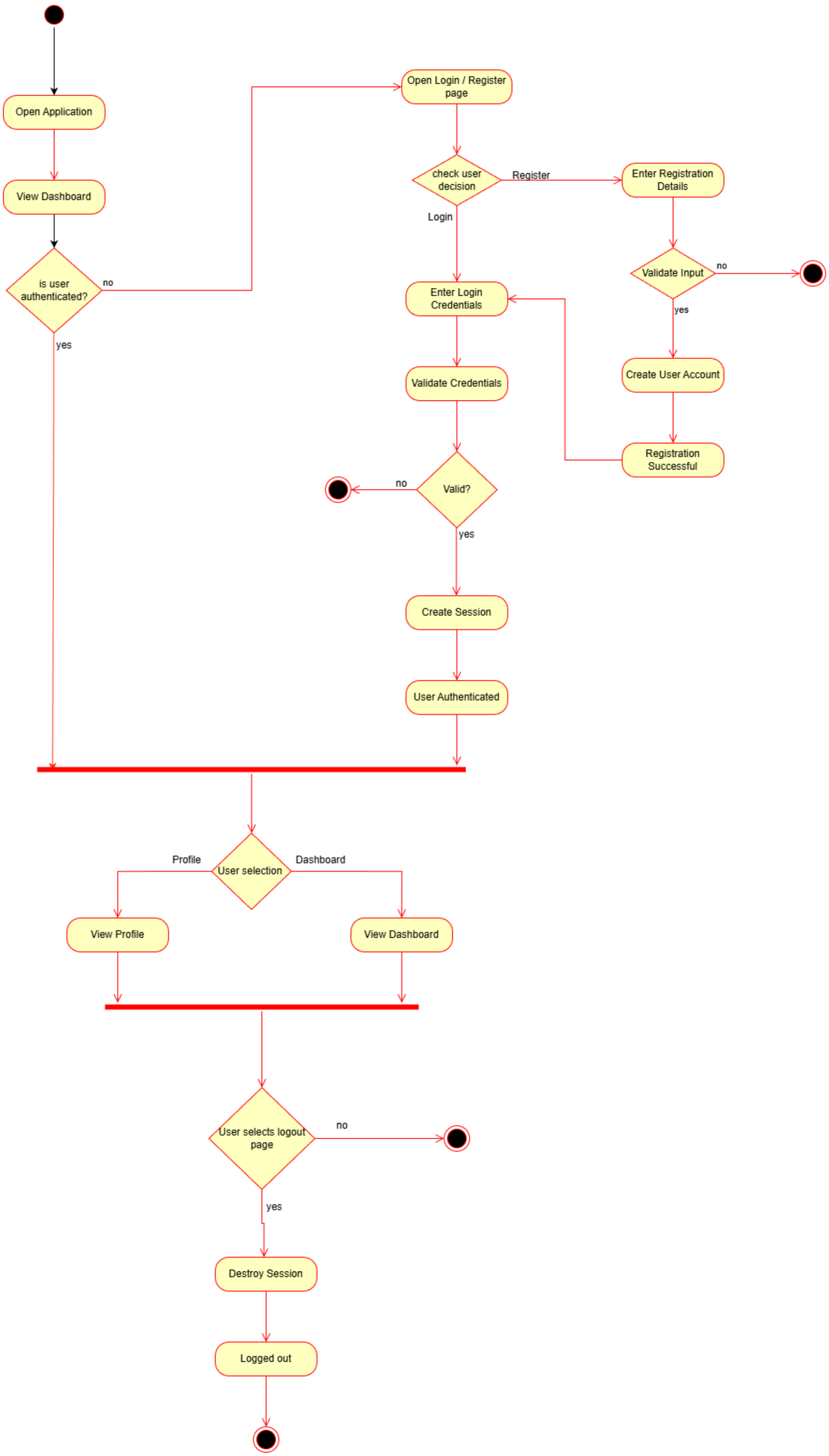
	User
PK	user_ID int
	first_name varchar (10) NOT NULL
	last_name varchar (10) NOT NULL
	id_number int (10)
	user_type varchar (10) NOT NULL
	password_hash varchar (10) NOT NULL
	email varchar (20) NOT NULL

	UserSession
PK	session_ID int
FK	user_ID int
	session_token varchar (255) UNIQUE NOT NULL
	expired_at TIMESTAMP
	created_at TIMESTAMP

Use Case Diagram



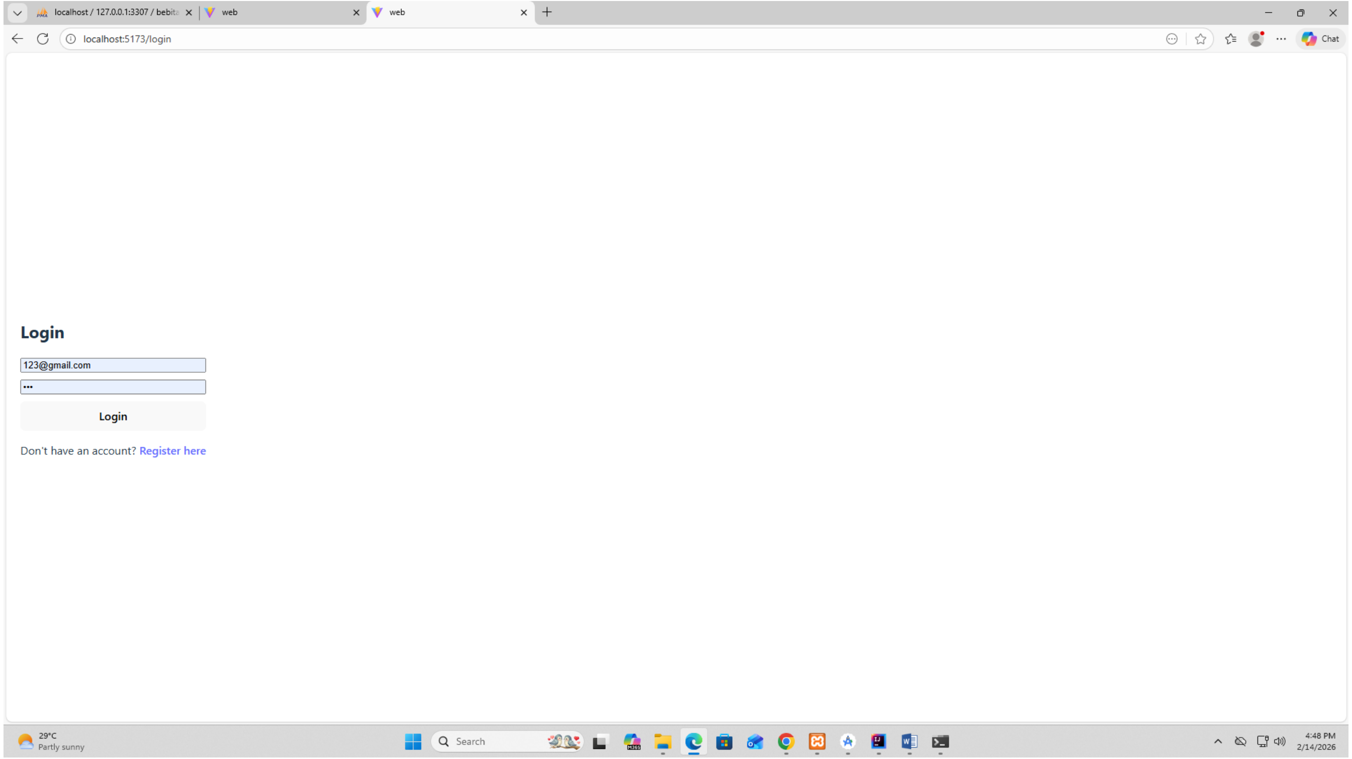
5.2. Activity Diagram



5.3. Class Diagram N/A

5.4. Sequence Diagram N/A

6. Appendices

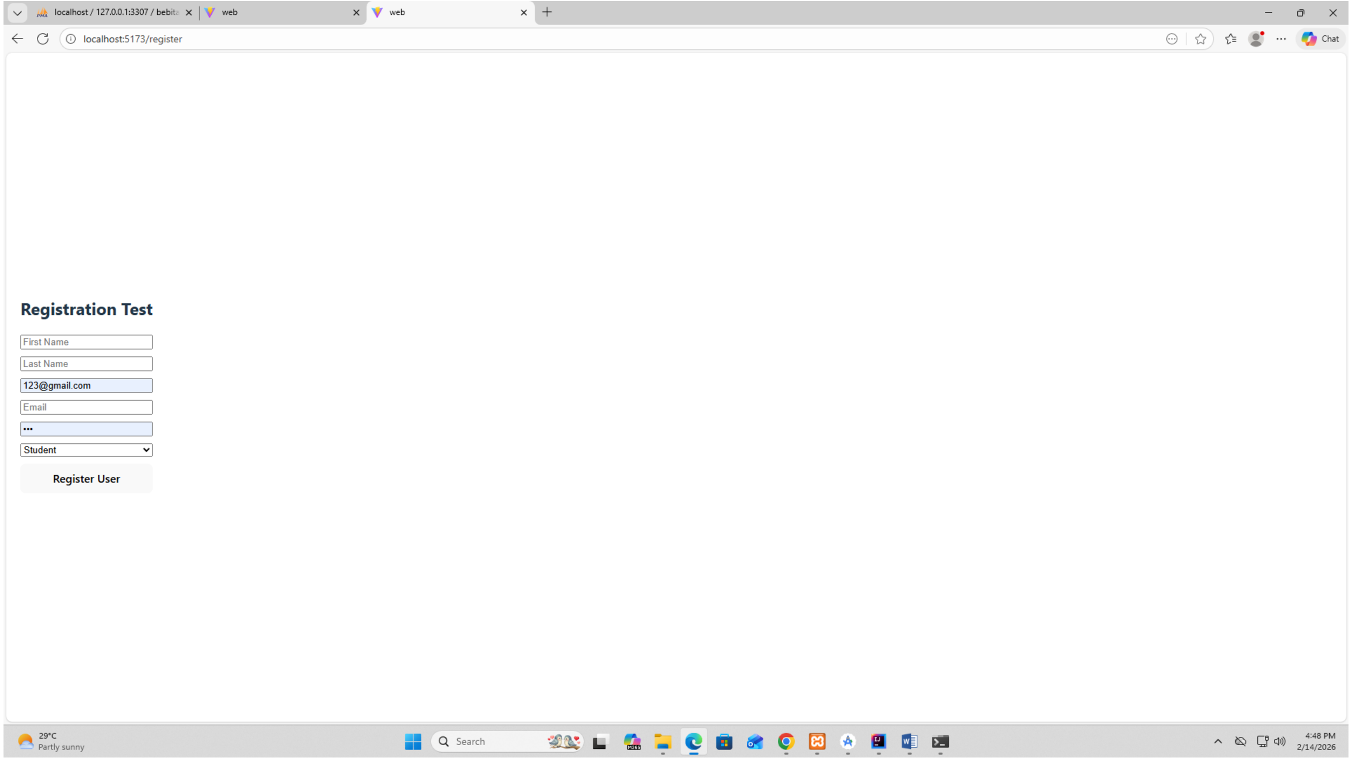


Login

123@gmail.com

•••

Don't have an account? Register here



localhost:5173/register

Registration Test

First Name

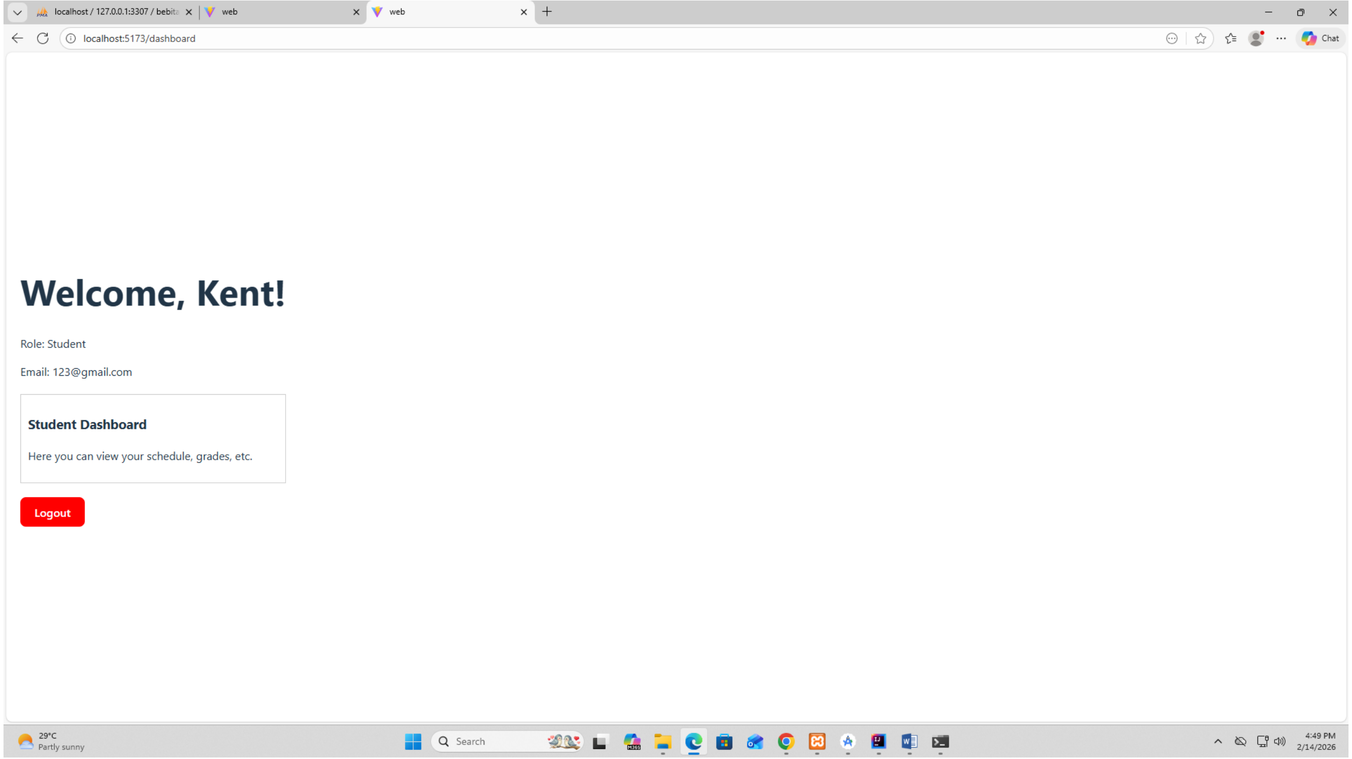
Last Name

123@gmail.com

Email

•••

Student



localhost:5173/dashboard

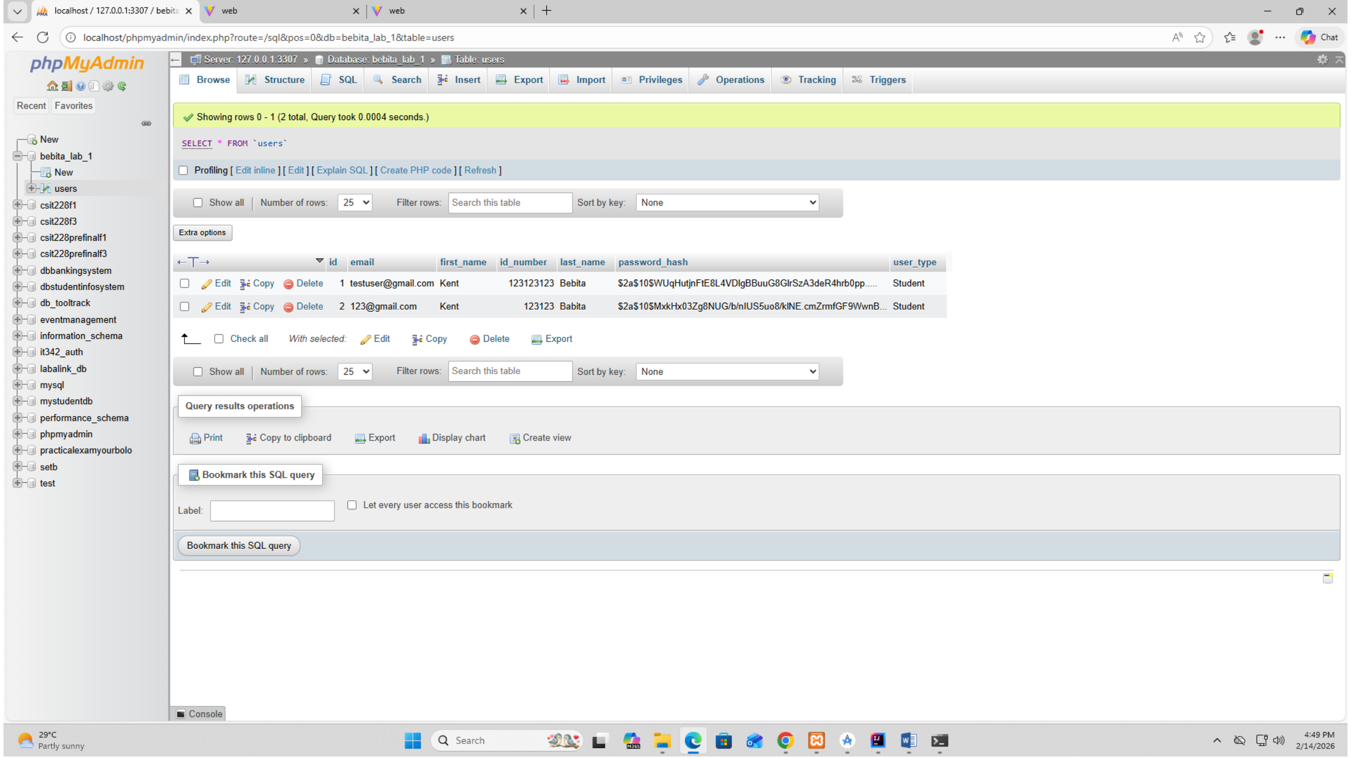
Welcome, Kent!

Role: Student

Email: 123@gmail.com

Student Dashboard

Here you can view your schedule, grades, etc.



✓ Showing rows 0 - 1 (2 total, Query took 0.0004 seconds.)

```
SELECT * FROM `users`
```

	id	email	first_name	id_number	last_name	password_hash	user_type
□ Edit Copy Delete	1	testuser@gmail.com	Kent	123123123	Bebita	$2a$10$WUqHutjnFtE8L4VDlgBBuuG8GlrSzA3deR4hrb0pp.....	Student
□ Edit Copy Delete	2	123@gmail.com	Kent	123123	Babita	$2a$10$MxkHx03Zg8NUG/b/nIUS5uo8/kINE.cmZrmfGF9WwnB...	Student