

**NATIONAL UNIVERSITY OF COMPUTER AND
EMERGING SCIENCES
PROGRAM: SOFTWARE ENGINEERING**



SOFTWARE CONSTRUCTION AND DEVELOPMENT LAB

LAB TASK 13

SUBMITTED BY:

Name: Ahmed Ali

Roll No: 22P-9318

SECTION: BS(SE)-5B

INSTRUCTOR NAME: Sir Saood Sarwar

A DEPARTMENT OF COMPUTER SCIENCE

1. Introduction

This project is a simple web application for managing users in a business context, built using FastAPI. The application includes essential features such as user signup, login, forgot password, and account deletion. It uses secure password hashing, database integration, and input validation to ensure functionality and security

2. How to Run the Application

2.1 Prerequisites

- **Python:** Version 3.10 or higher
- **Conda:** A virtual environment management tool, I have created using conda
- **FastAPI:** A Python web framework
- **Uvicorn:** An ASGI server for running FastAPI applications
- **Database:** SQLite (preconfigured for this project)

2.2 Setting Up the Environment

1. **Install Conda (if not already installed):** Download and install Miniconda or Anaconda from the official website
2. Create a Virtual Environment
3. Install Required Packages, I have installed all packages by a file requirement.txt in which all dependencies are there using command `pip install -r requirement.txt` (file is also given in gcr)

2.3 Running the FastAPI Server

1. Navigate to the project directory
2. Start the server using Uvicorn
3. Access the application in a web browser

4. How the Application Works

4.1 Signup Feature

- Users can create an account by providing a unique username, email, and password
- Passwords are hashed using the bcrypt algorithm for secure storage
- Validation ensures email and username are unique and properly formatted

4.2 Login Feature

- Users can log in using their username/email and password
- The application verifies the hashed password and provides access to protected routes

4.3 Forgot Password Feature

- Users can request a password reset by entering their registered email
- A password reset token is generated and (simulated to be) sent via email
- Users can use the token to reset their password

4.4 Delete Account Feature

- Logged-in users can delete their account
- Once deleted, all user information is removed from the database