

## TESTING PLAN

### Testing Dataset

The test dataset includes SQL database initialization files which:

```
UniversityERP/
/
/--- db/
/   /
/   /--- auth_db.sql
/   /--- erp_db.sql
/   /--- setup.sql
```

1. Initialize the **auth\_db** and **erp\_db** databases.
2. Initialize the **users\_auth** table in **auth\_db** which stores the user login info (**username, user\_id, role, last\_login, password\_hash, login\_status**)
3. Initialize the **students, instructors, grades, enrollments, sections, settings** table in the **erp\_db** database
4. Insert dummy data in the tables for testing plan detailed below

### Test Environment

This project has been tested in the test environment with the following specifications:

1. Operating System - *MacOS Tahoe 26.1*
2. SDK - Java JDK 24 - *aarch64*
3. Dependencies - *mysql.connector.j, mindrot.jbcrypt, protobuf-java-4.26.1*
4. Test Dataset - *SQL File Initializers*
5. Main executable - *UniversityERP.src.main.java.edu.univ.erp.ui.Main*

### Standard Tests

- User Login
  - Users are logged in if correct username and password is entered, Login Status is set to **ACTIVE** in the database and Last Login is updated
  - Incorrect username and password doesn't log them in
  - 5 Incorrect login attempts locks users out and they must contact admin to get unlocked
  - Admin can create new users (Signup from Student/ Instructor is not allowed)
    - Result: **Pass**
- User Logout

- User logout clears user session from memory, frees up any resources used, commits all changes made to database, and sets user login status to *INACTIVE* in the database

### Test Scenarios (Role Wise)

#### A. Admin

- Create New User (Instructor/ Student/ Admin):
  - Input Username, Password and other required detail
  - Update New user in *auth\_db.users\_auth* and the respective table in *erp\_db*
    - Result: **Pass**
- Create Courses and Sections (Assign Instructor):
  - Create New Course, Entering duplicate course details displays warning
  - Create new sections with the list of available courses in the database. Entering duplicate section details displays warning
  - Update Existing Course/ Section Details
    - Result: **Pass**
- Toggle Maintenance Mode:
  - Maintenance Mode Toggle Notifications
  - When **ON** Students and Instructors can view details but not update data
  - When **OFF** Students and instructors can view as well as update details
    - Result: **Pass**
- Update System Settings (Registration and Drop Deadlines):
  - Admin can set registration and drop deadlines
  - Deadlines must be in ISO Format. Message is displayed when trying to set deadlines with incorrect formatting
    - Result: **Pass**

#### B. Instructor

- View Own Sections
  - Instructor sections are fetched by querying the database with the logged in instructor's instructor id. Hence only their sections are displayed with weekly schedule and section details
    - Result: **Pass**
- Enter Scores
  - Scores can be entered by passing the enrollment Id of the student for the following Components and Grading Scheme:
    - QUIZ (out of 100): 20%
    - MIDSEM (out of 100): 30%
    - ENDSEM (out of 100): 40%
  - Entering duplicate scores is not allowed

- Result: **Pass**
- Edit Section:
  - Instructors can only edit sections which they are assigned to. Validated during edit attempt
    - Result: **Pass**
- View Grade Statistics:
  - Median, Mode and Average are displayed for Instructor sections. Instructors cannot view stats for other sections which they do not teach
    - Result: **Pass**
- Export Grade Statistics:
  - Grade statistics for the instructor sections are saved to .csv file
    - Result: **Pass**

### C. Student

- View Course Catalog for all available courses:
  - Selected Courses will display the course details (code/title/instructor/capacity/day-time)
    - Result: **Pass**
- Register Section:
  - Sections can be browsed and registered by the students
  - After successful registration, section appears in my registrations and time table
  - Duplicate Registration is not allowed. Registering to a full section is not allowed. Message is displayed
  - Registering sections after registration deadline is not allowed. Message is displayed.
    - Result: **Pass**
- Drop Section:
  - Drop Sections which the student is enrolled in
  - Dropping unregistered section is not allowed
  - Dropping sections after drop deadline is not allowed. Message is displayed
    - Result: **Pass**
- View Grade:
  - Students can view grades by component of all the sections they are enrolled in
    - Result: **Pass**
- Export Grads:
  - Grade statistics for the student are saved to .csv file
    - Result: **Pass**

**Note: Demo Video follows the above testing plan.  
View Documentation for more details.**

