

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, bcrypt, 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 instructors'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.

