We analyzed the project report and have summarized our key findings regarding the system's design, security, and functionality across the three user roles.

Our Assessment of the University ERP System

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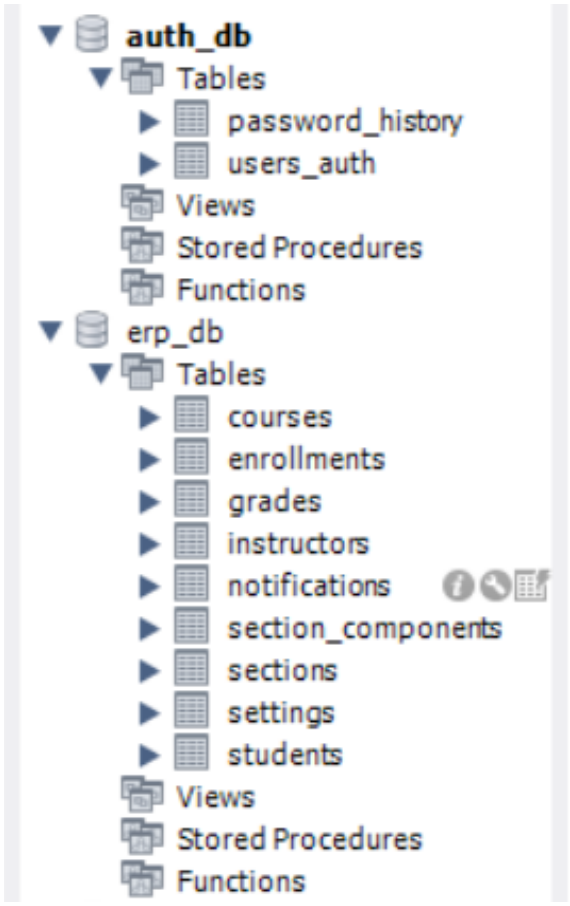
1. Robust Design & Security (Auth/ERP Separation)

We believe the system is built on a robust and thoughtful design, particularly concerning security and data integrity.

- Two-Database Architecture: We strongly favor the separation of the Auth DB (credentials) from the ERP DB (academic data). This minimizes the risk profile; a breach of the ERP DB does not immediately expose hashed passwords.
- Strong Password Handling: The use of BCrypt hashing and the implementation of password history tracking are best practices. The 5-attempt lockout (60 seconds) further defends against brute-force attacks.
- Layered Access Control: Enforcing access control at both the UI Routing and the Service Layer is crucial. This prevents unauthorized actions even if a user bypasses the graphical interface.

- 

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inst1	Instructor	$2a$10$R9nE.4a9oBvP2kXyZf0b2u.5
stu1	Student	$2a$10$8/qP/68RMBkvWhOecJhz2O
stu2	Student	$2a$10$aBcDeFgHiJkLmNoPqRsTu.Vv
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inst2	Instructor	$2a$10$yaXSEBRygrZEYiAPSThPf.uju
hansika24225	Student	$2a$10$g3VCVkCc2cwpY2gG/0Q6EeY
stu0	Student	$2a$10$WeL/MQUtoMKbCkjtz5/51.3H
admin2	Admin	$2a$10$WpStbgFOzdM9cxB83rUEhep
NULL	NULL	NULL

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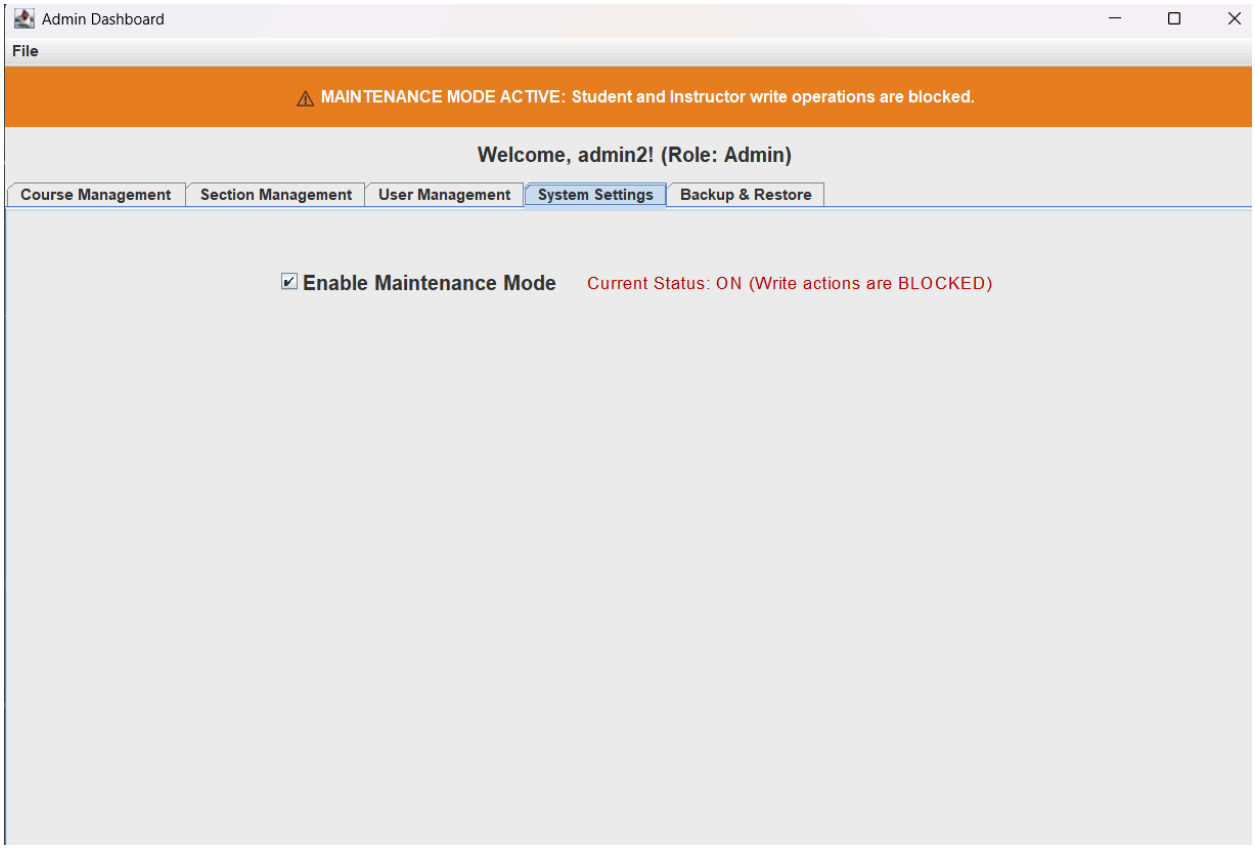
2. Administrator & Maintenance Mode

The Administrator role is well-defined, consolidating all management and system integrity features.

- Data Integrity Focus: The system prevents integrity issues by blocking the deletion of courses if sections exist, and blocking section deletion if students are enrolled.
- Toggle Maintenance Mode: This feature is critical for scheduled downtime, such as when the database is being backed up or upgraded. Blocking all write operations (register, drop, grade entry) ensures data consistency during maintenance.
- Comprehensive Backup: The ability to export/import all tables from *both* databases to CSV provides a complete disaster recovery mechanism.
- 

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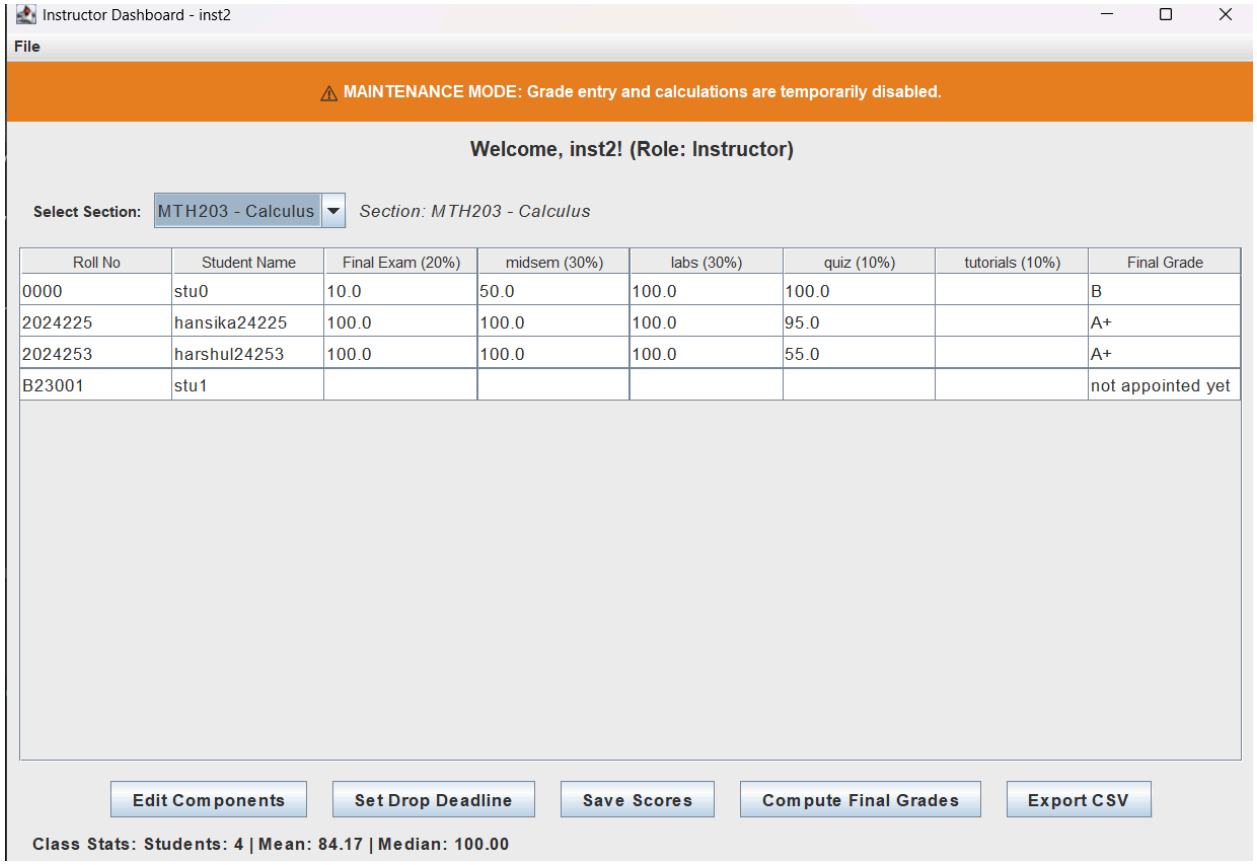
3. Grading and Instructor Features

We find the grading mechanism to be flexible and transparent, catering to diverse pedagogical needs.

- Instructor Configurability: Allowing instructors to define custom grade components and weights for specific sections is excellent flexibility, provided the system strictly enforces the 100% total weight constraint, which it does.

- Automated Calculations: The calculation of the final score using the weighted average formula and the subsequent conversion to a letter grade based on fixed cutoffs is clear and automates a major task.
- Notification System: The automatic triggering of notifications when an instructor saves grades is a great "Bonus Feature" (+2 points) that enhances the student experience by providing timely updates.



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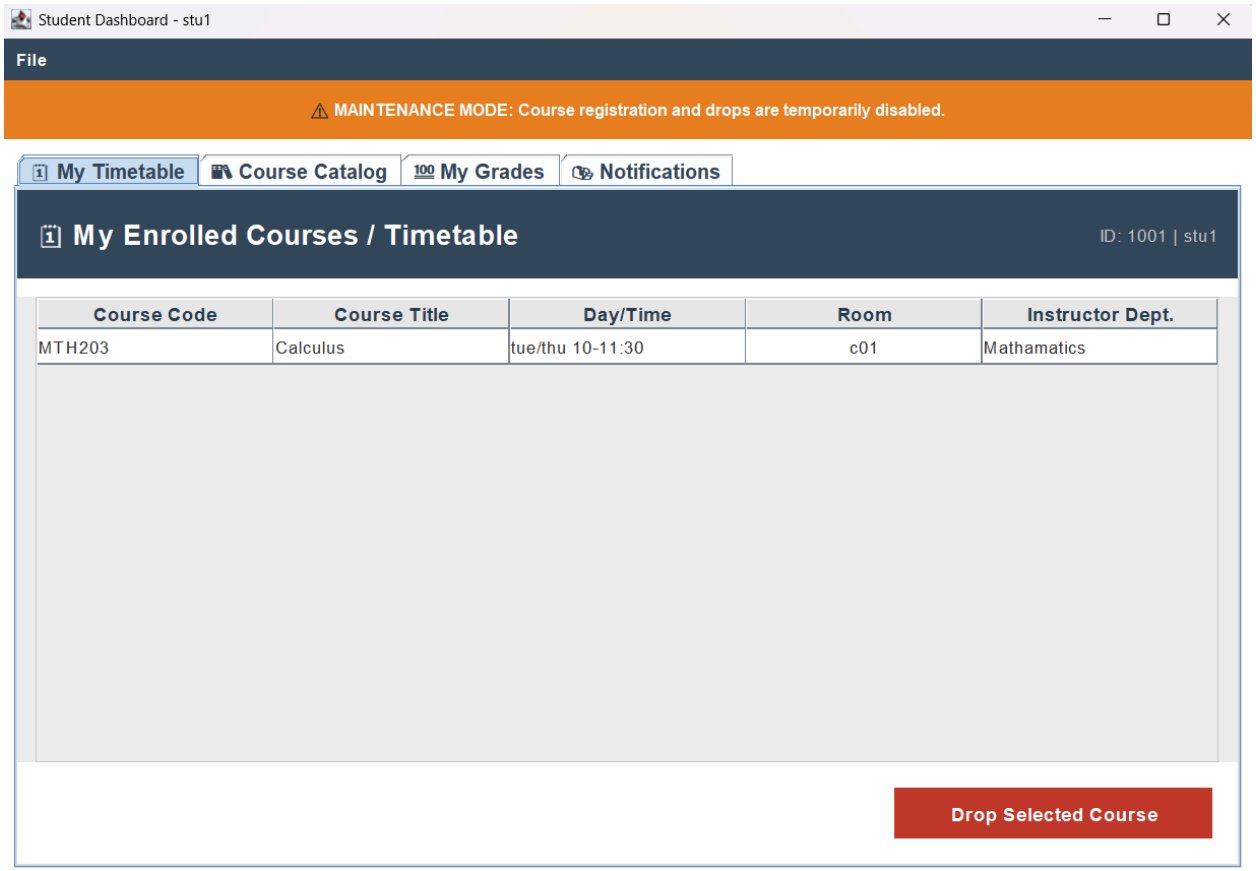
4. Student Functionality

The student-facing features cover all essential transactional needs.

- Registration/Drop Validation: We noted the tight integration of the Maintenance Mode check within the registration and drop processes, ensuring data integrity during restricted periods.

- Timetable and Transcript: Providing a clear visual Timetable and a CSV Transcript Download allows students to manage their academic data effectively.



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5. Final Conclusion on Implementation

Overall, we believe the project successfully implemented all required features, including securing an impressive +10 points in Bonus Features. The choice of Java/Swing for the desktop application is appropriate for a secure, internal university system, and the robust database schema and security features demonstrate a high level of implementation maturity.