Three Use case lists for ERP

Student
1. Login to system
2. View course catalog
3. Register for a section
4. Drop a section (before deadline)
5. View timetable
6. View grades for enrolled courses
7. Download transcript (CSV/PDF)
8. Change password

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Instructor
1. Login to system
2. View own sections
3. View student roster for a section
4. Enter scores (quiz, midterm, final) for students
5. Compute final grades for a section
6. Export gradebook (CSV)
7. View class statistics (average, distribution)
8. Change password

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Admin
1. Login to system
2. Create new user (student/instructor/admin)
3. Create course
4. Create section and assign instructor
5. Assign instructor to unassigned sections
6. Toggle maintenance mode (ON/OFF)
7. Backup database (bonus)
8. Restore database (bonus)
9. Change password

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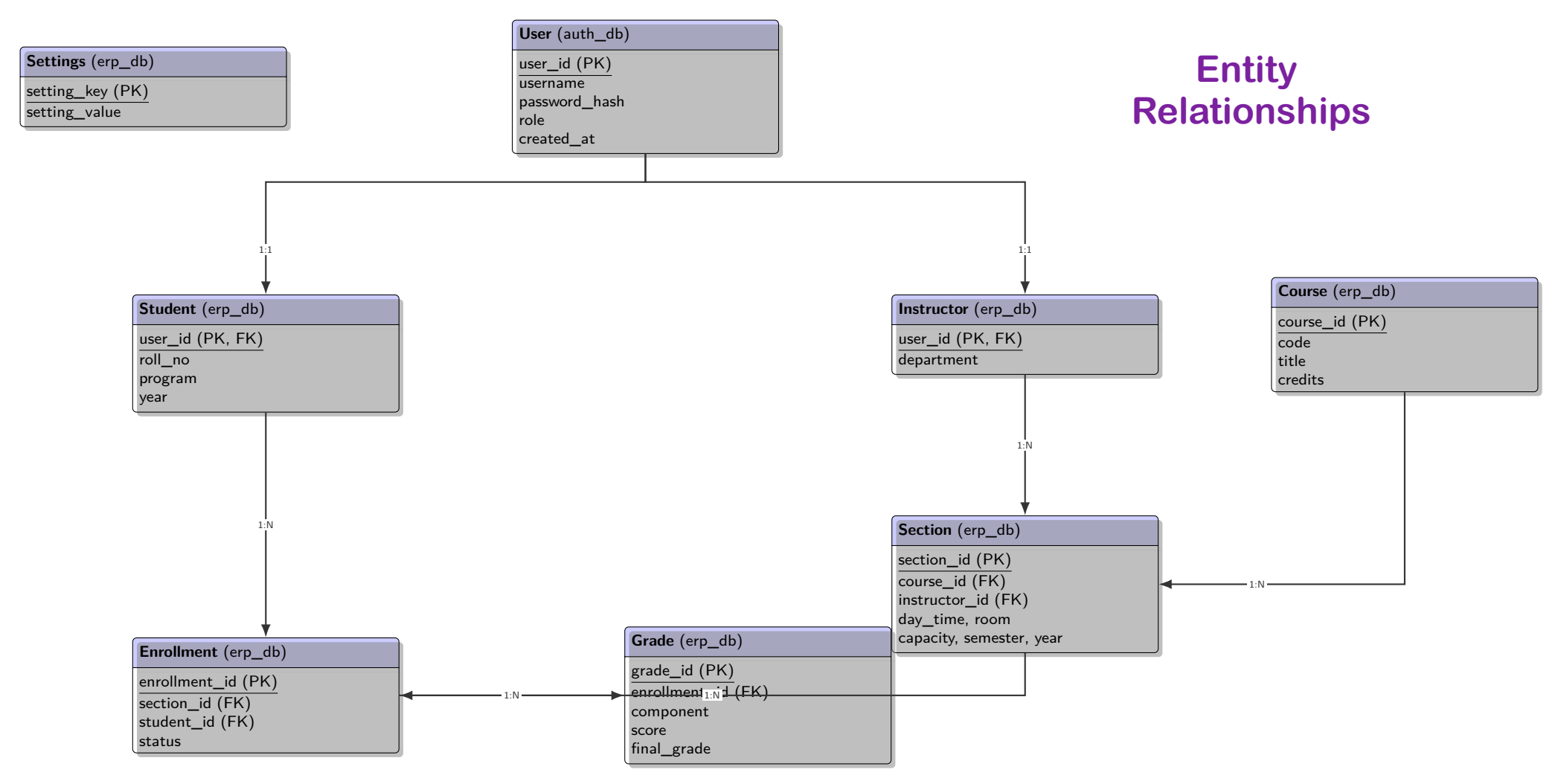
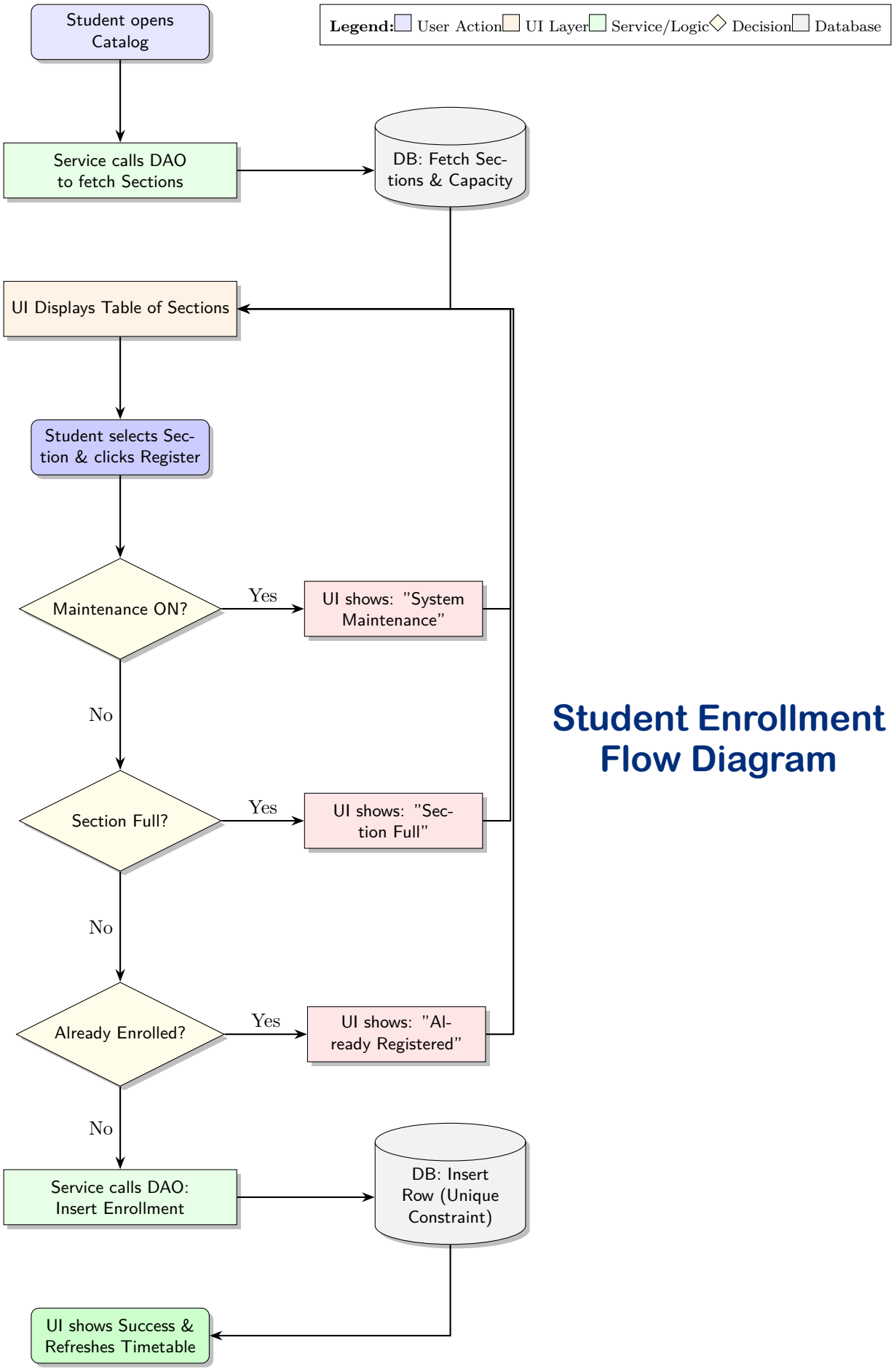
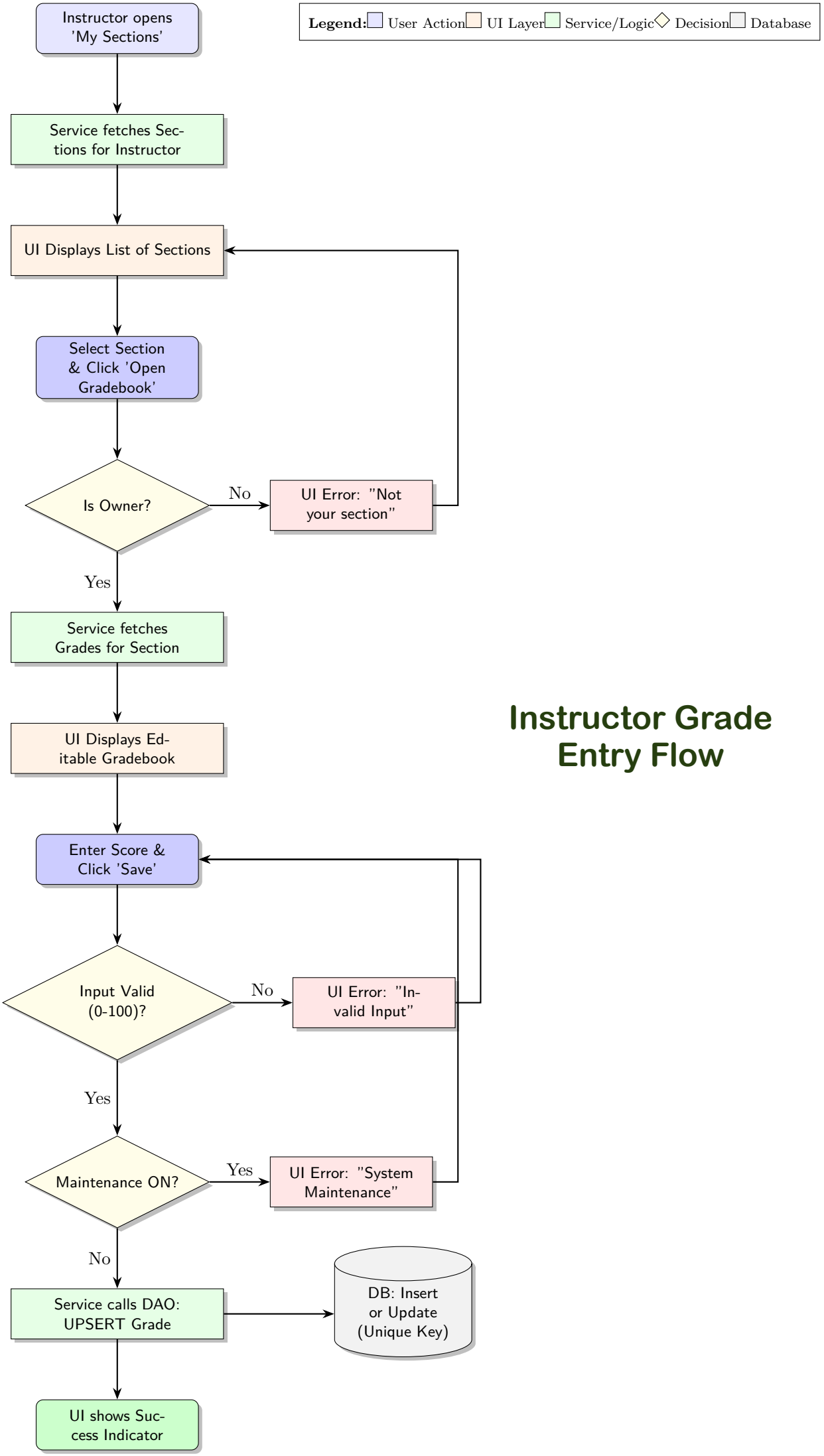
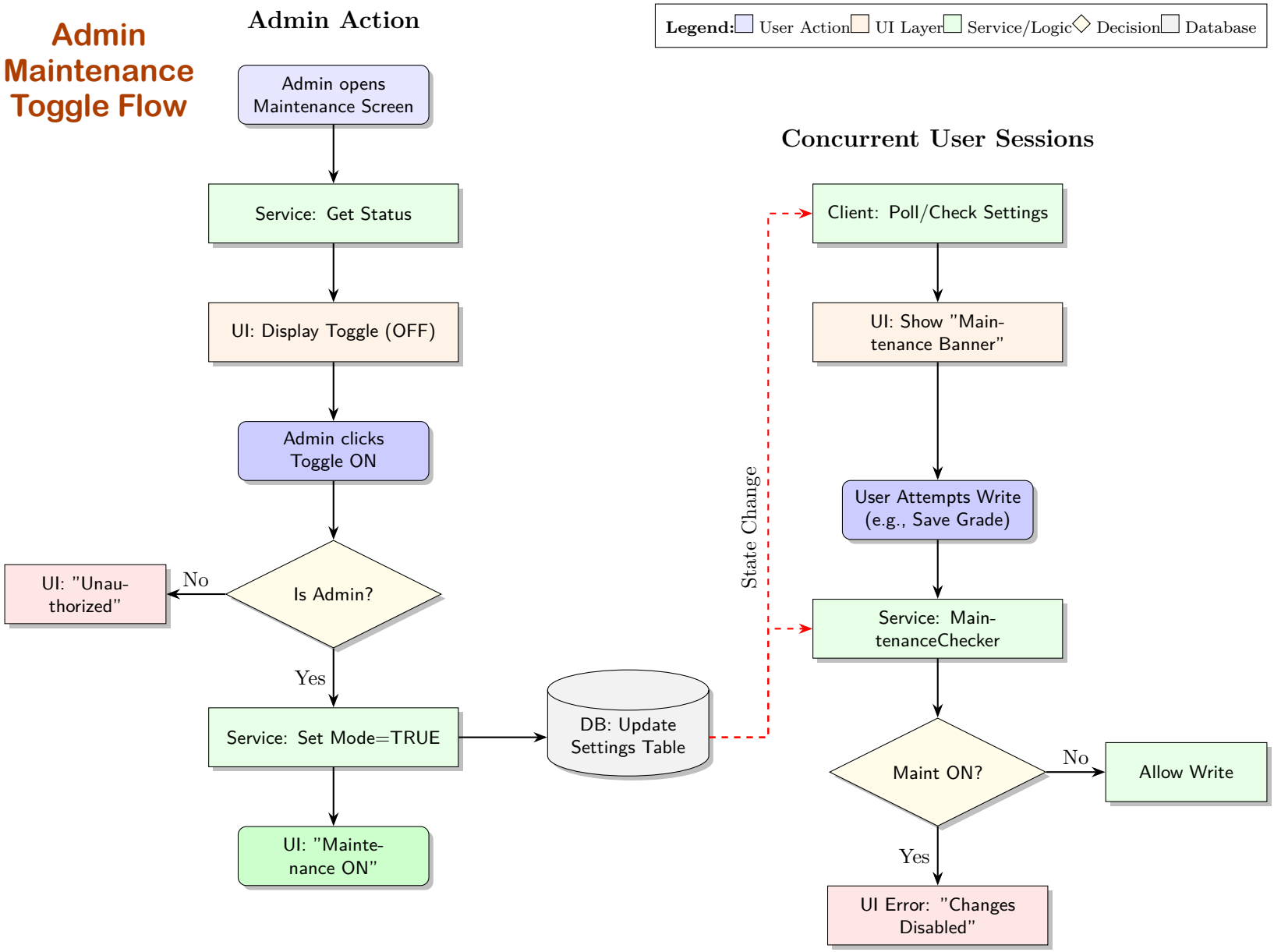

Entity Relationships
Settings (erp_db)
setting_key (PK)
setting_value
User (auth_db)
user_id (PK)
username
password_hash
role
created_at
1:1
1:1
Student (erp_db)
user_id (PK, FK)
roll_no
program
year
Instructor (erp_db)
user_id (PK, FK)
department
Course (erp_db)
course_id (PK)
code
title
credits
1:N
1:N
1:N
Section (erp_db)
section_id (PK)
course_id (FK)
instructor_id (FK)
day_time, room
capacity, semester, year
Enrollment (erp_db)
enrollment_id (PK)
section_id (FK)
student_id (FK)
status
1:N
Grade (erp_db)
grade_id (PK)
enrollment_id (FK)
component
score
final_grade
1:N


Legend: User Action UI Layer Service/Logic Decision Database
Student opens Catalog
Service calls DAO to fetch Sections
DB: Fetch Sections & Capacity
UI Displays Table of Sections
Student selects Section & clicks Register
Maintenance ON?
Yes
UI shows: "System Maintenance"
No
Section Full?
Yes
UI shows: "Section Full"
No
Already Enrolled?
Yes
UI shows: "Already Registered"
No
Service calls DAO: Insert Enrollment
DB: Insert Row (Unique Constraint)
UI shows Success & Refreshes Timetable
Student Enrollment Flow Diagram


Legend: User Action UI Layer Service/Logic Decision Database
Instructor opens 'My Sections'
Service fetches Sections for Instructor
UI Displays List of Sections
Select Section & Click 'Open Gradebook'
Is Owner?
No
UI Error: "Not your section"
Yes
Service fetches Grades for Section
UI Displays Editable Gradebook
Enter Score & Click 'Save'
Input Valid (0-100)?
No
UI Error: "Invalid Input"
Yes
Maintenance ON?
Yes
UI Error: "System Maintenance"
No
Service calls DAO: UPSERT Grade
DB: Insert or Update (Unique Key)
UI shows Success Indicator
Instructor Grade Entry Flow


Admin Maintenance Toggle Flow
Admin Action
Legend: User Action UI Layer Service/Logic Decision Database
Admin opens Maintenance Screen
Service: Get Status
UI: Display Toggle (OFF)
Admin clicks Toggle ON
Is Admin?
No
UI: "Unauthorized"
Yes
Service: Set Mode=TRUE
DB: Update Settings Table
UI: "Maintenance ON"
State Change
Concurrent User Sessions
Client: Poll/Check Settings
UI: Show "Maintenance Banner"
User Attempts Write (e.g., Save Grade)
Service: MaintenanceChecker
Maint ON?
No
Allow Write
Yes
UI Error: "Changes Disabled"