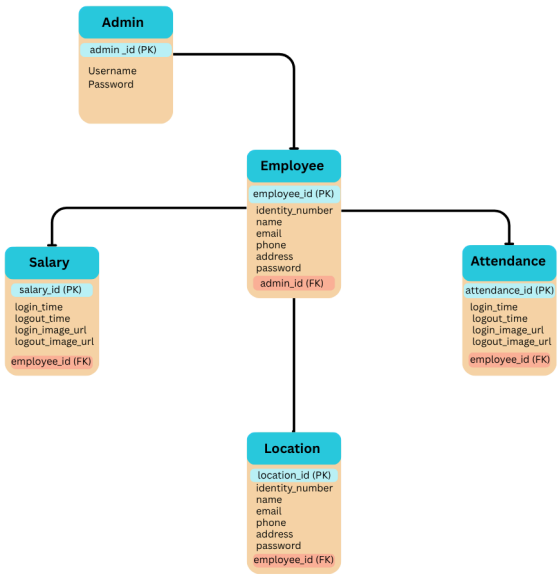
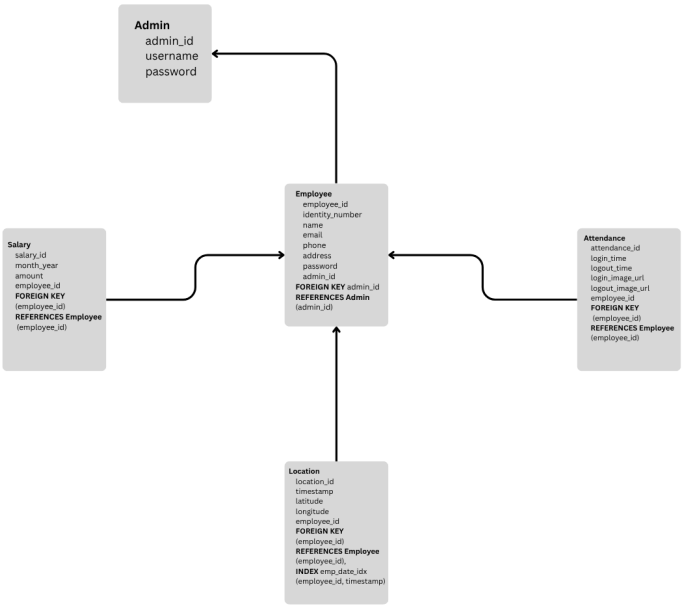
DESIGN DOCUMENT - CS619
TRACK EMPLOYEE APP

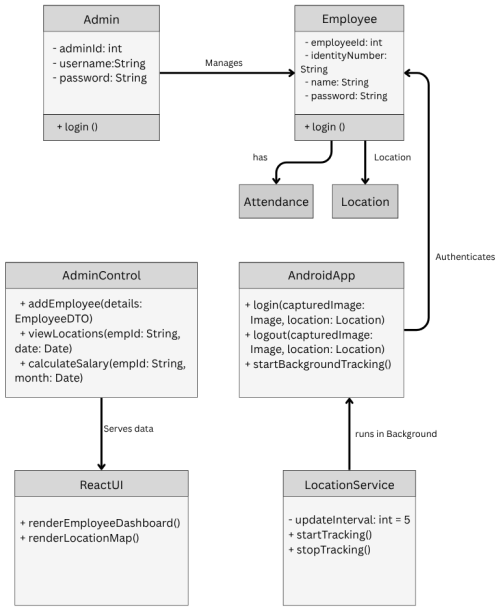
1. Entity Relationship Diagram (ERD):



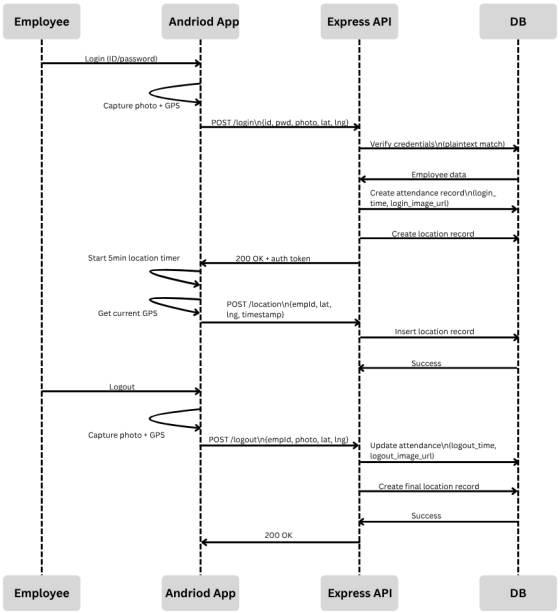
2. Database Schema (MySQL 5.X):



3. Class Diagram (MERN Stack + Android):

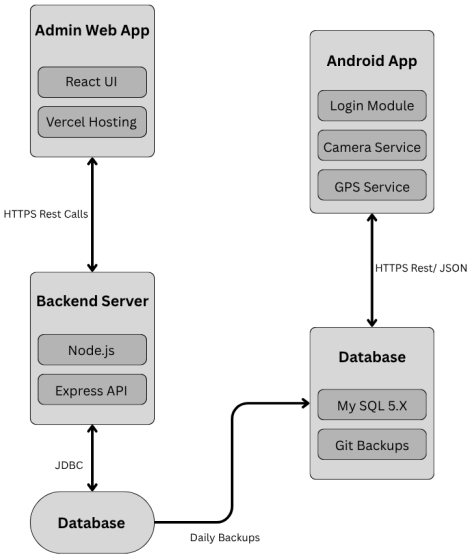


4. Sequence Diagram (Employee Tracking Flow):



5. Test Cases:

Test Case #	Test Case Title	Preconditions	Actions	Expected Results	Tested By	Result
1	Admin Login	Admin account exists in database	1. Navigate to admin login page 2. Enter valid admin credentials 3. Click Login button	System grants access to admin dashboard	[Tester Name]	Pass/Fail
2	Add New Employee	Admin is logged into web dashboard	1. Navigate to 'Add Employee' section 2. Fill all required fields (name, contact, etc.) 3. Click Submit button	New employee appears in database with auto-generated ID and plaintext password	[Tester Name]	Pass/Fail
3	Employee Android Login	Employee has valid credentials App has camera/GPS permissions	1. Enter employee ID/password 2. Allow photo capture 3. Allow GPS access 4. Click Login	Attendance record created with: - Login timestamp - Login photo URL - Initial GPS coordinates	[Tester Name]	Pass/Fail
4	Background GPS Tracking	Employee is logged into Android app	1. Remain logged in for >5 minutes 2. Verify network connectivity	New location records appear in database every 5 minutes with valid lat/lng	[Tester Name]	Pass/Fail
5	Employee Android Logout	Employee is logged into Android app	1. Click Logout button 2. Allow photo capture 3. Verify GPS lock	Attendance record updated with: - Logout timestamp - Logout photo URL - Final GPS coordinates	[Tester Name]	Pass/Fail
6	View Employee Locations	Admin is logged in Location data	1. Select employee from dropdown 2. Choose date	Raw latitude/longitude coordinates	[Tester Name]	Pass/Fail

		exists for selected employee/date	3. Click 'View Locations'	displayed in table format for selected criteria		
7	Calculate Employee Salary	Admin is logged in Attendance records exist for selected employee/month	1. Select employee from dropdown 2. Choose month 3. Click 'Calculate Salary'	Salary amount displayed based on attendance hours for the month	[Tester Name]	Pass/Fail
8	Auto-reconnect After Network Failure	Employee logged in with active GPS tracking Network connection lost	1. Simulate network failure for 10 minutes 2. Restore network connection	Buffered location data syncs to server within 1 minute of reconnection	[Tester Name]	Pass/Fail
9	Data Retention Policy	Location records older than 1 year exist	1. Query database for records >365 days old	No records returned (or moved to archive)	[Tester Name]	Pass/Fail
10	Android Compatibility	Test device running Android 5.0 (Lollipop)	1. Install APK 2. Execute core functions (login, GPS, logout)	All functionality works as on newer OS versions	[Tester Name]	Pass/Fail

6. System Architecture: