Republic of the Philippines
DAVAO ORIENTAL STATE UNIVERSITY
Guang-guang, Dahican, City of Mati, Davao Oriental
Faculty of Computing, Data Sciences, Engineering and Technology
Information Technology Program

ITC 130 – Applications Development in Emerging Technologies

PROJECT X: Automated Attendance Tracking System: Conceptual Model Diagram

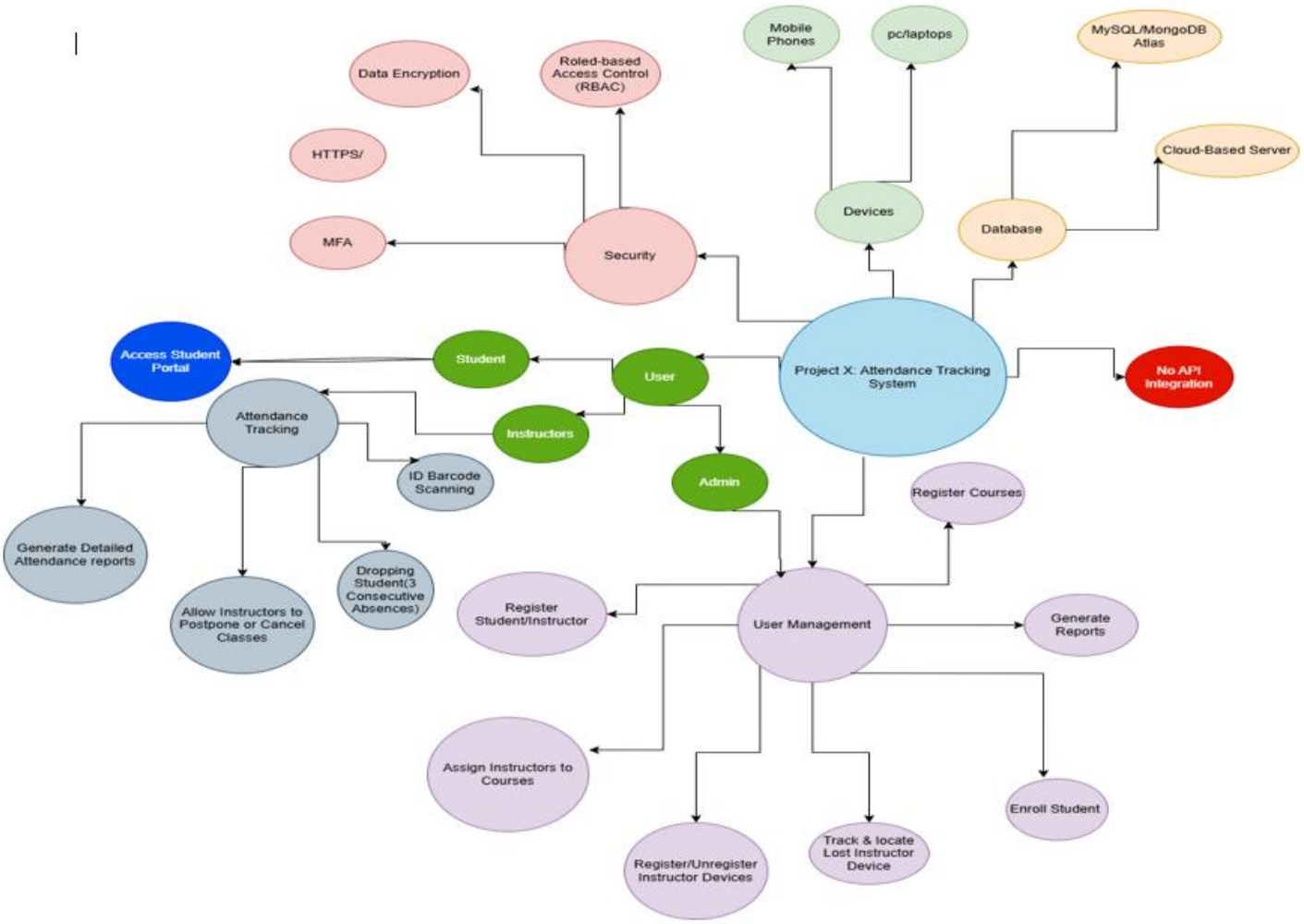
PRESENTED BY:

NEIL ROY G. OMONGOS

WENONA MARIE M. MONTEMAYOR

SHAMAIAH LEE CADUT

"Conceptual Model"



Main System

Project X: Attendance Tracking System

- This is the core system where everything connects.
- Think of it as the "brain" that handles users, attendance, devices, reports, and more.

User Roles and Entities

Student

- Each student has a unique ID, name, university ID, and profile picture.
- Example: John Doe (ID: 2023001) scans a QR code when he enters the classroom.
- They access the **Student Portal** to view their attendance records.

Instructors

- They manage class attendance and take student photos.
- Instructors can:
    - Postpone or cancel classes.
    - Drop students after 3 consecutive absences.
    - Use devices to scan student IDs via barcode or QR code.

Admin

- The boss of the system.
- They can:
    - Add/remove students, instructors, courses, and devices.
    - Assign instructors to courses.
    - Track lost instructor devices.
    - Ensure everything is working properly.

Key Components

Courses

- Courses are like subjects (e.g., IT101, MATH102).
- Students enroll in these, and instructors are assigned to teach them.

Attendance Tracking

- Tracks when students are present or absent.
- Includes:
    - **Postpone/Cancel Classes**
    - **Generate Reports** (e.g., for parents or school use)
    - **Drop Students** after 3 absence.

Attendance Records

- Shows:
    - Date and time of attendance
    - Status: present or absent
    - Linked to course, student, and instructor.

Devices

- Only registered devices (like instructor phones or tablets) can be used.
- They're used to scan QR codes and track who's attending.
- Lost devices can be tracked or unregistered.

Security Features

- **HTTPS/**: Safe web connection (like using "https://" in secure websites)
- **MFA**: Multi-Factor Authentication (e.g., password + code sent to email)
- **RBAC**: Role-Based Access Control (e.g., students can't edit records)
- **Data Encryption**: Protects sensitive data from hackers

Backend/Infrastructur

Database

- Stores all information (students, attendance, devices, etc.)
- Example: MySQL or MongoDB Atlas.

Cloud-Based Server

- All data is saved online (not just in one computer)
- Makes it easy to access and manage from anywhere.

No API Integration (Yet)

- This means it currently does not connect to other apps or services via API.

QR Code Scanning Process (Real-Life Example)

1. **Student** opens their app or student portal.
2. The **system generates a unique QR code** for the student (linked to their ID, course, and time).
3. The **instructor scans** the student's QR code using a **registered device** (like a mobile phone or tablet).
4. The system instantly **records the attendance** with:
    - Student ID, Course ID, Present Status and Date & Time.

Reports

- Instructors/Admins can generate:
    - Attendance summaries
    - Absence trends
    - Course-wise reports
- Useful for grading, analytics, or school reports.