



# UNIVERSITY

Database User and Role Management

Course : Database Administration

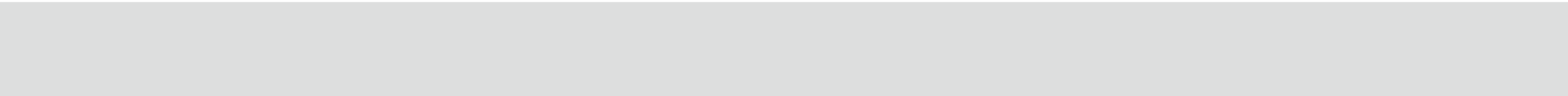
Lecturer : Mr. Thear Sophol



Team 6 : Prak Pychey



Lim Lyheang



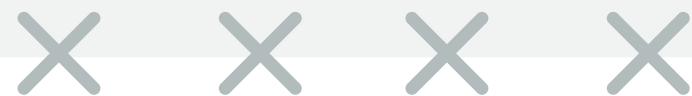
# PROJECT OVERVIEW

**Objective:** Implement secure user and role management for UniversityDB

**Approach:** Role-Based Access Control (RBAC)

**Key Goals:**

- Ensure data security
- Maintain operational efficiency
- Follow principle of least privilege



# DATABASE SCHEMA

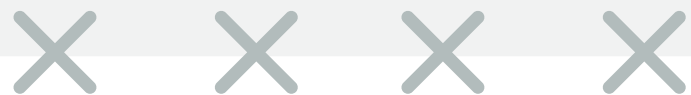
## 7-Table Database Structure

- Departments - Academic divisions
- Faculty - Teaching staff records
- Students - Student information
- Courses - Academic offerings
- Enrollments - Student-course relationships
- Library - Book management system
- Financial\_Records - Transaction tracking

# USER DEFINITION

## 7 Database Users Created

- Pychey (Admin)
- Lyheang (Faculty)
- Korn (Student)
- Nasa (Staff)
- Roth (Librarian)
- Yut (Finance)
- Vorn (Reporter)



# ROLE DEFINITION

- **Administrative\_Role** : Full system control
- **Faculty\_Role** : Manage academic content and student grades.
- **Student\_Role** : Access course materials and submit work.
- **Staff\_Role** : Handle internal operations and admin tasks.

# ROLE DEFINITION

- Librarian\_Role : Manage book inventory and borrow records.
- Finance\_Role :Control financial records and payments.
- Reporter\_Role : View reports and system analytics.

# PERMISSION DEMONSTRATION

## Admin

ALL PRIVILEGES all tables

## Stuff

R/W on Students, Faculty,  
Courses, Departments

## Faculty

R/W on Enrollments, R on  
Students, Courses

## Financial

R/W on Financial\_Records,  
R on Students

## Librarian

CRUD on Library, R on  
Students, Faculty

## Student

R on all Enrollments,  
Courses, Library

# PERMISSION DEMONSTRATION

Reporter

Read on all tables

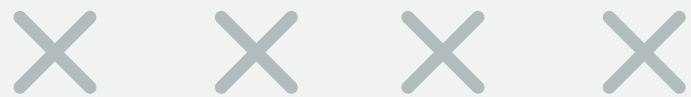


# ACCESS CONTROL MATRIX

Table	Admin	Staff	Faculty	Student	Financial	Librarian	Reporter
Students	CRUD	CRU	R	-	R	R	R
Faculty	CRUD	CRU	-	-	R	R	R
Enrollments	CRUD	-	CRU	R	-	-	R
Financial_Records	CRUD	-	-	-	CRU	-	R
Library	CRUD	-	-	R	-	CRUD	R
Courses	CRUD	CRU	R	R	-	-	R
Department	CRUD	CRU	-	-	-	-	R

# KEY BENEFITS

- Easy user management
- Quick role assignment
- Simplified permission updates
- Unauthorized access prevention



# **REAL-WORLD SCENARIOS**

- **Faculty accessing student grades**
- **Students viewing course information**
- **Library staff managing books**
- **Financial office handling tuition records**

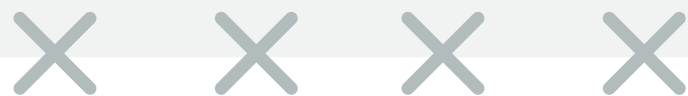
# CHALLENGES & SOLUTIONS

## Challenges Faced:

- Thinking as an database administrator
- Giving the right permissions to roles
- Security concerns

## Solutions Implemented:

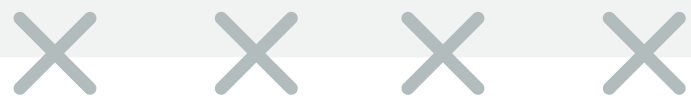
- Asking seniors for advices
- Watching youtubes videooes
- Self research to find the right permissions



# CONCLUSION



Implementing the system as students while role-playing as university admins was challenging and unusual at first but after we managed to finish it, It gave us hands-on experience with user roles, permissions, and access control, deepening our understanding of how real-world database management works.





**THANK YOU**

