GAGAH DAN SETIA - READY TO SERVE - TABAH DAN PERKASA

PALAPES UTeM SYSTEM FITNESS

MUHAMMAD DANISH FARHAN BIN HAIRULRIZAM

B03210702 - **BITI S1G2** - **YEAR 2 SEM 1**

INTRO

INTRODUCTION

- System Name: PALAPES UTeM Fitness System.
- Purpose: Manage fitness records for cadets, coaches, and administrators.
- Key Features:
  a. Role-based access control.
  b. Modular programming for clear and adaptable functionalities.
  c. Integration with MySQL for efficient data storage and retrieval.
  d. Emphasis on structured coding practices (arrays, selection mechanisms, error handling).

PROBLEM STATEMENT

Problem Statement

- Challenges:
  a. Inefficient manual data tracking prone to errors.
  b. Role-based access limitations.
  c. Lack of centralized data storage.
- Issues:
  d. Dependency on live database connections (MySQL).
  e. Insufficient error-handling mechanisms affecting system robustness.

PROBLEM STATEMENT

OBJECTIVE

1. Develop a role-based system for cadets, coaches, and admin data management.
2. Automate fitness information recording, storage, and retrieval to reduce errors.
3. Design a scalable, user-friendly interface for interaction and data visualization.
4. Ensure system reliability with robust error-handling and dynamic data management.

SCOPE

4.1 Modules to Be Developed

1. Login Module: Secure user authentication and role-based permissions.
2. Registration Module: Create accounts with role-specific rules and input validation.
3. User Management Module: Manage user details based on role permissions.
4. Fitness Management Module:
    a. Admin: Full access to fitness records.
    b Coach: Manage squad-specific fitness records.
    c. Cadet: View official and update unofficial fitness records.
5. Report Module: Generate reports for individuals, squads, and overall performance.

SCOPE

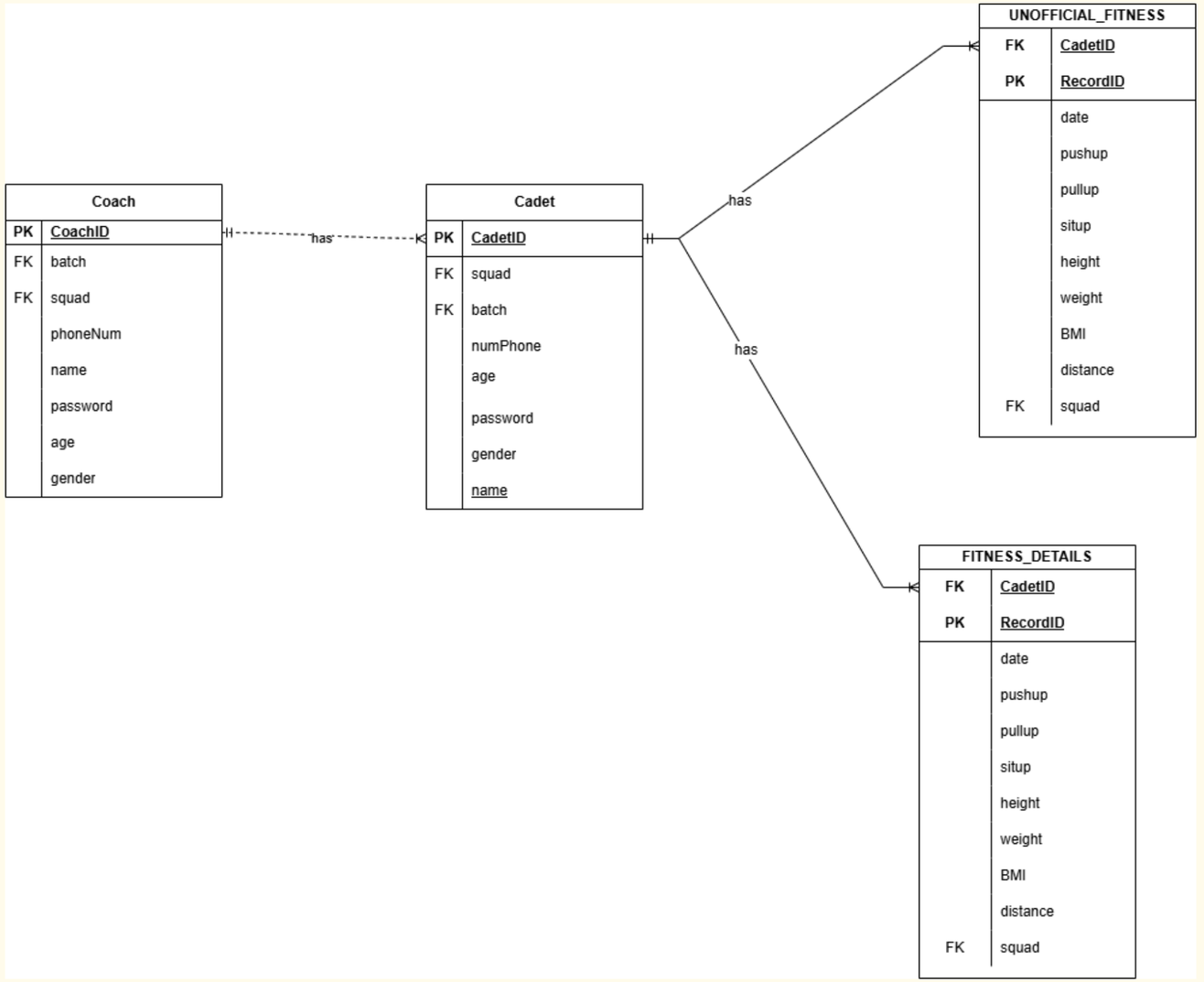
4.2 Target Users

- Administrator: Oversees system functionality, manages users, fitness records, and generates reports.
- Coach: Manages fitness data for their squad and provides feedback.
- Cadet: Tracks personal fitness data and views progress reports.

5. Project Significance

1. **Efficiency:** Digitizes fitness data management, reducing errors and paperwork.
2. **Data Security:** Role-based access ensures data integrity and prevents unauthorized access.
3. **Analytics for Decision-Making:** Reporting module identifies trends for better training programs.
4. **Personalized Experience:**
    - Cadets: Track progress through reports.
    - Coaches: Focus on squad-specific data for better mentorship**.**
5. **Scalability:** Structured design supports growth and wider adoption.
6. **Technological Advancement:** Demonstrates digital transformation and modern practices.

ERD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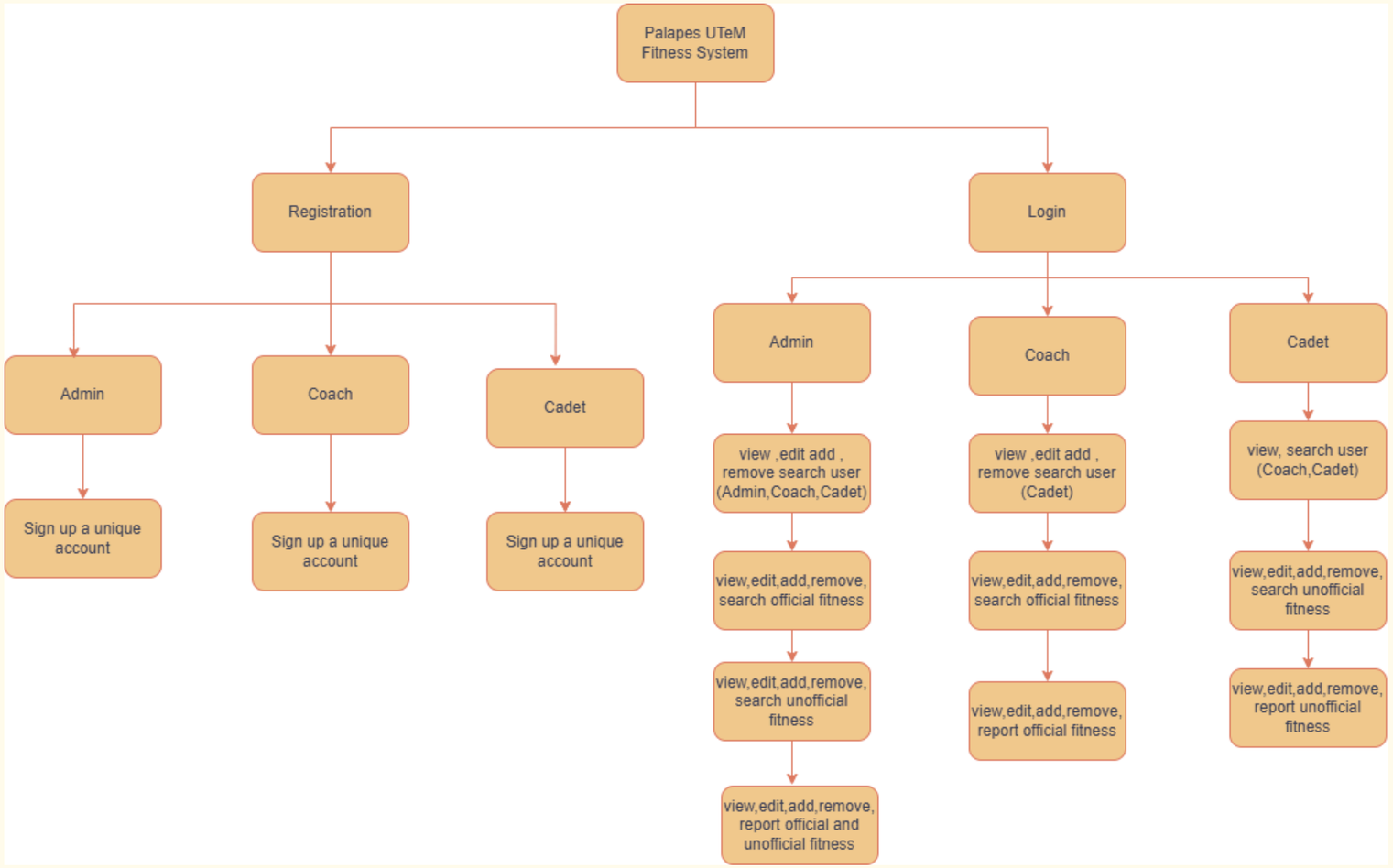
STRUCTURE CHART



CONSTRAINTS

1. **Scalability and Dependency Issues:**

- Static data structures like fixed-size arrays limit the system's ability to grow.
- Heavy reliance on live MySQL database makes the system vulnerable to network disruptions.

2. **User Accessibility and Role Flexibility:**

- Console-based interface reduces user engagement, especially for non-technical users.
- Rigid role management restricts adaptability to complex organizational structures.

3. **System Resilience and Usability:**

- Lack of advanced error handling (exception management) lowers robustness.
- No offline functionality limits usability in areas with unstable internet connectivity.

FITIRE IMPROVEMENTS

1. **Enhancing Scalability and Performance:**
- Adopt dynamic data structures like std::vector or std::map.
- Optimize database queries to improve responsiveness.
2. **Improving User Experience and Accessibility:**
- **Transition to a graphical user interface (GUI) for better usability.**
- **Introduce mobile app integration to expand accessibility.**
3. **Boosting Reliability and Adaptability:**
- Implement offline functionality with local data caching and synchronization.
- Introduce advanced error handling through exception management and logging**.**

CONCLUSION

1. **Centralized Fitness Management:**

- The PALAPES UTeM Fitness System successfully centralizes and automates fitness record management, significantly improving efficiency and reducing manual errors.

2. **Role-Based Access Control:**

- The system effectively enforces role-based access, ensuring secure and structured data management for administrators, coaches, and cadets.

3. **Potential for Modernization:**

- The system has foundational strengths, addressing current limitations provides an opportunity for future enhancements, ensuring adaptability and scalability to meet evolving needs.

Thank You