**House Management System for University**

**AED Final Project:**

Sumeet Rane - 002304942

Omkar Salian - 002050108

Siddhesh Sawant - 002058340

**Problem statement:**

Increasing Complexity of Student Well-being: Today’s students encounter numerous challenges, requiring a thorough approach to their health, nutrition, and living conditions.

● Various Student Needs: Students at Universities possess distinct dietary requirements, health issues, and dormitory service necessities, making a customized support system crucial.

● Lack of Integrated Solutions: At present, there exists a disconnect in communication and cooperation among essential parties such as Dormitory Services, Dieticians, Doctors, and Fitness Coaches.

● Goal: The aim is to develop a collaborative Ecosystem that tackles these issues, creating a holistic and supportive atmosphere for student well-being.

● Emphasis on Collaboration: The goal is to progress beyond isolated efforts and capitalize on the combined strengths of Dormitory Services, Dieticians, Doctors, and Fitness Coaches to improve student welfare.

● The initiative seeks to illustrate that the collective efforts of these groups provide greater advantages for student well-being than their separate contributions.

**Solution:**

Our approach focuses on developing a comprehensive well-being ecosystem that combines Dormitory Services, Dieticians, Doctors, and Fitness Coaches into a single platform.

● Creating a centralized hub that promotes effortless communication and collaboration among all parties involved in supporting student well-being.

● Designing use cases that address specific student requirements, including dietary guidance, medical consultations, fitness initiatives, and dormitory service requests.

● Ensuring a flexible and interconnected system where Dormitory Services, Dieticians, Doctors, and Fitness Coaches can exchange pertinent information and insights for tailored student support.

● Establishing a strong authentication module to protect user access, guaranteeing that sensitive student information is managed with the highest level of privacy and confidentiality.

● Highlighting that the joint efforts of Dormitory Services, Dieticians, Doctors, and Fitness Coaches create a more comprehensive and efficient support network, offering enhanced value to students.

**Identifying Key Participants:**  
● Students: The primary recipients of the system aim for comprehensive assistance for their overall well-being, which encompasses dietary, medical, and fitness aspects.

● Dormitory Services: Oversees student housing, manages service requests, and enhances the overall living experience.

● Dieticians: Offers nutritional advice, creates dietary plans, and works alongside other entities to ensure the health and wellness of students.

● Doctors: Provide medical examinations, and health evaluations, and play a role in safeguarding the health and safety of the student body.

● Fitness Coaches: Develop exercise programs, track progress, and collaborate with various stakeholders to encourage students to live healthy lifestyles.

● Administrators: Supervise the execution and upkeep of the system, ensuring it meets the university's objectives and standards.

A diagram of a company

Description automatically generated

**USE CASES:**

**Use Case 1: Nutritional Management**

Actors: Student, Nutritionist

● The student signs into the system and provides their dietary preferences, allergies, and health objectives.

● The nutritionist reviews this information to develop customized dietary plans.

● The system alerts the student about recommended meals, taking into account their preferences and nutritional requirements.

● The nutritionist and student can interact within the system.

**Use Case 2: Medical Consultation and Appointment Scheduling**

Actors: Student, Doctor

● A student books a medical consultation via the system according to their availability.

● The doctor reviews the appointment information and examines the student’s medical history.

● Throughout the consultation, the doctor updates the system with the diagnosis, prescriptions, and advice.

● The system notifies the student for follow-up appointments or medication reminders.

**Use Case 3: Enrollment in Fitness Programs**

Participants: Student, Fitness Coach

● The student shows interest in the fitness programs offered in the system.

● The fitness coach examines student profiles to suggest appropriate programs.

● The student registers for a fitness program via the system.

● The system monitors progress and informs both the fitness coach and student about achievements and milestones.

**Use Case 4: Requests for Dormitory Services**

Participants: Student, Dormitory Services

● A student enters a service request via the system for maintenance or other dormitory-related concerns.

● Dormitory Services assesses and ranks requests based on their urgency and the resources available.

● The system notifies the student about the status of their request and the expected completion timelines.

● Both Dormitory Services and the student can communicate through the system for further information or updates.

**IMPLEMENTATION TECHNIQUE:**1. Architecture:

● We have embraced the Model-View architecture to create a modular and maintainable codebase.

● A clear division of responsibilities allows for easier development, testing, and future changes.

2. Swing Components:

● Utilizing Java Swing components (JFrame, JPanel, etc.) to create an intuitive and user-friendly interface.

● Delivers a familiar and responsive GUI for effective user interactions across various modules.

3. Database Integration (DB4O):

● Incorporating DB4O for database functions, executing CRUD operations for entities such as students, appointments, and service requests.

● Provides efficient data storage and retrieval, ensuring the persistence and integrity of the system's information.

4. Authentication Module:

● Establishing a role-based authentication system with secure password management for user access.

● Guarantees data security and limits access according to predefined roles.

5. Exception Handling:

● Putting strong exception handling procedures in place to handle problems politely and deliver insightful error messages.

● Increases the application's dependability, strengthening its resistance to unforeseen problems.

6. Code Review and Version Control:

● Managing changes and performing frequent code reviews using version control (such as Git).

● Assures code quality, promotes teamwork, and creates a methodical approach to maintenance and development.

7. Documentation:

● Keeping the codebase's documentation thorough and understandable, including Javadoc comments for classes and methods.

● Improves code clarity, supports future development, and makes teamwork easier.