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**Project idea**

Monitoring system for Elderly people

**Project name**

Eldercare Guardian

**Project overview**

This is a system that helps monitor the health and wellbeing of elderly people in real time allowing care givers like family members and healthcare professionals like doctors and nurses. It collects important health data such as heart rate and blood pressure and alerts the caregiver or health professional in case of any problem. The goal is to improve elderly care by making sure health issues are noticed and dealt with as soon as possible.

**Functional components**

1. Registration and login
2. Health data (heart rate, blood pressure, medical history and medication schedules)
3. Alert system that notifies the care giver or the health professional
4. Real time health monitoring (wearable device integration)

**Summary of Elder Care Guardian Class Diagram:**

1. **User Class** (Superclass):
   * Common base class for all users (caregivers, health professionals, and administrators) with basic attributes like userID, username, and password. Methods include register() and login().
2. **Caregiver Class**:
   * Inherits from **User**, represents family members or caretakers.
   * Can input health data, monitor health, set medication reminders, and receive alerts.
3. **Health Professional Class**:
   * Inherits from **User**, represents doctors or nurses.
   * Can perform all caregiver actions, plus generate health reports.
4. **System Administrator Class**:
   * Inherits from **User**, manages user accounts.
   * Key method: manage User Accounts().
5. **Health Data Class**:
   * Stores health information like heart rate, blood pressure, medication schedules, and medical history.
   * Key method: collect Data().
6. **Alert System Class**:
   * Manages emergency notifications sent to caregivers and health professionals.
   * Key method: send Alert().

**Key Relationships:**

* **Inheritance**: Caregiver, Health Professional, and System Administrator inherit from User.
* **Associations**: Caregiver and Health Professional are associated with Health Data (to monitor/input data) and Alert System (to receive alerts).

**Use Case Diagram**

**Actors**

1. Caregiver: register/login, input of health data, receives alerts, set medication reminders and monitor health
2. Health professional(doctor/nurse): register/login, input of health data, receives alerts, set medication reminders, monitor health and generate reports
3. System Administrator: register/ login and manage user accounts

**Use cases**

1. Register/login
2. Input of health data
3. Monitor health
4. Receive alerts
5. Generate reports
6. Set medication reminders
7. Managing of user accounts by the Admin

**Explanation of the Flow of the sequence diagram**

1. **Login/Register**: The **Home Caregiver** and **Health Professional** register or login via the Eldercare Guardian App.
2. **Health Data Input**: The **Home Caregiver** inputs the elderly person's health data (e.g., heart rate, blood pressure).
3. **Monitoring**: The **Eldercare Guardian App** monitors the health data continuously.
4. **Alert**: When the app detects any abnormality, it sends alerts to both the **Home Caregiver** and the **Health Professional**.
5. **Feedback**: Both the **Home Caregiver** and **Health Professional** send their feedback to the system.
6. **Report**: The **Health Professional** generates a report based on the input and feedback.
7. **System Admin**: Manages user accounts and updates system details.