[**CS-360-11083-M01 Mobile Architect & Programming 2**](https://learn.snhu.edu/d2l/home/1918351)

**2-2 Assignment: User Components and Data**

**Module 2**

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**Mobile App Overview**

**App Name**: Pregnancy Test Predictor (hypothetical app)

**Purpose**:  
The Pregnancy Test Predictor app helps users assess the likelihood of being pregnant based on input data such as symptoms, menstrual history, missed periods, weight changes, lifestyle factors, and important health data retrieved from doctor visits. It allows users to sync with the MyChart app to input health information like blood tests, glucose and cholesterol levels, and vital signs, which influence pregnancy predictions and overall health status. The app also uses secure facial recognition for user authentication and encryption to ensure privacy. Users will be reminded to update their information every 5 days for the most accurate predictions.

**App Features and Screens**

1. **Platform Availability**:
   * The app will be available on **iOS**, **Android**, **Microsoft Store**, and **Google Play Store**. It will be compatible with both smartphones and tablets, ensuring wide accessibility.
2. **Screens**:
   * **Home Screen**: Displays a summary of the user's pregnancy likelihood based on their inputs (symptoms, weight changes, heart health, etc.), with options to update or sync health data from MyChart.
   * **Symptom Input Screen**: Allows users to input current symptoms like nausea, fatigue, and breast tenderness.
   * **Period History Screen**: Users input the date of their last menstrual period (LMP), cycle length, missed periods, and whether their periods are regular or irregular.
   * **Weight Tracking Screen**: Users can track weight changes, which may indicate pregnancy or other health factors.
   * **Doctor Visit Screen**: The app integrates with MyChart, allowing users to input and update health data from their doctor visits, including blood tests, vital signs (heart rate, blood pressure), glucose levels, cholesterol levels, and lab tests.
   * **Heart Health Screen**: Users input and track heart health data such as blood pressure, heart rate, and other relevant cardiovascular data.
   * **Result Screen**: After inputting data, the app provides a pregnancy likelihood result (e.g., low, moderate, or high), with a recommendation to take a home pregnancy test or consult a healthcare provider.
   * **Update Reminder**: A feature reminding users to check back in **5 days** to update their data, such as adding new symptoms, tracking weight changes, or including updated test results from MyChart.
3. **UI Components**:
   * **Icons**: A **pink icon** is used as the app’s main icon, along with a **heart-shaped icon** representing the focus on reproductive and overall health.
   * **Input Fields**: Text boxes, dropdown menus, and checkboxes for entering symptoms, period dates, missed periods, weight changes, health data from MyChart, and vital signs.
   * **Buttons**: "Submit" to submit data, "Sync" to update from MyChart, "Clear" to reset inputs, and "Reminder" to set a notification for checking back in 5 days.
   * **Progress Bar/Graph**: Displays pregnancy likelihood as a percentage, visualized with a progress bar or dial.
   * **Navigation**: Tabs or side menu to navigate between different screens (Home, Symptoms, Period History, Weight, Doctor Visit, Heart Health, Results).

**Data Sources**

1. **External Data**:
   * **Medical Algorithms**: The app uses a predefined algorithm to correlate symptoms, period history, weight changes, health data (e.g., glucose, cholesterol levels, blood pressure), and other factors to predict the likelihood of pregnancy.
   * **MyChart Integration**: The app integrates with **MyChart**, allowing users to input health data from their doctor visits, such as **blood tests**, **vital signs**, **glucose levels**, and **cholesterol levels**.
2. **User Input**:
   * **Symptoms**: Users manually enter symptoms like nausea, fatigue, and breast tenderness.
   * **Period History**: Users input the date of their last menstrual period, cycle length, missed periods, and whether their periods are regular or irregular.
   * **Weight Changes**: Users can track significant weight changes (e.g., sudden weight gain or loss), which could indicate pregnancy.
   * **Health Data from MyChart**: The app syncs with **MyChart** to retrieve health data, such as **blood tests**, **glucose levels**, **cholesterol levels**, and other medical information.
   * **Lifestyle Factors**: Additional lifestyle data like stress, medication, or contraceptive use.

**Data Utilization**

1. **Component Interaction**:
   * **Symptoms Input**: The app processes entered symptoms to assess pregnancy likelihood. Nausea, missed periods, and fatigue increase the likelihood of pregnancy, while lifestyle factors like stress might reduce it.
   * **Period History**: The app calculates pregnancy likelihood based on the timing of ovulation and missed periods.
   * **Weight Tracking**: Significant weight changes may increase the likelihood of pregnancy, especially if these are related to symptoms of early pregnancy.
   * **Health Data from MyChart**: Data from **MyChart**, including **blood pressure**, **glucose levels**, and **cholesterol levels**, is used to refine the pregnancy prediction and provide recommendations for next steps.
   * **Heart Health Data**: Blood pressure or heart rate readings may suggest possible complications or health risks, influencing the pregnancy prediction and prompting recommendations for medical consultation.
   * **Reminder Feature**: Users are prompted to return in **5 days** to update their data, ensuring the predictions are based on the latest information.
2. **Data Display**:
   * **Pregnancy Likelihood**: The app displays a **percentage likelihood** of pregnancy, shown on a **progress bar** or **dial**. Users can also see how their **health data** from MyChart (like glucose and cholesterol levels) impacts this prediction.
   * **Health Indicators**: Information from **MyChart**, such as blood pressure or glucose levels, is displayed clearly to show how these factors influence the pregnancy prediction.
   * **Result Screen**: After users input all necessary data, the app displays the result and provides a clear recommendation, such as "Low chance of pregnancy – take a test to confirm" or "High chance of pregnancy – consult a healthcare provider."

**How the Data Helps Users Meet Their Goals**

1. **User Interaction with Data**:
   * Users input symptoms, weight changes, and period history, while the app also pulls in health data from **MyChart**, such as **blood tests**, **glucose and cholesterol levels**, and **vital signs**.
   * Based on these inputs, the app calculates pregnancy likelihood and provides a recommendation, helping users make informed decisions about their next steps.
2. **User Benefit**:
   * The app helps users assess their pregnancy likelihood and decide whether to take a pregnancy test or seek further medical consultation. By integrating **MyChart** health data, the app provides a more comprehensive prediction and offers valuable insights into how users' overall health impacts pregnancy chances.
   * **Informed Decision-Making**: With the app’s clear predictions, users can make confident decisions about whether they need a pregnancy test or should consult a healthcare provider for further tests.
3. **Types of Data**:
   * The app works with **health-related data**, such as **symptoms**, **period cycles**, **weight changes**, **glucose levels**, **cholesterol levels**, **blood pressure**, and **heart health**.
4. **Display Benefits**:
   * The visual representation of data (e.g., progress bars, percentage likelihood) is easy for users to understand. The integration of **MyChart** ensures the app is always updated with the most accurate medical information, providing users with the best possible predictions.

**Security and Authentication**

1. **Facial Recognition**:
   * The app uses **facial recognition** for secure and authorized user authentication. This ensures that only the authorized user can access sensitive data and input personal information into the app.
2. **Encryption**:
   * The app uses **end-to-end encryption** to protect user data. All data, especially health-related data like glucose levels and blood pressure, is securely encrypted to ensure privacy and prevent unauthorized access.
3. **Secure/Authorized Access**:
   * The app requires **secure logins** through either **facial recognition** or **password authentication**, providing multiple layers of security for users' sensitive data. This ensures that personal health data and pregnancy predictions remain confidential.

**Conclusion**

The Pregnant or Not Pregnant app integrates user inputs such as symptoms, period history, weight changes, and health data from MyChart, including blood tests, glucose levels, cholesterol levels, and vital signs, to generate a personalized pregnancy likelihood prediction. The app provides clear, easy-to-read predictions and recommendations while using secure facial recognition for authentication, end-to-end encryption for data protection, and ensuring that all user information remains confidential. By allowing users to track their symptoms and update their data over time, the app helps users make informed decisions about their pregnancy status and overall health.