HEXAWARE

Hexaware-GenAI

Unlocking Innovation-
Your Path to AI-Driven Excellence

Scope Of the project

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Project Title: HealthBuddy

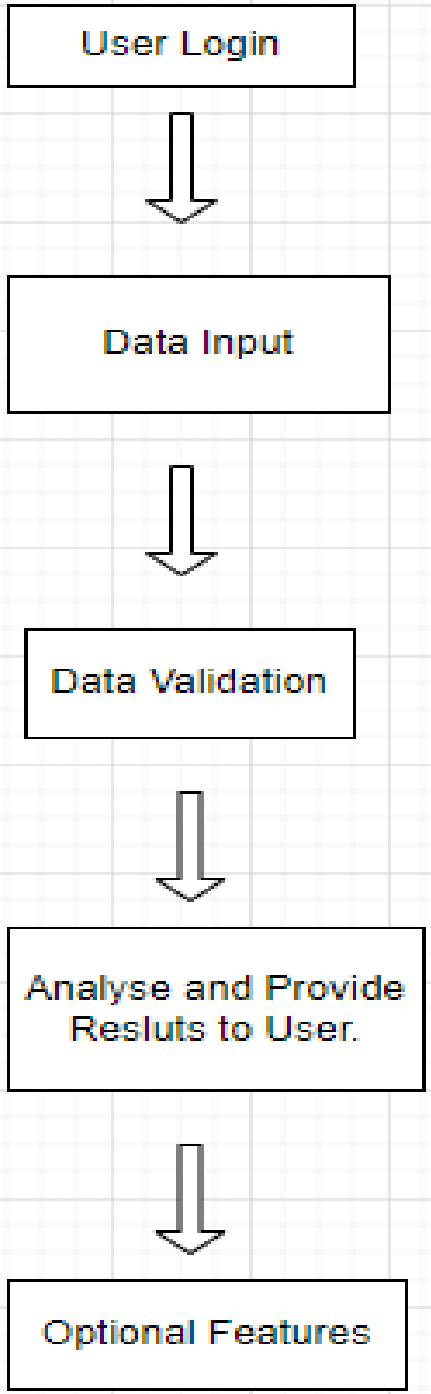
Project Objectives:

- **Health Awareness:** Educate users about their health status based on test results.
- **Personalized Support:** Provide tailored explanations and insights specific to the user's medical data.
- **Accessibility:** Make medical information more understandable for non-medical users.
- **Decision Support:** Help users decide whether they need further medical consultation or lifestyle changes.
- **Empowerment:** Enable users to take proactive steps toward managing their health effectively.

Deliverables:

- **User Interface (UI):**
  - A clean, intuitive, and user-friendly interface for users to input their medical test results.
  - Dashboard to display health insights, explanations, and recommendations.
- **Data Input System:**
  - A feature allowing users to manually enter test values or upload reports (e.g., PDFs, images).
  - Integration with APIs for automatic data retrieval from labs or wearable devices.
- **Health Analysis Module:**
  - Algorithms to analyze test values and identify potential health issues.
  - Contextual explanations of test results (e.g., "Your cholesterol level is above normal, which may indicate a risk of cardiovascular disease").

Design



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Design Description:

User Interface (UI):

- **Home Screen:** Overview of health trends and quick feature access.
- **Input Screen:** Manual entry, file upload, and API integration for test data.
- **Dashboard:** Displays test analysis, insights, and recommendations.
- **Report Screen:** View, download, or share detailed health reports.
- **Settings:** Privacy, notifications, and account preferences.

Functional Modules:

- **Data Input:** Manual entry, report uploads, and lab/wearable API integration.
- **Data Validation:** Ensures accurate and complete input with real-time feedback.
- **Health Analysis:** Algorithms compare test results with standards and explain findings.
- **Recommendations:** Lifestyle tips, further tests, or medical attention alerts.
- **Report Generation:** Summarized analysis with visualizations (charts/graphs).

Workflow:

The workflow of the health analysis application begins with user registration or login, followed by the input of medical test data through manual entry, file uploads, or API integrations with labs or wearable devices. Once the data is validated for accuracy, the health analysis engine processes the values, compares them with standard ranges, and identifies potential health issues. The application then generates personalized insights, recommendations, and visualizations, which are displayed on the dashboard for easy understanding. Users can download or share detailed reports and provide feedback to improve the app's functionality. Throughout the process, data security and privacy are prioritized, ensuring compliance with relevant regulations. Optional features like telemedicine integration and notifications enhance the user experience further.

Test Cases

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Positive Test cases:

- **Health Analysis:**
  - Verify that the application accurately analyzes test values and provides correct insights.
  - Confirm that explanations are displayed in simple, understandable language.
- **Recommendation System:**
  - Ensure lifestyle recommendations and alerts for critical conditions are generated based on the analysis.
  - Validate that recommendations align with the test results.
- **Report Generation:**
  - Confirm that detailed reports with visualizations (charts, graphs) are generated correctly.
  - Test the download and share functionality of reports.

Negative Testcases:

- **Data Input:**
  - Enter incomplete or invalid test data (e.g., missing values, non-numeric inputs).
  - Upload unsupported file formats (e.g., .exe, .zip) to check error handling.
- **Data Validation:**
  - Input test values outside the acceptable range to verify error messages.
  - Test scenarios where critical data fields are left blank.
- **Optional Features:**
  - Simulate failed telemedicine integration or API connection to ensure proper error handling.
  - Test notifications for incorrect triggering or failure to deliver.

Tools and Code details

Third party tools Details:

Tools name	Open source/Licensed	URL	Purpose
Kaggle	Open Sourced	Kaggle: Your Machine Learning and Data Science Community	Data Collection

Technologies used to develop in this project

Technology name	Version
Python HTML, CSS	3.10

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Thank you

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