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| Date | 22 October 2023 |
| Team ID | 590968 |
| Project Name | Public Health Enhancement Survey |
| Maximum Marks | 4 Marks |

## Describe the structure, characteristics, behaviour, and other aspects of the software to project stakeholders of a health survey app:

**Structure:**

**1. Architecture Client- Side (Frontend)**

• User Interface (UI) The frontend is responsible for the app's user interface. It provides the defences, forms, and rudiments that users interact with. In a health check app, the UI should be user-friendly, intuitive, and accessible.

• User Interaction- It handles user input, including responses to health check questions and relations with the app's features.

• Data Presentation- The frontend displays data to users in a readable and accessible format. This includes showing check questions, health recommendations, and health data visualization.

**2. Garçon- Side (Backend)**

• Operation sense- The backend processes user requests, manages data, and performs the core operation sense. For a health check app, this includes handling user registrations, managing health checks, and assaying health data.

• Database Management- It stores and retrieves health data, user lives, and check results. The database should be designed to handle the storage and recovery of health- related information efficiently.

• Security- The backend ensures the security of user data, with features like user authentication, encryption, and access control to act up with healthcare data.

**3. User operation**

• User Registration and Authentication- This element manages user accounts, registration, and login processes. It ensures that only authorized users can pierce the app.

**4. Scalability and Performance**

- With the help of firebase our application automatically scales.
- With regard to the performance of our application, firebase takes care of that too as each time an instance of our app runs a monitored process, the associated trace also automatically collects attributes data for that app instance.

**Database:**

We are using Fire Base Database for storing the data. Below are some features of fire Base data base:

**1.Realtime Database**-

Firebase Database is designed for real-time data synchronization. It allows multiple clients to listen for changes and updates to data in real-time. When data changes on the server, connected clients are immediately notified.

**2.Data Synchronization**-

Firebase Database automatically handles data synchronization across devices and platforms. This simplifies the development of real-time collaborative applications like chat apps and collaborative document editing.

**3.Offline Capabilities**-

Firebase Database provides offline support. Clients can continue to read and write data even when they are offline. Once connectivity is restored, changes are synchronized with the server.

**4.Security Rules**-

You can define security rules to control who can read and write data in your Firebase Database. This ensures data security and compliance with access control requirements.

**5.Scalability**-

Firebase Database is hosted in the cloud, so it can handle a large number of concurrent users and scale as your application grows.

**Characteristics:**

1. **User Interface (UI)- Login/Registration Screen-**
   - Users are greeted with a login or registration screen. New users can create accounts, while returning users can log in.

2. **Survey page**-
   - After logging in, users are presented with questions regarding the survey. The survey is divided into a total of 5 pages.

3. **Data Input**-
   - There are data input fields for users to enter information regarding the survey and can only proceed to the next page when they have entered all the data fields.

**4. Logout**-

- There's a logout option in the first page of the survey for users to logout. After submitting the survey users will be redirected to the first page of the survey to either give another entry or to logout from their respective account.

**5. Accessibility and Usability**-

- The UI should be designed to be accessible to users with various abilities and should follow best practices for usability, with clear labels, fonts, and intuitive navigation.

**6. Security and Privacy-**

•Security features such as secure authentication and data encryption should be implemented and clearly communicated to users.

**7. Performance:**

1) Responsiveness- The app should be responsive and loading quickly.
2) User Experience (UX)- The app is intuitive and user-friendly interface. Users are able to easily navigate through the survey questions and submit their responses without confusion.
3) Data Security- The app is implemented with robust security measures to protect user data, including encryption, secure data storage, and compliance with relevant data protection regulations (e.g., HIPAA in the United States).
4) Scalability- The app is able to handle a growing number of users and surveys without significant performance degradation.
5) Response Time- The time it takes for the app to process and save survey responses is fast.

**8. Compatibility-**

1) Device Screen Sizes and Resolutions:

Design the app's user interface to be responsive, adapting to various screen sizes and resolutions. This ensures that users can comfortably access and use the app on both small smartphone screens and larger tablet or desktop displays.

2) Network Environments:

Ensure that the app functions in different network environments, including 3G, 4G, and WIFI, as users may have varying levels of internet connectivity.

Structured Database- Health data is stored in a structured database, which is often implemented as part of the app's backend. We are using firebase here for storing the data provided by the user.

- Data Modelling- Health data is organized and structured within the database, with defined tables or collections for different types of data (e.g., patient profiles, survey responses). Each

table or collection may have specific fields to store relevant information, such as user IDs, and health metrics.

- Secure Storage- Since we are using firebase to store our data, it encrypts data in transit using HTTPS and logically isolate customer data.

•Maintenance and Updates-

The app will be receiving updates every 4 months, the bugs will be fixed by the feedback of the users and the new features will be added with the feedback that we receive and by also continuous monitoring of our app.

## Features, Development Phases, and Solution Requirements:

The development of this health surveying application will be executed in several phases, which include-

**Phase 1: Planning and Design**

Define the project scope, objectives, and requirements.

Create wireframes and mock-ups for the user interface.

Establish data security and privacy requirements.

**Phase 2: Development**

Build the core application logic, including survey creation and management features.

Develop user authentication and data validation components.

Implement the data storage and management layer, along with survey response collection.

**Phase 3: Reporting and Analytics**

Develop real-time data analysis and reporting features.

Implement data visualization tools and export functionality.

Conduct usability testing and refine the user interface.

**Phase 4: Security and Compliance**

Strengthen security measures, including encryption and access controls.

Ensure compliance with relevant data protection regulations.

**Phase 5: Scaling and Performance Optimization**

Test the application's performance under heavy load.

Specifications for Solution Definition, Management, and Delivery

## The solution will be defined, managed, and delivered according to the following specifications:

Detailed project documentation, including project scope, requirements, and design specifications.

- Regular progress monitoring and reporting to project stakeholders.
- Compliance with industry best practices and regulations, such as HIPAA for healthcare data.
- Ongoing support and maintenance to address issues and refine the application based on user feedback.

This comprehensive solution architecture aims to address existing business problems by providing an efficient and secure platform for health surveys, meeting the needs of both users and stakeholders.

**1. Defining the Solution:**

• Objective-
The primary goal is to create a user-friendly health survey app that allows individuals to answer the survey questionnaire which can be used for various other uses such as developing new policies and running campaigns for general awareness.

• Features-

1) User Registration and Login

2) Survey Questionnaires

3) Health Data Input

4) Data Privacy and Security

User Profile and data Security- Strengthen security measures, including encryption and access controls.

•Ensure compliance with relevant data protection regulations.
•Scalability- Firebase's cloud infrastructure is designed to scale automatically. As the demand for your app increases, Firebase can allocate additional resources, such as server capacity, to handle the increased load without downtime

**2. Managing the Solution:**

•Project Plan- Develop a project plan that outlines timelines, milestones, and responsibilities for app development.
•Development Team- We as a team of four are the development team for this application.
•Quality Assurance- Implement a testing and quality control process to identify and rectify issues

during development.
•Data Management- Define how health data will be collected, stored, and processed, adhering to data protection regulations.
•Compliance- Ensure the app complies with all relevant healthcare and data privacy regulations.

**3. Delivering the Solution:**
•Development- Build the health survey app according to the specifications, with a user-friendly and responsive design.
•Testing- Rigorously test the app for usability, functionality, and security, addressing any issues found.
•Deployment- Launch the app on Android and ensure it's accessible to the target users.
•User Training and Support- Provide training to users, including healthcare professionals, and establish a support system for addressing user questions and issues.
•Continuous Improvement- Plan for ongoing app updates, addressing user feedback, and keeping the app up to date with changing healthcare guidelines and technologies.