**SCMIA Internship Report: Development of ePROM Application**

**Developers**

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During our internship at SCMIA (Symbiosis Centre for Medical Image Analysis) from July 2023 to September 2023, we were tasked with developing an Electronic Patient Reported Outcome Measure (ePROM) application under the supervision of Dr. Bhushan Borotikar. The primary goal was to create a user-friendly platform that integrates an authentication system with a dynamic questionnaire presenting commonly asked questions post treatment. The application was crafted using Flutter for the frontend, Flask for the backend server, and a remote database solution to ensure seamless functionality.

***Authentication System:*** The application commenced with a sophisticated login screen featuring dynamic text on the left and a modern login user interface on the right. This setup not only provided a visually appealing entry point but also laid the foundation for a secure user authentication system. We implemented robust error handling on the frontend to address incorrect credentials during authentication, enhancing the overall user experience by promptly addressing any login-related issues.

***Dynamic Form Feature:*** Upon successful authentication, users were presented with a comprehensive questionnaire comprising approximately 30 questions. The dynamic nature of the form was achieved by fetching questions from the server allowing for flexibility in adapting the questionnaire content. This approach ensures that the application can evolve with changing research or clinical needs, offering a scalable solution for various use cases.

***Data Flow and Storage:*** The backend, powered by Flask, facilitated the seamless interaction between the frontend and the database. The responses to the questionnaire were securely transmitted to the backend, where they were then stored in a remote database. This approach not only ensures data integrity but also enables efficient data management and retrieval for further analysis. The integration of a remote database adds an extra layer of accessibility, enabling authorized personnel to access and analyse the collected data from any location.

***Error Handling and User Feedback:*** A crucial aspect of the application's success was the meticulous implementation of error handling mechanisms. From authentication errors to issues during questionnaire retrieval and submission, the frontend was equipped to gracefully handle errors, providing users with clear and concise feedback via animated snackbars. This not only enhances the user experience but also contributes to the overall reliability and robustness of the application.



