Project - Phase 1

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Motivation:

The proposed healthcare application, tentatively named "HealthLink Pro," is born out of a profound motivation to address critical challenges within the Canadian healthcare system. The Canadian Journal of Rural Medicine highlights the formidable barriers faced by individuals in remote and rural areas when accessing healthcare services, emphasizing the importance of efficient communication with healthcare providers, especially in underserved regions (Canadian Journal of Rural Medicine, 2018). Patient engagement and empowerment, as discussed in a report by Health Quality Ontario, are essential aspects of modern healthcare, illustrating the need to provide patients with tools to actively manage their health and engage in their healthcare decisions (Health Quality Ontario, 2017). Simultaneously, the perspective of patients, as gleaned from the 2019 Infoway Partnership Conference organized by Canada Health Infoway, reveals the necessity of simplifying healthcare administrative tasks to enhance the overall patient experience and engagement (Canada Health Infoway, 2019). These compelling references underscore the gravity of the problems our project seeks to solve and provide a strong rationale for the development of "HealthLink Pro."

Short Description:

"HealthLink Pro" is a new product that addresses critical challenges within the Canadian healthcare system. It serves as an innovative solution, being a mix of both an extension and a modification of existing products, by allowing patients to efficiently book and manage medical appointments with healthcare providers. This allows for the reduction of wait times and an increase in efficiency.

Literature Review:

As documented by the Canadian Medical Association, the persistent issue of extended wait times for medical appointments and procedures remains a significant concern, underscoring the pressing need for improved access to healthcare services (Canadian Medical Association, 2021). Patient information systems are the cornerstone of modern healthcare and healthcare institutions often manage extremely large amounts

of patient data. However, a given stakeholder will need access to different types of data (e.g. data required by a patient differs from that required by a surgeon, and what is required by the billing department and so on) [1]. In particular, patients, as a particularly vulnerable party, have been shown to benefit from systems that provide dynamically updated information about their specific procedures and expected waiting times in previous studies [2]. Research on the impact of the pandemic on clinic information systems found remote registration processes, among other additions to patient information systems, increased on-time patients from 68% to 75% [3]. While mobile applications have thus far been the most successful versions of these patient-centric applications, web applications are also an area of interest [4].

References:

[1] Bacelar-Silva, Vieira-Marques, and Cruz-Correia, “Identifying relevant data along selected medical care situation,” Iberian Conference on Information Systems and Technologies, pp. 1–4, Jan. 2011.

[2] M. Westphal et al., “A Patient-Centered Information System (myED) for Emergency Care Journeys: Design, Development, and Initial Adoption,” JMIR Formative Research, vol. 4, no. 2, p. e16410, Feb. 2020, doi: https://doi.org/10.2196/16410.

[3] E. Korte et al., “A Systems Approach to Optimizing Patient Flow During the COVID-19 Pandemic,” IEEE Xplore, Apr. 01, 2021. https://ieeexplore.ieee.org/document/9483742 (accessed Oct. 25, 2022).

[4] A. Mandal, A. Asthana, and L. Aggarwal, “Development of an electronic radiation oncology patient information management system,” Journal of Cancer Research and Therapeutics, vol. 4, no. 4, p. 178, 2008, doi: https://doi.org/10.4103/0973-1482.43342

Goals of the Project:

a. Functional Objectives:

- Simplify appointment scheduling for patients.
- Enable doctors to refer patients to specialists quickly.
- Ensure data security and privacy compliance.

b. Strategic Objectives:

- Improve overall healthcare system efficiency.
- Enhance patient satisfaction and experience.

c. Business Objectives:

- Capture a significant share of the Canadian healthcare app market.
- Generate revenue through premium features and partnerships.

d. Technological Objectives:

- Develop a user-friendly and secure mobile app.
- Implement advanced communication and notification features.

Team Members:

- Software Developer: Two people from our team will be responsible for the app development each person will need 15 hours each to be able to complete it (Ahmed and Amal).
- UI/UX Designer: Two people as well will be in charge of creating an intuitive and visually appealing user interface with 10 hours of each total (Dema and Yasmin).
- Data Security Specialist: Last team member will be ensuring data privacy and security compliance which will be 15 hours total to complete(Julio).

Potential Customers:

- Patients seeking medical appointments.
- Healthcare providers including doctors and specialists.
- Healthcare institutions and clinics.

Case of Applications:

a. Patient Registration: Patients can create accounts, providing necessary personal and medical information.
b. Appointment Booking: Patients can search for and book appointments with available doctors and nurses.
c. Provider Scheduling: Doctors and nurses can view and manage their appointment schedules.
d. Appointment Reminders: Patients receive reminders for their appointments via notifications.
e. Feedback and Reviews: Patients can provide feedback and reviews after appointments.
f. Admin Dashboard: Administrative users can manage system settings, user accounts, and monitor overall system performance.

Development and Operations Approach:

- Schedule:
    - Develop a detailed project plan, specifying milestones and deadlines. Follow an Agile development approach for flexibility and continuous improvement.
- Lifecycle:
    - Start with requirement gathering and prototyping.
    - Design the user interface and system architecture.
    - Develop the app iteratively, incorporating feedback.
    - Test thoroughly, for security and bug issues.
    - Deploy in stages, starting with a limited user group.
    - Continuously monitor and maintain the app.

Communication and Reporting:

Our Team will be using Discord as a means of communication between one another or if we also need to get in a call together we can book a meeting there as well. For communicating with our Manager(GA) we will use email to contact them then book a meeting through Teams. Finally, we will use GitHub to share and implement the application.

Project Timeline/ Delivery Plan:

Phase 1 - Due by October 29, 2023

- *Project Planning and Outline*:

Phase 2 - Due by November 12, 2023

- *Database Architecture and Schema*: Design document detailing the database structure.
    - Receiver: Database Development Team
    - Planned Delivery Date: November 12, 2023

- *Software Prototype*: An initial interactive prototype of the user interface and basic functions.
    - Receiver: Development Team and Stakeholders

        - Planned Delivery Date: November 12, 2023

Phase 3 - Due by November 26, 2023

- *Appointment Booking Module*: Functional module for patients to book appointments.
- *Patient Profile Management*: Feature allowing patients to update their profiles and medical history.
- *Healthcare Provider Dashboard*: Interface for healthcare providers to manage appointments and view patient information.
    - Receivers: Front-end and Back-end Development Teams
    - Planned Delivery Date: November 21, 2023 (Appointment Booking Module)
    - Planned Delivery Date: November 23, 2023 (Patient Profile Management)
    - Planned Delivery Date: November 26, 2023 (Healthcare Provider Dashboard)