

IT2143 Visual Computing

Group Project

Group H1

Online HealthCare System

Group Members:

No	Registration No	Name
1	G.R.P.N.Rathnakumara	2020/ICT/45
2	N.A.R.H.Neththasingha	2020/ICT/25
3	W.A.D.G.H.Athukorala	2020/ICT/52
4	P.R.Hettiarachchi	2020/ICT/99
5	S.Midun	2020/ICT/79
6	A.T.M.Gunasekara	2020/ICT/109

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1. Introduction

In response to the evolving landscape of student well-being, our project embarks on the creation of an innovative healthcare system, meticulously crafted within the confines of Visual Studio. This system emerges as a comprehensive solution dedicated to enhancing the health and wellness experience of students enrolled in our university.

At the heart of our endeavor lies the commitment to provide students with not just medical services but a holistic healthcare ecosystem that understands and caters to their distinctive requirements. Leveraging the capabilities of Visual Studio, our development team has meticulously designed an intuitive and efficient platform that seamlessly integrates into the daily lives of students.

This healthcare system seeks to overcome the barriers often faced by students in accessing medical services, offering a convenient and accessible avenue for seeking care. Through a user-friendly interface, students can effortlessly navigate the system, scheduling appointments, accessing medical records, and receiving timely updates on their health status.

Addressing the unique needs and challenges of the student population, our project emphasizes proactive healthcare measures, aiming to foster a culture of well-being within the university community. From preventive care to immediate medical assistance, the system is poised to become an indispensable companion on the academic journey, prioritizing the health and welfare of our students.

As we delve into the intricacies of this healthcare initiative, this report will unfold the methodologies, technologies, and insights that shaped the development process. Join us on this exploration of a healthcare system designed not just for students but with students in mind, aiming to make a lasting impact on their overall well-being.

2. Objectives

1. Enhance Accessibility: The primary goal of our healthcare system is to break down barriers to access, ensuring that students can easily and conveniently avail themselves of healthcare services. This includes streamlined appointment scheduling, virtual consultations, and easy retrieval of medical records.

2. Tailored Student-Centric Features: Understanding the unique challenges faced by students, our system incorporates features specifically designed to address their health needs. These may include medication reminders, mental health resources, and educational materials to promote overall well-being.

3. Efficient Appointment Management: Implementing an efficient appointment management system is crucial. Our objective is to reduce wait times, optimize healthcare provider schedules, and enhance the overall efficiency of the healthcare delivery process within the our university.

4. Health Data Integration: Facilitate seamless integration of health data, allowing healthcare providers to access comprehensive and up-to-date information about a student's medical history. This ensures more informed decision-making and personalized care.

5. Promote Preventive Healthcare: Encourage a proactive approach to health by incorporating features that promote preventive care, such as health screenings, vaccinations, and wellness programs. This aligns with the university's commitment to fostering a healthy and thriving student community.

6. User Education and Engagement: Foster a culture of health awareness among students by providing educational resources and engaging content within the system. Empowering students with knowledge contributes to better health outcomes and long-term well-being.

7. Scalability and Future Expansion: Design the healthcare system with scalability in mind, allowing for future expansion and integration of additional features or services as the university's healthcare needs evolve.

8. Data Security and Privacy: Prioritize the implementation of robust security measures to safeguard sensitive health data. Ensuring compliance with relevant data protection regulations is integral to building trust and maintaining the confidentiality of student health information.

9. User Feedback and Iterative Improvement: Establish mechanisms for collecting user feedback to continuously improve the system. Regular updates and iterations based on user input will contribute to the ongoing success and relevance of the healthcare initiative.

10. Collaboration with Healthcare Providers: Foster collaboration between the university's healthcare providers and the system, ensuring seamless communication and coordination. This collaborative approach aims to enhance the overall quality of healthcare services provided to students.

3. Methodology

I. Requirement Gathering

In this crucial phase, we identified key stakeholders, including university administrators, healthcare professionals, and students. Through surveys, interviews, and consultations, we gained insights into the unique healthcare needs and preferences of our student population. We assessed existing healthcare systems and collaborated with stakeholders to prioritize functional and non-functional requirements. Our approach involved the development of detailed use cases and prototypes, providing tangible representations for validation sessions. The outcome is a comprehensive requirements document, ensuring alignment with project objectives and serving as the foundation for subsequent phases of system development.

II. Tools and Technologies

- **Development Platform:**

Visual Studio was chosen as the primary development platform due to its versatility, robust integrated development environment (IDE), and compatibility with relevant programming languages.

- **Programming Languages:**

The project utilizes a combination of programming languages, including C# for backend and frontend design, and Microsoft access for database management, ensuring a cohesive and efficient development process.

- **Database Management System (DBMS):**

Microsoft access is employed as the database management system to store and retrieve health-related data securely. Its scalability and reliability align with the project's requirements for data management.

- Prototyping Tools:

Prototyping tools, such as Sketch and Adobe XD, are utilized for creating visual representations of the user interface, streamlining the design validation process and ensuring alignment with user expectations.

- Security Measures:

Security measures include the use of encryption protocols for data transmission and secure coding practices to protect sensitive health data. Regular security audits are conducted to identify and address potential vulnerabilities.

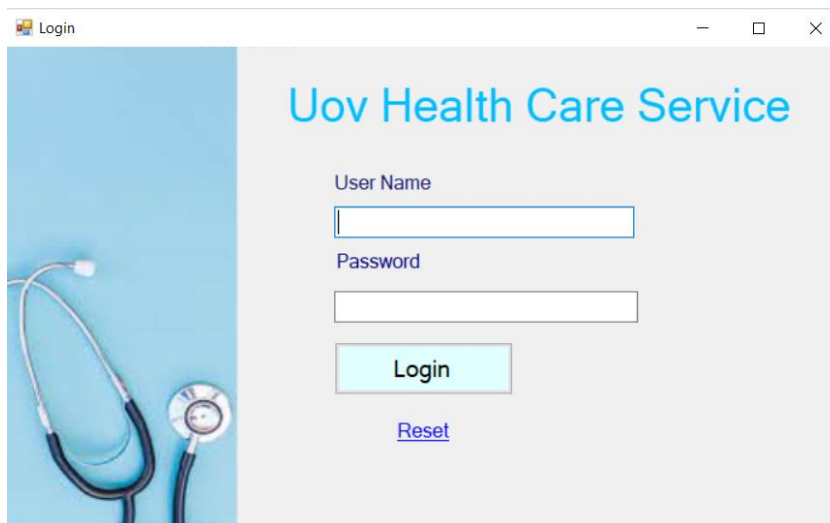
This selection of tools and technologies reflects a thoughtful and strategic approach to the development process, ensuring efficiency, collaboration, and the delivery of a secure and user-friendly healthcare system for the university community.

4. Implementation

In executing the healthcare system, we adopted a scalable system architecture, prioritizing data security and seamless integration. Utilizing Visual Studio and C#, was developed to handle authentication, appointment scheduling, and data management. Microsoft access served as the database backend for secure data storage. Robust communication modules facilitate appointment scheduling and direct communication with healthcare professionals, ensuring prompt and secure interactions. Health data tracking features empower students to monitor symptoms, medications, and immunizations, with preventative care tools promoting healthy habits. The system's accessibility enhancements enable 24/7 resource access. Rigorous testing, deployment in a controlled environment, and user training were integral to a successful implementation, culminating in a responsive and secure healthcare platform tailored to the university community's needs.

I. Interface Design

The development of a user-friendly interface was a cornerstone of our implementation strategy, executed entirely through C# programming. Leveraging the capabilities of Visual Studio, we meticulously crafted the frontend to provide students with an intuitive and seamless experience. The interface, entirely developed in C#, facilitates easy navigation for students accessing health resources, scheduling appointments, and managing their health data. Emphasizing efficiency and clarity in design, the C#-powered frontend ensures optimal performance and responsiveness. Iterative prototyping allowed for continuous refinement, and the final interface stands as a testament to the successful integration of aesthetic appeal and functional efficiency, enhancing the overall user experience within the confines of our C#-driven healthcare system.



II. Database

For the database infrastructure of our healthcare system, we opted for Microsoft Access, harnessing its capabilities to create a robust and accessible data repository. Developed entirely within the Microsoft ecosystem, our C# backend seamlessly integrates with the Microsoft Access database, facilitating efficient storage and retrieval of health-related data. The choice of Microsoft Access aligns with our project's scale and requirements, providing a user-friendly, relational database management system. This implementation ensures the secure storage of student health records while supporting the scalability needed for the university environment. The Microsoft Access database is a key component, contributing to the overall functionality and accessibility of our healthcare system.

III. Output

The culmination of our efforts has resulted in a fully functional and user-centric healthcare system tailored for the university community. The system's output is characterized by its intuitive interface, developed entirely using C#, which empowers students to seamlessly navigate through health resources, schedule appointments, and manage their health data efficiently. Leveraging the Microsoft Access database, the output ensures secure storage and retrieval of health-related information, providing a robust foundation for the entire system. The communication module facilitates prompt interaction between students and healthcare professionals, enhancing the overall responsiveness of the system. Moreover, the implementation of preventative care features and educational resources underscores our commitment to promoting a proactive approach to student well-being. As a testament to the successful integration of technologies, the output of our healthcare system reflects a comprehensive solution that addresses the unique healthcare needs of the university's student population. The system is poised to significantly enhance accessibility, empower users, and contribute to the overall health and well-being of the university community.

Database:

The screenshot displays the Microsoft Access interface. The ribbon at the top includes 'File', 'Home', 'Create', 'External Data', 'Database Tools', 'Help', 'Fields', 'Table', and a search bar. The 'Home' ribbon is active, showing options for Views, Clipboard, Filter, Sort & Filter, Records, and Text Formatting. A 'SECURITY WARNING' banner is present, stating 'Some active content has been disabled. Click for more details.' and an 'Enable Content' button. On the left, the 'All Access' task pane shows a search bar and a list of tables: 'Diagnosis', 'Login', 'Patient', and 'Text'. The 'Login' table is selected. The main window shows the 'Login' table with two columns: 'UserName' and 'Pass'. The data is as follows:

UserName	Pass
Admin	123
amal	345

The status bar at the bottom indicates 'Records: 1 of 2' and 'No Filter'.

5. Conclusion

In conclusion, our healthcare project has achieved significant milestones in the development phase, aligning with our objectives of improving access to healthcare, empowering students in health management, and fostering preventative care. The user-friendly interface, robust security measures, and ongoing integration of telehealth features showcase our commitment to creating a comprehensive and accessible healthcare ecosystem. Our project methodologies, rooted in collaboration, have ensured the alignment of our development with user needs. As we move forward with beta testing, software launch, and outreach efforts, we remain dedicated to continuous improvement and responsiveness to user feedback. The transformative impact on student health management stands as a testament to our commitment to excellence in the intersection of technology and healthcare.

6. References

- Building a Healthcare Information System for University Students: A Case Study" by S. Elbert, M. Gruschka, and C. Weinhardt (2018).
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