**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**BSc. COMPUTER SCIENCE**

**ICS 2209: DESIGN AND IMPLEMENTATION OF COMPUTER APPLICATIONS**

**A Comprehensive Web Based Clinical Management System**

**BY**

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## Introduction:

Our project aims to develop a comprehensive clinical system using ASP.NET, catering to the needs of patients, doctors, and administrators. The software will provide functionalities tailored to each user role, facilitating seamless interaction and efficient management within a clinical setting.

## What the software will do

The clinical system will enable patients to access their personalized dashboard featuring key attributes such as:

1. Patient Home: Centralized hub for accessing various features and information.
2. Current Appointment: Schedule and manage upcoming appointments.
3. Bill History: Track and review past billing records.
4. Treatment History: View a detailed history of past treatments.
5. Take Appointment: Ability to schedule appointments with doctors.
6. Notifications: Receive updates and reminders regarding appointments and other relevant information.
7. Feedback: Provide feedback on services received.

For doctors, the system will offer functionalities including:

1. Profile: Manage personal information and preferences.
2. Appointments: View pending and active appointments with patients.
3. Generate Bill: Create and manage billing for services provided.
4. Patients History: Access comprehensive records of patient interactions and treatments.

Administrators will have access to features such as:

1. Profile: Manage administrative details and settings.
2. View Doctors and Patients: Access comprehensive lists of doctors and patients within the system.
3. Add, Delete, and Update Doctors: Manage the database of doctors, including assigning ranks.

## Potential Clients/Users:

The potential users of this software include:

1. Hospitals and Clinics: Looking to streamline their clinical management processes.
2. Medical Practices: Seeking an efficient solution for managing patient-doctor interactions.
3. Healthcare Professionals: In need of a comprehensive system for patient record management and appointment scheduling.

## Functional Requirements:

The system will provide role-based access control for patients, doctors, and administrators, facilitating efficient management within a clinical setting. Key functional requirements include:

## For Patients:

1. Personalized Dashboard: Featuring attributes like patient home, current appointments, bill history, treatment history, notifications, feedback.
2. Appointment Management: Ability to schedule, cancel, and reschedule appointments with doctors.
3. Billing Management: Access to bill history and payment options.
4. Treatment History: View detailed records of past treatments received.
5. Feedback Mechanism: Provide feedback on services received.

## For Doctors:

1. Profile Management: Update personal details and preferences.
2. Appointment Handling: View pending and active appointments and generate bills for services rendered.
3. Patient Records: Access comprehensive histories of patient interactions and treatments.

## For Administrators:

1. Profile Management: Maintain administrative details and settings.
2. User Management: Add, delete, and update doctors, manage their ranks.
3. Data Management: View comprehensive lists of doctors and patients within the system.

## Non-Functional Requirements:

## Performance:

1. Fast response time for accessing and updating patient records.
2. Scalability to accommodate a growing number of users and data.

## Security:

* 1. Role-based access control to ensure data privacy and confidentiality.
  2. Secure data transmission and storage to prevent unauthorized access.

## Usability:

1. Intuitive user interface for easy navigation and interaction.
2. Accessibility features to cater to users with diverse needs.

## Software:

1. ASP.NET for web development.
2. Microsoft SQL Server for database management.
3. C# programming language for backend development.
4. HTML, CSS, and JavaScript for frontend development.

## Hardware:

1. Server infrastructure for hosting the application.
2. Workstations or devices for accessing the software.

Please find attached below an excalidraw link to our db and interface design diagrams:  
https://excalidraw.com/#json=xbzKFd-axIdIeC8cVxzk-,TKwzXq6PS\_oRTNoXW6vFJg

## Schedule/Project Plan:

## Week 1-2 (Feasibility Study and Design):

1. Conduct feasibility study to assess project viability and requirements.
2. Design system architecture, including interface, database, and program design.
3. Create flow charts and sequence diagrams to visualize system functionalities.

## Week 3-5 (Programming and Testing):

1. Develop source code for frontend and backend components using ASP.NET and C#.
2. Implement database functionalities using Microsoft SQL Server.
3. Conduct unit testing to ensure individual components function correctly.

## Week 6 (Integration and Testing):

1. Integrate frontend and backend components to form a cohesive system.
2. Perform system testing to verify overall functionality and usability.
3. Generate test reports to document testing outcomes and issues identified.

## Week 7 (Finalization and Documentation):

1. Address any identified issues and bugs.
2. Prepare software and system documentation, including user manuals and technical guides.
3. Finalize deployment plan and schedule for production release.

## Due: March 14, 2024 at 10:00 AM

This proposal outlines the functional and non-functional requirements, hardware and software requirements, as well as the schedule and project plan for the development of a comprehensive web-based clinical management system.

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