



AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)

Course Name: SOFTWARE DEVELOPMENT PROJECT MANAGEMENT

SECTION: C

TOPIC: HOME NURSING SERVICE

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Abstract:

The “Home Nursing Service Project” is a comprehensive healthcare initiative aimed at providing high-quality and personalized medical care to individuals within the comfort of their homes. This project addresses the growing need for accessible and convenient healthcare options, particularly for individuals with chronic illnesses, disabilities, or those in need of post-operative care. The project combines advanced medical knowledge, technology, and a compassionate approach to deliver a range of medical services directly to the patient’s doorstep. The “Home Nursing Service” aims to revolutionize healthcare delivery by combining compassionate caregiving with advanced medical practices. By focusing on personalized care, convenience, and holistic well-being, the project has the potential to improve health outcomes and enhance the overall quality of life for a diverse range of patients.

Project Overview:

People have to go through a lot of hassle to hire a nurse. Though nursing agencies often have a website for hiring nurses, it is not user friendly. So, it's very difficult for an illiterate person to hire a nurse for their loved ones and there are also lots of paperwork involved. So a user friendly web based application must be developed to eliminate the communication gap between them and the clients or patients and to expand their services.

Objectives:

1. Build an easy-to-use web application to hire home nursing service
2. Give user the option to describe what type of assistance they need, so that the app can match that with the right nurse.
3. Give user the option to choose whether they prefer male or female nurses.
4. Give user the option to choose time period that they need the nurses for, so the app can show them the available nurses in that time
5. Build a section for information regarding the selected nurse, such as experience, reviews, recommendations, salary

The challenges of implementing this project:

Legal Challenges: The healthcare industry is heavily regulated, and ensuring compliance with laws and regulations that can be complex. The app must adhere to these regulations to protect sensitive patient information.

Security and Privacy: This app will deal with sensitive personal and medical data. Implementing robust security measures to protect patient privacy and prevent unauthorized access or data breaches is crucial. Encryption, secure data storage, user authentication, and regular security audits are essential.

User Experience and Design: Developing an intuitive and user-friendly interface is vital for healthcare apps. Balancing complex medical information with simplicity and usability can be challenging. Extensive user research, prototyping, and iterative design processes should be implemented to create a seamless user experience.

Interoperability and Integration: To be effective, this app should ideally integrate with existing healthcare systems, electronic health records and other relevant software. However, achieving interoperability and seamless data exchange between different systems can be difficult due to varying data standards and proprietary formats.

Technical Infrastructure: Building a reliable and scalable technical infrastructure to support the app's

functionalities is crucial. Issues such as data storage, server capacity, network stability, and performance optimization need to be considered to ensure a smooth user experience, especially during peak usage periods.

Recruitment and Training of Healthcare Professionals: This app will be connecting patients with qualified healthcare professionals. Recruiting a reliable and skilled workforce, conducting proper background checks, and providing adequate training to ensure the quality of care can be a significant challenge.

Ethical Considerations: Implementing a home nursing app involves addressing ethical concerns, such as maintaining patient autonomy, ensuring informed consent, and upholding professional standards of care. Balancing the use of technology with human interaction and compassion is essential to avoid potential ethical dilemmas.

Technical Support and Maintenance: Continuous technical support, bug fixes, updates, and maintenance are necessary to ensure the app remains functional and secure. Establishing a system for addressing user feedback, resolving issues promptly, and delivering regular updates is crucial.

Cost and Sustainability: Developing and maintaining a home nursing app can be resource-intensive. Considerations such as development costs, server hosting, ongoing maintenance, and potential revenue streams need to be carefully evaluated to ensure the project's long-term sustainability.

Software Tools Required for Software Development:

Integrated Development Environment (IDE):

- Android Studio
- XCode

Programming Languages:

- For Android app development: Java or Kotlin.
- For iOS app development: Swift or Objective-C.

Software Tool Required for Project Management:

ClickUp

Project Size:

"Home Nursing Service " will be considered a medium-sized project. Here's how the characteristics of a medium-sized project can apply in this context:

1. Scope: The scope of the project would involve designing and developing a mobile application that connects patients or their families with home nursing service providers. It may include features such as user registration, booking appointments, caregiver profiles, service selection, and payment processing.
2. Team Size: The project would require a team consisting of various roles, such as project manager, UX/UI designer, mobile app developers (front-end and back-end), quality assurance specialists, and possibly a business analyst or domain expert. The team size could range from a few individuals to a small cross-functional team.
3. Duration: The project's duration would depend on factors such as the complexity of the app's features, the size of the team, and the development methodology

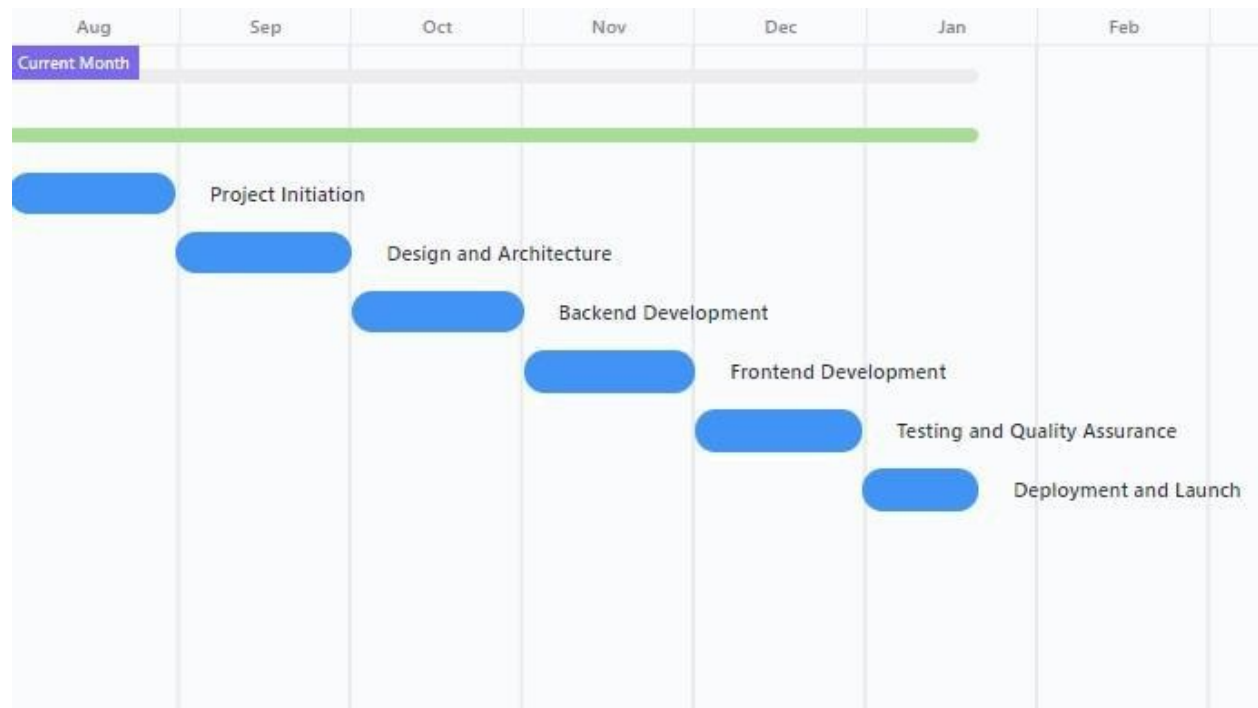
Budget Requirements:

The total estimated cost for your Home Nursing Service project is 692,000. The largest portion of the budget, approximately 50%, will be dedicated to salaries, and project management. Another significant portion of the budget, approximately 15%, will be allocated to infrastructure costs, servers and storage. Licensing fees for third-party software and tools will account for approximately 15% of the budget. Quality assurance and user testing will account for approximately 10% of the budget, and marketing and advertising funding will make up the remaining 10%.

ESTIMATED BUDGET	\$ TASKS	PRIORITY	BUDGETED COST	FIXED/VARIABLE
✓ Utility Cost	4	1	£126,000	VARIABLE
✓ Electricity Bill		1	£12,000	VARIABLE
✓ Internet Bill		1	£4,000	VARIABLE
✓ Office Supplies		1	£10,000	VARIABLE
✓ Office Rent		1	£100,000	-
✓ Salary	4	1	£200,000	FIXED
✓ Project Manager		1	£80,000	FIXED
✓ Developers		1	£60,000	FIXED
✓ Database Administrator		1	£30,000	FIXED
✓ Quality Assurance Engineer		1	£30,000	FIXED
✓ Hardware & Software Cost	3	1	£356,000	VARIABLE
✓ Server Rent		1	£36,000	VARIABLE
✓ Software Licence		1	£20,000	VARIABLE
✓ Hardwares		1	£300,000	VARIABLE
✓ Marketing & Advertising		1	£10,000	FIXED
✓ Total		1	£692,000	-

Project Milestones:

In project milestone identify and document the system's requirements, including key features and functionality, user needs and expectations, and technical constraints. Then develop the system architecture and design, including wireframes, user interface designs, and database schemas, and select appropriate technologies and frameworks. After the begin development of the smart health care system, including building out the user interface, integrating with third-party systems and APIs, and creating the backend logic an algorithm. Rigorously test the system to ensure that it is functioning properly, is secure, and is user-friendly, including automated and manual testing, bug fixing, and performance optimization. Deploy the system to the production environment and launch it to the target audience, including setting up hosting and server infrastructure, configuring the system for production, and rolling out any necessary updates or patches.



Project Schedule:

The project time schedule plan for this project outlines the key milestones and timelines for development. The plan includes requirements gathering, design and architecture, development, quality assurance and testing, and deployment and launch. The plan is designed to ensure that the project is completed on time and meets all requirements.

List

■ Project Initiation	Aug 1	Aug 31
■ Define the project scope	Aug 1	Aug 4
■ Conduct market research to ...	Aug 1	Aug 11
■ Create a detailed project pla...	Aug 11	Aug 18
■ Define the app's features an...	Aug 19	Aug 26
■ Design and Architecture	Sep 1	Sep 30
■ Develop wireframes and to v...	Sep 1	Sep 16
■ Conduct usability testing to ...	Sep 17	Sep 30



■ Backend Development	Oct 1	Oct 31
■ Set up the server infrastru...	Oct 1	Oct 10
■ Develop the APIs required fo...	Oct 1	Oct 15
■ Frontend Development	Nov 1	Nov 30
■ Implement the UI design and...	Nov 1	Nov 6
■ Develop the mobile app inte...	Nov 1	Nov 19





Project Risk Management:

Data Privacy and Security: This app may handle sensitive personal information, including medical records, health conditions, and contact details. If the app's security measures are weak, there is a risk of data breaches, unauthorized access, or misuse of personal information.

Screening and Verification: There is a risk that the app may not have rigorous screening processes in place to verify the qualifications, experience, and background of the healthcare providers. This can lead to potential safety concerns or substandard care.

Limited Liability: In some cases, the app's terms and conditions may limit their liability for any issues that arise between the user and the caregiver. Users should carefully review the terms and conditions to understand the app's responsibilities and limitations.

Service Quality and Reliability: The quality and reliability of the nursing services provided through the app can vary. Users may encounter issues such as delayed or canceled appointments, unavailability of caregivers, or inadequate care.

Technical Issues and Downtime: Like any software application, this apps may experience technical glitches, bugs, or system downtime. These issues can impact the user experience and accessibility to critical services. App developers should strive to provide regular updates and maintenance to address any technical issues promptly.

<div> <div>ACTIVE</div> <div>10 TASKS</div> </div>					
■ Task Allocation Problem	CONSEQUENCE Poor code writing and functionality	MITIGATION PLAN Implement code reviews and pair programming to ensur...	STATUS ACTIVE	RISK LEVEL Low	PROBABILITY Likely
■ Maintainability Problem	Poor user experience	Implement regular user testing and feedback loops to ...	ACTIVE	Medium	Frequently
■ Excessive Cost	Project will be more costly	Monitor expenses closely and seek cost-saving optio...	ACTIVE	Medium	Likely
■ Payment Security Key	Customer will lose trust in the app	Regularly solicit user feedback, promptly address con...	ACTIVE	High	Occasional
■ Lack Of User Adoption	User can't get good experience	Regular user testing and feedback loops throughout...	ACTIVE	Medium	Occasional
■ Team Turnover	The overall development will be hampered by this	Implement rigorous testing procedures, including unit. ...	ACTIVE	Medium	Unlikely
■ Insufficient Testing	The system will have more bugs and it will create mor...	Implement a comprehensive software testing and qual...	ACTIVE	High	Occasional
■ Vendor Dependency	It will make the software more underrated	Implement a comprehensive marketing and education ...	ACTIVE	Medium	Seldom
■ System Downtime	It will hamper the software economically	Implement cost-effective measures to optimize soft-...	ACTIVE	High	Occasional
■ Regulatory Compliance	The overall development will be hampered by this	Implement proactive contingency plans to address po...	ACTIVE	High	Occasional

Resource Allocation:

Project Manager: Responsible for overall project management, including planning, coordinating resources, and ensuring timely delivery of the app.

App Development Team: This team is responsible for designing, developing, and testing the. It typically includes the following roles:

App Developer: Creates the code and implements the functionality of the app.

UI Designer: Designs the user interface and user experience to ensure the app is intuitive and user-friendly.

Quality Assurance (QA) Engineer: Tests the app for bugs, performance issues, and ensures overall quality.

Database Administrator: Manages the database infrastructure and ensures data integrity and security.

Security Specialist: Implements security measures to protect sensitive patient information.

Medical Advisor/Consultant: It is crucial to have a medical expert on board who can provide guidance and ensure the app adheres to medical standards, regulations, and best practices.

Data Analyst: Responsible for analyzing user data, identifying trends, and providing insights that can be used to improve the app's functionality and user experience.

Customer Support Team: This team handles user inquiries, troubleshoots issues, and provides technical assistance. It may consist of customer support representatives and technical support specialists.

Sales and Marketing Team: Responsible for promoting the app, acquiring users, and developing partnerships with healthcare providers and organizations.

Legal Advisor: Ensures compliance with healthcare regulations, data privacy laws, and other legal requirements.

Administrative Staff: Performs administrative tasks such as accounting, human resources, and general office management.

TO DO7 TASKS	ASSIGNEE	GROUP MEMBERS	HARDWARE RESOURCES	SOFTWARE RESOURCES
Project Initiation	PS	PROJECT MANAGER	Office Computers	Project Management tools(ClickUp)
Requirement Gathering	PS	BUSINESS ANALYST	Office Computers	Project Management tools(ClickUp)
Design Phase	PS	UI/UX DESIGNER	Design Workstation	Design Tools (adobe xd)
Development Stage	PS, PK	DEVELOPER & PROJECT MANAGER	Development Workstation	IDEs(Android Studio, Xcode)
Testing & Quality Assurance	PK, PS	Quality Assurance Engineer	Testing environment	Testing Tool(selenium)
Documentation	PK	TECHNICAL WRITER	Office Computers	Documentation tools(latex)
Final evaluation & Delivery	PK	PROJECT MANAGER	Office Computers	Project Management tools(ClickUp)

Project Quality Assurance Checklist:

The quality control checklist will be used throughout the development of the Home Nursing Service to ensure that the software meets the quality standards and requirements of the project. The development team will regularly review the checklist and perform the necessary tests and checks to ensure that the system is functioning as intended and meets the quality requirements.

TO DO 11 TASKS		STATUS	PROGRESS	APPROVAL DATE	RESULT	REMARKS	TEST PROCEDURE
■ Ensure all features are working as intended		PENDING APPROVAL	<div><div></div></div> 87%	—	—	List any defects found and necessary fixes	Perform manual or automated testing
■ Validate all input and output fields		APPROVED	<div><div></div></div> 95%	Sep 10	PASS	Ensure all fields accept the correct input	Add test procedure here
■ Test all integrations with external systems		PENDING APPROVAL	<div><div></div></div> 80%	Sep 19	FAIL	verify that all integration work	Perform manual or automated testing to verify
■ Validate that all calculation is accurate.		APPROVED	<div><div></div></div> 94%	Sep 18	PASS	Ensure that all calculation	—
■ Ensure all reports are generated correctly		NEW APPROVAL	<div><div></div></div> 80%	Sep 17	PASS	Verify that all reports are generated	Add test procedure here
■ Check the user interface		NEW APPROVAL	<div><div></div></div> 80%	—	FAIL	Ensure that the user interface	Add test procedure here
■ Test the navigation flow for consistency		NEW APPROVAL	<div><div></div></div> 80%	—	FAIL	Verify that the navigation flow is consistent througho...	Add test procedure here
■ Check for accessibility compliance		NEW APPROVAL	<div><div></div></div> 80%	—	PASS	Ensure that the system is accessible to all users	—
■ Test the system for responsiveness and speed		NEW APPROVAL	<div><div></div></div> 80%	Sep 19	—	Verify that the navigation flow is consistent througho...	Add test procedure here
■ Validate the system can handle expected user loads		NEW APPROVAL	<div><div></div></div> 80%	—	—	Verify that the system can handle the expected user ...	Add test procedure here
■ Test the system for reliability and stability		NEW APPROVAL	<div><div></div></div> 80%	—	—	Verify that the system is reliable	Add test procedure here

Conclusion:

The Home Nursing Service project stands as a beacon of innovation and compassion in healthcare delivery. By bringing personalized medical care to the doorsteps of patients, we have addressed accessibility challenges and empowered individuals with tailored support. The integration of technology and a holistic approach has yielded promising outcomes, improving recovery rates and quality of life. Our dedicated team's commitment to excellence and patient-centered care has underscored the project's success. As we move forward, we remain dedicated to refining our services based on feedback, expanding our reach, and continuing to make a positive impact on the lives we touch. This project exemplifies the transformative potential of merging healthcare expertise with empathy, fostering a healthier and more connected community.