BACHELOR OF INFORMATION TECHNOLOGY

(SOFTWARE DESIGN & DEVELOPMENT/SYSTEM ADMINISTRATION)

IT3002

IT Project Management & Quality Assurance

Assignment

Management Report (Patient Information Management System)

25th October 2021

Ahmed Faarih	**Cyx27514**
Hassan Ali	**Cyx27593**

Marks/ Grade Awarded (Office Use Only)

ASSIGNMENT COVER PAGE

Course and Module Information	
Course Name	BACHELOR OF INFORMATION TECHNOLOGY (SYSYEM ADMINISTRATION/SOFTWARE DESIGN & DEVELOPMENT)
Module Name	IT PROJECT MANAGEMENT & QUALITY ASSURANCE
Module Code	IT3002
Lecturer Name	Mr. Ibrahim Shahid
Batch No.	BIT SD D6
Assignment Title (where applicable)	Patient Information Management System
Total number of pages including this cover page	<<insert no. of pages>>
Due Date	25th October 2021

Student (s) Declaration

I/ We declare that:

- I/We understand what is meant by plagiarism.
- The implication of plagiarism has been explained to me/ us by the College.
- This assignment is all my/ our own work and I/we have acknowledged any use of the published and unpublished works of other people.
- No part of this assignment has been written for me/us by any other person(s) except where such collaboration has been authorized by the Lecturer concerned.

Note: A soft copy (PDF format) of the assignment shall be submitted. The attachment of this statement on electronically submitted assignments will be deemed to have the same authority as a signed statement.

Student (s) Information			**Office Acknowledgement**
Full Name	**Student ID**	**Signature**	

Ahmed Faarih Hassan Ali	Cyx27514 Cyx27593		

Marker's Feedback

Strengths:			
Weaknesses:			
Suggestions:			
Marker's Name:		**Student Acknowledgement**	
Signature:		Student's Signature	

Date:		Date:	

ASSIGNMENT EVALUATION FORM

Student ID	Student Name	Final Marks Awarded (/100%)
Ahmed Faarih Hassan Ali	Cyx27514 Cyx27593	

Marking Criteria:

Task	Topic Area	Allocated Marks	Scored Marks	Comments
1.	**Business Case Document** – Justification in terms of functions, benefits, and financials	**10**		
2.	**Scope Statement** – Area of coverage, refer to slides	**05**		
3.	**Project Charter** – Refer to slides, include member roles and signatures	**05**		
4.	**Schedule** – Critical path analysis, activities, and dependencies	**05**		
5.	**WBS** – Well, defend and labelled	**05**		
6.	**List of Deliverables and Milestones** – Milestones should be seen in Gant Chart	**05**		

7.	**Cost Estimate** – A budgetary cost of hardware, software, and all resource cost or COCOMO model including KDSI, effort required, man power and duration	**05**		
8.	**Stakeholder Register** – List of stakeholder name, contact details and descriptions	**05**		
9.	**Meeting Minutes** – Two meeting minutes excluding kick of meeting	**05**		
10.	**Monthly Progress Reports** – Use template in the slides or similar other one	**05**		
11.	**Individual Assessment – This part must be completed individually** – Reflection of the assignment (student contribution, challenges in working as a team, opportunities, lesson learnt and room for improvement.	**10**		
12.	**Documentation:** – Executive summary, table of contents, introduction, list of tables and figures (if required), conclusion, references [at least 10 sources] and index page, TWO Meeting minutes must be attached to the end of the assignment	**05**		

13.	**Group Presentation** – Presentation skills, knowledge of the subject area and team effort – Completed on time (less than 10 minutes) – Handout provided (should submit along with report) – Good contents – Interactive slides – Confident and good presentation skills	**10**		
14.	**Online – Tutorials (Two Tutorials)**	**20**		
	Total	**100**		

Contents

EXECUTIVE SUMMARY

This document is project management plan for the implementation of a Patient Information management system in the Maldives. This document contains an analysis for this project using modern project management techniques and tools. This system will be administrated by the Ministry of Health of the Maldives.

BUSINESS CASE DOCUMENT

The Business Case Document is created during the early stage of the project. It is a formal document created with the intention to convince the decision maker to approve the action described in the document. (Tips, 2021) Business case documents provides a structure for developing and evaluating on how to proceed with innovative ideas.

Please find the business case document of this project in the next page with its cover page.

Patient Information Management System

Business Case Document

Prepared by:
Ahmed Faarih
Hassan Ali

INTRODUCTION

While looking at the health sector of the Maldives the need for advanced technology and investment in ICT has become more important than ever. Current Maldivian hospitals/ health centers have few or nonadvanced technical machinery or systems that could make their work a lot easier.

Thus, as a development the Maldivian Government has decided to develop a Patient Information Management system. This document would highlight the importance of such a system in the Maldives, how this project would be carried out. This document would justify the functions, benefits and financials of implementing such a project in the Maldives.

BACKGROUND INFORMATION

There are various reasons why the government of the Maldives has decided to introduce a patient information management system to the Maldives. Patient information management systems are used in various developed countries over the world, which helps their health sector in many ways such as data collection, increase efficiency of healthcare system, making assumptions for the future and many more. Currently in the Maldives it is very difficult to track the history of a patient and usually a patient would be carrying his medical prescriptions while going to another doctor. Hence the introduction of such system is essential in this modern times.

BENEFITS OF SUCH A SYSTEM

- Enables a proper documentation of each individual's medical history.
- Enables data collection for the government to make future predictions.
- Increase the overall efficiency of the Health Sector.
- Saves time and paper works relating to patients and people seeking information related to health sector.
- As the system is deployed in cloud it reduces cost related to hardware.
- It enables Ministry of health to properly Manage the health sector and its administrative works
- Establishes a proper communication chain between ministry of health and Hospitals / Clinics and other health care related operators.

RISKS OF SUCH PRODUCT

While looking at implementing a patient information management system in the Maldives there are some risks that we need to highlight in this report and be prepared for it. The following are some risks that we think it is necessary to have a look at while implementing a patient information management system.

- Firstly, the change in government or management of health care sector may affect the successfulness of our system as: the future governments / managements may not maintain or oversee the system as well as the current government
- Security of the system may also be compromised and lots of data of the public may get in to the wrong hands if the system is compromised.
- Data migration process may not go as effective as we plan: some hospitals and clinics may not give their existing data.

FINANCIALS ANALYSIS (COST BASED)

While looking at the cost of this project, the government of the Maldives is expected to pay around **MVR 2,104,100** a year for this project with development and licensing costs together**.** From this **MVR 672,000** is expected to be paid for the management of the project, **MVR 1,248,000** is for the development team, and around **MVR 65,000** is expected for software licensing and other costs.

Although this is a big investment in technology of the public health sector, if the project is successful and goes as planned the cost would be covered indirectly from the benefits of such a system.

Please also refer to the detailed cost estimate mentioned in page: 19

SCOPE STATEMENT

Project Scope Management involves ensuring all of the required work and only the required work necessary to complete the project is accomplished (PMI, 2004, p103). Any work that does not support the needs of the project is Out Of Scope and should not be performed. This concept seems obvious, but unfortunately only 29% of projects are completed successfully. This means 71% of projects either fail outright or are “challenged” - completed over budget, behind schedule, or deliver fewer features and functions than the Customer expected (Standish Group, 2004). (PA: Project Management Institute., 2006)

The following is the Scope statement of the Patient Information Management system.

Project Name: Patient Information Management System | **Date:** 16.10.2020

Project Summary and Justification

The introduction of a Patient information management system has been something that the Maldives healthcare system has craved for over the years. A patient information management system would be capable of tracking the medical of history of the patients by warehousing the data about the surgeries, prescribed medicines, medical examinations and follow ups conducted by the doctors. This system is important for the health sector of Maldives as it would enable clinics and hospitals all over the Maldives to check patients' history through a single application which would in long run remove complications. As in medicine history of medication is a crucial factor while treating patients, this system would improve the services given to the public. This introduction would also reduce the paperwork currently done in heal sector of Maldives as this web application is hosted in cloud.

Summary of deliverables

- Create a system that can be accessed and viewed across all popular browser platforms.
- Multi authenticable
- Every registered patient should be able to view their medical history
- The system should be all cloud based and should be able to connect all hospitals and clinics and other health care facilities across Maldives.
- The system should be capable of managing big data and should have artificial intelligence capabilities
- The system should be able to show down medical history of individuals, islands and regions
- Installation and setup with training to ministry 50 staff with technical support for 06 months and should be hosted on the ministry owned server (Sever hosting rights should be given to ministry)

Project exclusions

- Maintenance and support after 06 months
- Provide hosting service
- Provide training to general public or general users
- Create a mobile /desktop application

Acceptance criteria

- The system shall be responsive across all platforms such as mobile tablets, and PC browsers
- The system should be able to authenticate general users, doctors, administrators on distinct levels.
- Training must be provided to minimum of 10 staffs
- Full source code and ownership rights should be provided

PROJECT CHARTER

The Project Charter documents the formal conversation between the Project Sponsor and the Project Manager/Team, including the definition of success for the project.

Once approved, the Project Charter communicates the current agreement between the Project Sponsor and the Project Team throughout the lifecycle of a project. The Charter provides a high---level overview of the project, including the definition of project success and project resource (people and funds) requirements. (Han, 2011)

General Project Information			
Project Name:	Development of Patient Management System for Ministry of Health Maldives		
Executive Sponsors:	Ministry of Health Maldives		
Project Team			
Name	**Position**	**Contact Information**	**Role**
Hassan Ali	Project Manager	hassan@gmail.com	Project manager
Ahmed Faarih	Assistant Project Manager	faarih@gmail.com	Assistant manager
Moosa Ali	Senior Developer	moosa@gmail.com	Team member
Adam Hussain	Senior Developer	adam@gmail.com	Team member
Ismail Ali Manik	Database Designer	ali@gmail.com	Team member
Nooh Ismail	Ui-UX Designer	nooh@gmail.com	Team member
Mueena Ibrahim	System Tester	mueena@gmail.com	Team member
Stakeholders			
Ministry of Health Maldives			
NCIT			
Maldivians / Public seeking medical information			
Doctors / Nurses / People who work under health sector			
Hospitals, clinics, and other medical service providers			
National bureau of statistics			
Project Scope Statement			
Please refer to scope statement of the project mentioned earlier.			

Project Objectives
Provide a platform for all medical service providers to collaborate and track down medical history of patients
Provide a platform for Ministry of Health and Government to keep track of overall health industry
Provide a platform for statistician to easily access health care data of the Maldives
Provide a cloud-based platform that can easily be accessed by all over the Maldives
Provide a way to use modern artificial intelligence in Maldives Health Sector

SCHEDULE

The following are the task lists with their dependencies planned for completing the project.

Task No	Task Name	Earliest Start	Length (days)	Dependent on
A	Evaluation of the project and analysis	Week 1	14	-
B	Develop project charter	Week 1	07	A
C	Initial kick-off meeting	Week 1	02	A
D	Submit charter to Ministry	Week 2	14	B
E	Plan and divide staff to teams	Week 2	14	C
F	Prepare WBS	Week 4	14	C, E
G	Identify and prioritize risks	Week 6	14	E
H	Prepare design template, System requirements get approval from ministry	Week 6	20	F
I	Prepare ERD, Models, System Architecture	Week 6	35	H, G
J	Prepare UI- UX designs, Wireframes	Week 9	40	H
K	Start development of implementing System interface and Database design	Week 9	50	J
L	Prepare code documentation	Week 20	15	I, J

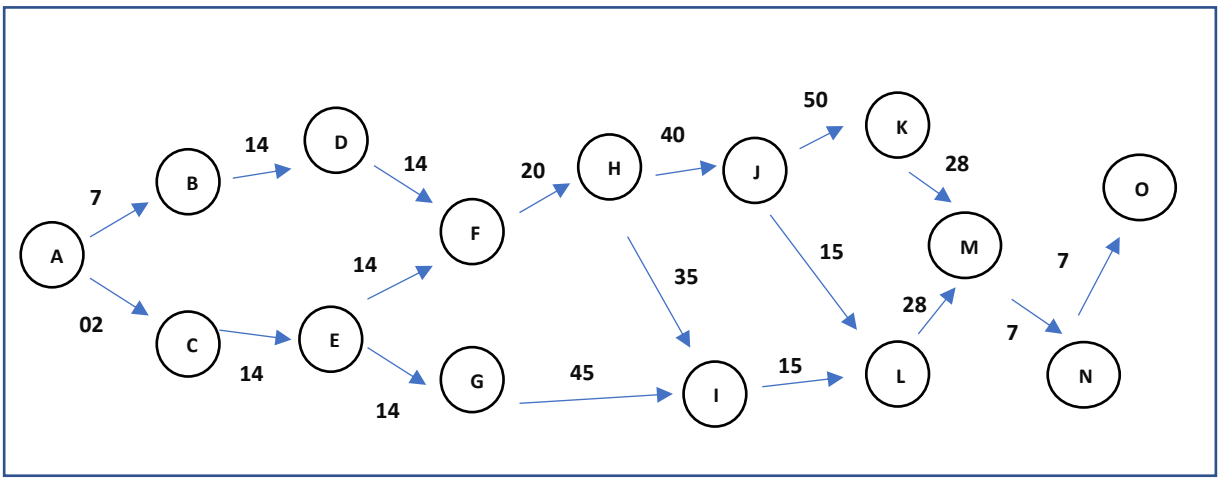
M	Start Testing (User testing, System testing)	Week 15	28	K
N	Rework system after testing	Week 17	07	M
O	Deployment of system and Final Documentation and approval from ministry	Week 23	07	N

Please refer Task No from this table for the diagram on next page.

CRITICAL PATH ANALYSIS

Critical path analysis is a technique via which every task involved I completion of a project is mapped out and with the amount of time needed for each and finding the sequence to follow to complete those tasks in the best order. These techniques and their application have without doubt contributed significantly to better planning, control, and general organization of many programs. Although some currently used PERT computations take account of the variation in the completion times of individual operations. (H. O. Hartley, 1996)

The following is a mapped analysis of the Patient information task list mentioned earlier.



Path 1: A + B + D + F + H + J + K + M + N + O = 187 days

Path 2: A + B + D + F + H + J + L + M + N + O = 152 days

Path 3: A + B + D + F + H + I + L + M + N + O = 147 days

Path 4: A + C + E + F + H + J + K + M + N + O = 182 days

Path 4: A + C + E + F + H + J + L + M + N + O = 147 days

Path 5: A + C + E + F + H + I + L + M + N + O = 174 days

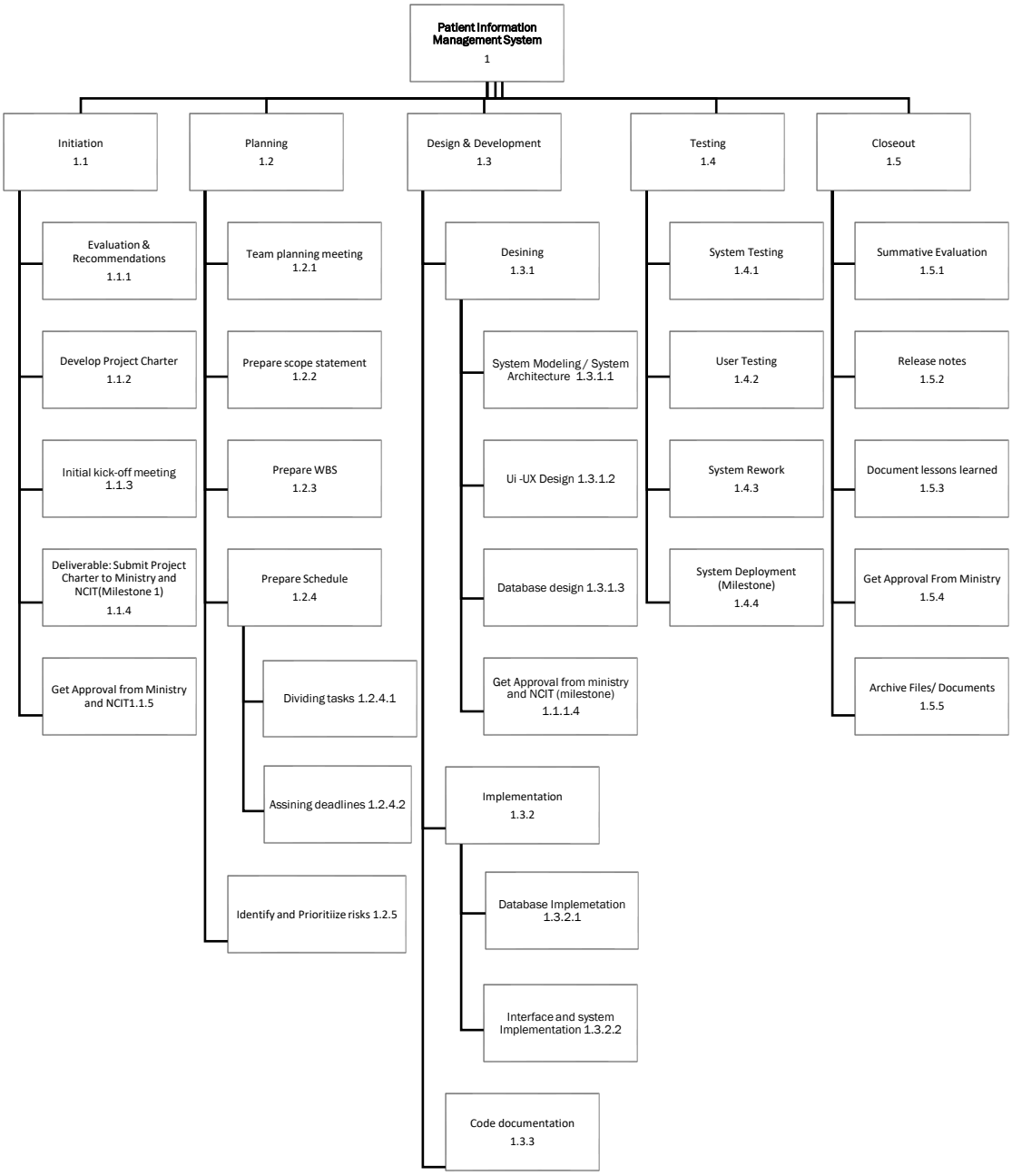
Path 6: A + C + E + G + I + L + M + N + O = 132 days

Since Path 1 is the longest path, it is the critical path for completing this project.

WORK BREAKDOWN STRUCTURE

Today, Project Managers are more frequently finding high value in the creation of Work Breakdown Structures (WBS) as they begin the process of project management. Project success may be attributed specifically to use of a WBS.

Experienced project managers know there are many things that can go wrong in projects regardless of how successfully they plan and execute their work. Component or full-project failures, when they do occur, can often be traced to a poorly developed or nonexistent WBS. A poorly constructed WBS can result in adverse project outcomes including ongoing, repeated project re-plans and extensions, unclear work assignments, scope creep or unmanageable, frequently changing scope, budget overrun, missed deadlines and unusable new products or delivered features. (Brptherton, 2008.)



LIST OF DELIVERABLES AND MILESTONES

Projects consists of several parts that need to be submitted to stakeholders, these parts are highlighted on project deliverables, it can be a process or a document that highlights some milestones of the project.

A project milestone is a management tool that is used to delineate a point in a project schedule. These points can note the start and finish of a project and mark the completion of a major phase of work. (Westland, 2021)

#	Deliverable Name	Description
1	Project Plan	Detailed Project plan with project timeline
2	System Design Architecture	Detailed system design, with basic functionality and modules.
3	UI /UX Design	Detailed UI/UX design with functionality flow.
4	Database Design	Database Design with Detailed data structure.
5	Final Project	Finished final system with all modules
6	User Documentation	Detailed User documentation
7	Technical documentation with hardware requirements	Detailed technical documentation with hardware requirements that needed for system.

COST ESTIMATE

Projects can be run with funding for the resources and material needed, cost estimate budget is created to get estimated figures for the project which helps to keep the costs minimum and maximize project quality. Estimating cost is an important process in project management as it is the basis for determining and controlling the project budget. Costs are estimated for the first time at the beginning of a project or even before a project has started. Subsequently, the (re-)estimation of the project cost is repeated on an ongoing basis to account for more detailed information or changes to the scope or timeline. (Sebastian, 2021)

This is estimated total cost for development year, all figures are calculated for 12 months. And software licenses are also calculated for 12 months.

Details	#Unit/Hrs.	Cost /Unit/Hrs.	Sub Total	Total
1. Project Management				**MVR 672,000**
1.1 Project Manager	1920	MVR 200	MVR 384,000	
1.2 Asst. Project Manager	1920	MVR 150	MVR 288,000	
2. Development team				**MVR 1,248,000**
2.1 Team Members	5 x 1920	MVR 130	MVR 1,248,000	
3. Software License – Cloud hosting				**MVR 55,000**
3.1 Storage	1	MVR 15,000		
3.2 Application & DB Hosting	1	MVR 10,000		
3.3 Email Server	1	MVR 12,000		

3.4 Backup Storage	1	MVR 10,000		
3.5 Web domain & Other	1	MVR 8,000		
4. Reserve				**MVR 10,000**
4.1 Reserve Amount	1	MVR 10,000		
TOTAL COST				**MVR 1,985,000**
TAX 6%				**MVR 119,100**
TOTAL PROJECT COST				**MVR 2,104,100**

STAKEHOLDER REGISTER

Name	Title	Role	Details	Contact
Ministry of health	Government body	Owner	Design and deploy a patient information management system for the nationals.	332 8887
NCIT	Government Body	System Administrator	Design and develop cloud-based system.	334 4000
Regional Hospitals	Government Offices	Users	Hospitals that will use this system.	GRH – 680 0096 HRH – 688 8672 KRH – 652 8864 URH – 656 0036 TRH – 684 1990

MEETING MINUTES

Kick Off Meeting		
Date: 05 Sep 2021	**Time: 17:00 – 17:30**	**Online Meeting – Google Meet**
Meeting Called by	Ahmed Farih	
Type of Meeting	Kick Off Meeting – Online	
Note Taker	Hassan Ali	
Timekeeper	Hassan Ali	
Attendees	Ahmed Farih, Hassan Ali	
Agenda Topics		
Discussion	Discussed first draft timing and when to complete first draft	
Conclusion	Agreed to finish first draft on 20th Oct 2021	

Meeting 1

Date: 04 Oct 2021	**Time: 10:00 – 10:30**	**Online Meeting – Google Meet**
Meeting Called by	Ahmed Farih	
Type of Meeting	Task Distribution meeting – Online	
Note Taker	Hassan Ali	
Timekeeper	Hassan Ali	
Attendees	Ahmed Farih, Hassan Ali	
Agenda Topics		
Discussion	Discussed which parts will be completed by each member of group.	
Conclusion	Distributed all topics to two separate part and handed to two members.	
Action Items	**Person Responsible**	**Deadline**
Business Case Document	Ahmed Farih	20th Oct 2021
Scope Statement	Ahmed Farih	20th Oct 2021
Project Charter	Ahmed Farih	20th Oct 2021
Project Schedule	Ahmed Farih	20th Oct 2021
Work Breakdown Structure (WBS)	Ahmed Farih	20th Oct 2021
List of Deliverables & milestone	Hassan Ali	20th Oct 2021
Cost Estimate (Budget)	Hassan Ali	20th Oct 2021
Meeting Minutes	Hassan Ali	20th Oct 2021
Monthly Progress Repost	Hassan Ali	20th Oct 2021

Meeting 2		
Date: 20 Oct 2021	**Time: 20:00 – 21:00**	**Online Meeting – Google Meet**
Meeting Called by	Ahmed Farih	
Type of Meeting	Draft Finalize Meeting – Online	
Note Taker	Hassan Ali	
Timekeeper	Hassan Ali	
Attendees	Ahmed Farih, Hassan Ali	
Agenda Topics		
Discussion	Checked draft and assed progress.	
Conclusion	Finalized Drafted parts into one final document	
Action Items	**Person Responsible**	**Deadline**
Final Document preparation	Ahmed Farih	22nd Oct 2021

MONTHLY PROGRESS REPORTS

	Month 1				Month 2				Month 3				Month 4				Month 5				Month 6			
Task	W 1	W 2	W 3	W 4	W 1	W 2	W 3	W 4	W 1	W 2	W 3	W 4	W 1	W 2	W 3	W 4	W 1	W 2	W 3	W 4	W 1	W 2	W 3	W 4
Project Plan																								
System Design Architecture																								
UI /UX Design																								
Database Design																								
Interface and Database Impleme mtation																								
Testing																								
User Documen tation																								
Technical documen tation with hardware requirem ents																								

INDIVIDUAL ASSESSMENT (HASSAN & FAARIH)

Hassan Ali's Assessment.

Both members contributed and worked equally to make project successful and efficient at the same time, like adjusting meeting times and tasks based on each member's availability. Completed all tasks on time and gave feedback to each member to improve each other's tasks. I have completed list of deliverables and milestones, cost estimate (budget), stakeholder registry, meeting minutes and monthly progress report.

Ahmed Faarih's Assessment.

It was a comfortable project as myself and Hassan Ali have collaborated on pervious projects too. We both have a good understanding of each other's skill set and we have tried using it on this project as well. I carried out Business case document, Scope statement, Project charter, Schedule, and WBS. We both carried out the work on a collaborative online platform so we could comment on each other's work.

Personally, I have learned a lot from this module and project, how to effectively manage and plan a software development project in development filed. And this project and the lessons learned from this module will be helpful for me in my future projects at my day job and other future endeavors.

CONCLUSION

To conclude, while implementing a national wide Patient Information System there would still be a lot of factors to be looked at and taken care of. As we mentioned, proper plans such as cost estimates, critical path analysis, work breakdowns structures would enable project managers to navigate projects to the correct direction. Since this project is an essential implementation to the Maldivian Community, we are looking forward to see people enjoying the benefits of this system.

REFERENCES

(n.d.).

Brptherton, S. F. (2008.). *Importance of WBS*. Retrieved from Citeseerx.ist.psu.edu: https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.169.1963&rep=rep1&type=pdf

H. O. Hartley, A. W. (1996, June 1). *A Statistical Theory for PERT Critical Path Analysis*. Retrieved from pubsonline.informs.org: https://pubsonline.informs.org/doi/abs/10.1287/mnsc.12.10.b469

Han, X. W. (2011). *PS Project Charter*. Retrieved from Vca.berkeley.edu: https://vca.berkeley.edu/sites/default/files/IProductivitySuiteProjectCharter110211Signed.pdf

PA: Project Management Institute. (2006). Developing a complete project scope statement in 2 days. *Paper presented at PMI® Global Congress 2006*.

Sebastian. (2021). *Estimating Cost of a Project: Techniques and Examples*. Retrieved from https://project-management.info/: https://project-management.info/estimating-project-cost/

Tips, P. (2021). *https://pmtips.net/resource/business-case-document*. Retrieved from https://pmtips.net/.

Westland, J. (2021, June 2). *What Are Milestones in Project Management?* Retrieved from https://www.projectmanager.com/: https://www.projectmanager.com/blog/milestones-project-management