



# Treatment On Demand



A Software Project Submitted

## Problem Domain

**Category A:** In Bangladesh our medical system hasn't developed like other countries. We have many limitations in the medical sector. To break this limitation we have to make the medical system more easy and digital.

## Technology

**Option C:** Mobile Phones/Handheld Devices

## Concept

Health is Wealth and it is the most important part of our life .Now we live in the age of science, everything becomes digital day by day but the most important part of our life is our health, which sector hasn't digitized as expected. Today in 20<sup>th</sup> century we have to follow the old analog procedures to take any treatment .For taking any treatment we need to find a doctor, in that case we need to go hospital and collect prospectus to know available doctors name .After finding doctor we need to take appointment by giving serial .But the problem arise when we don't found suitable doctor .Then we need go to another hospital and do same procedure again and again which is both time consuming and difficult. Then after finding a doctor we have to go for consultation in that case if the doctor suggests any medical test another problem arises again .To complete those tests we have to go to many hospitals because there is always a problem with test cost .In our country test cost varies from hospital to hospital. For this reason a patient needs to go to many hospitals to complete a medical text .This is also a great problem in our medical system .Sometimes patient conditions become so bad that he or she needs to go to the hospital immediately but in that situation maximum time they fail to get an ambulance . Because there is no other ride app for ambulance .In Bangladesh maximum people take medicine but it is very difficult for old people and poor health condition patient to go medical shop to get medicine .It will be helpful if there is any home delivery system for medicine for these people who need this help . Identifying all these problems in the medical sector we came forward with an innovative idea which will make our medical and treatment system more easy and digital than before. In our system we have the “find doctor” option. This option allows the patient to find a doctor. we have another option which is “do test” .with this option patient can know cost of test in different hospitals .We have another facility which provide a patient home delivery of medicine .To find an ambulance in time we have option “go hospital” which will help patient to reach hospital .We believe that, this features will reduce our daily problems in medical system.

**Feasibility:** As we know we have lot of limitations in medical sector .So we decide to build a system which will help us to avoid these limitations in medical system. In our system there patient, doctor and other users will open an account which will store every data of our user. Through that account a patient can find any doctor with “Find Doctor” feature which work by searching a doctor. We have

stored all the authorized doctor and hospital name with their sector and type in our database as a result a patient can easily find any doctor from his position .That means patient doesn't need to go hospital to find a doctor, he or she can search any doctor from home, office or anywhere .Moreover patient can find doctor with "Find Hospital Near Me" feature which works through GPS map. In this feature when patient on the location of his device our system automatically find doctors and hospitals who were near to that patient. We think it is the most beneficial feature of our system to save any critical patient life in time .After finding doctor a patient can take appointment without going hospital .Now if doctor suggest any medical test this time patient doesn't need to go any hospital to check cost of that test. Through our feature "Do Test" a patient can check the cost of that test in different hospitals. Patients also can take appointments and make payment by our system. In this system after completing the test, the test result will upload to the patient profile by hospitals receptionist so that the doctor can check out those results .Then the doctor can prescribe any medicine to cure that patient . This data will remain save in patient profile so that other doctors can understand patient problem if needed in future .We build another feature named "Get Medic" which shows location of medical shop along with its available storage of medicine and health equipment .This feature also give home delivery of medicine which is mostly beneficial for old and poor health condition patient. Our other feature is "Go Hospital" which is used for ride purposes .As we know in our country, there is always a crisis of ambulances. This feature will show you the location of an ambulance and you can call an ambulance through our system. We think to save any critical condition patient it is the first and foremost step is to take him or her to hospital, that's why we call this feature the life saver feature. To complete this project we used COCOMO model to make our project, because it is a procedural cost estimate model for software projects and often used as a process of reliably predicting the various parameters associated with making a project such as size, effort, cost, time and quality. In resource section we will recruit experienced employee after that we will take an office for us .Then we will buy our necessary tools, equipment materials and we have a budget for this things. Full description of resources are described in Resource Analysis section.

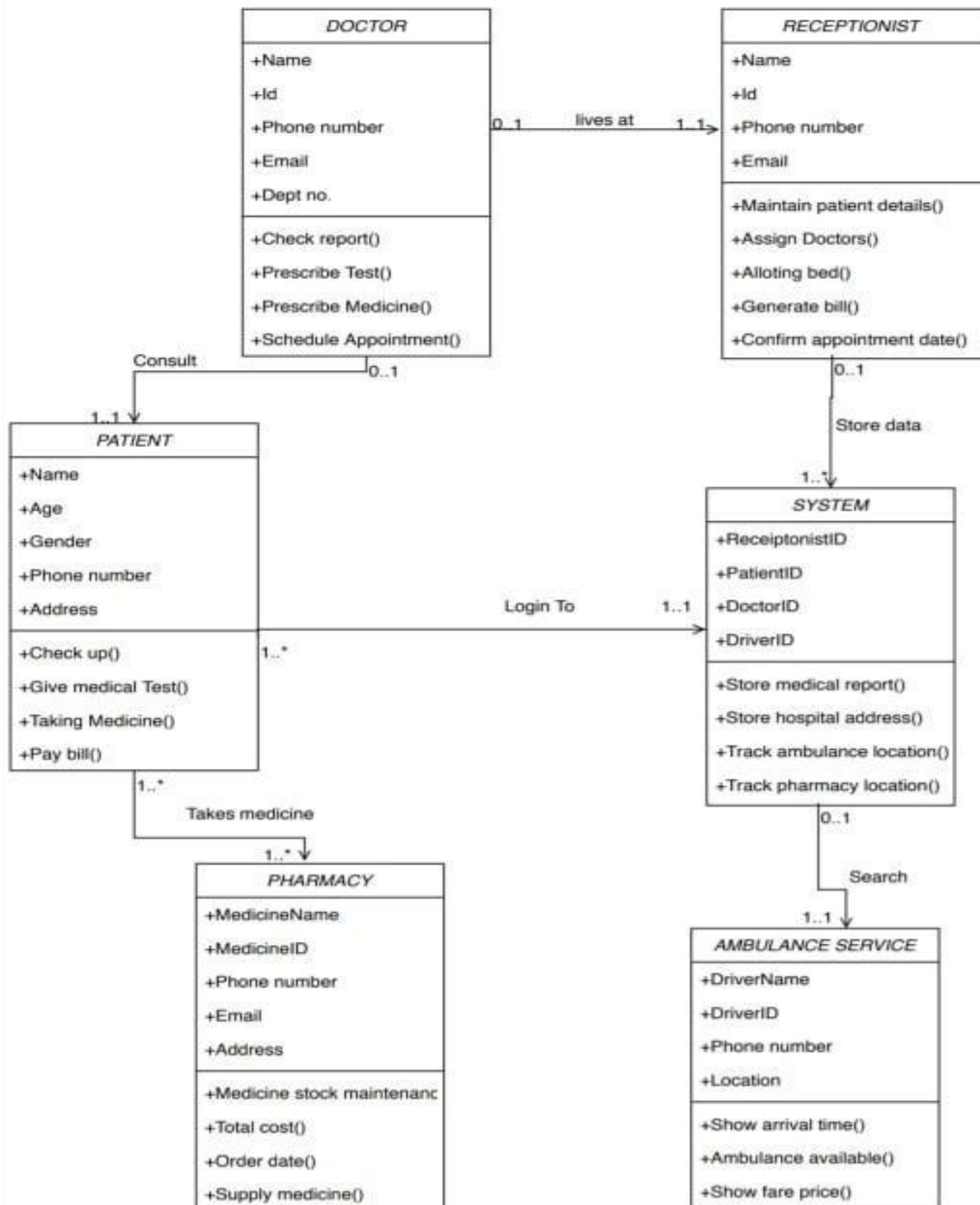
After completing every part we will be able to release our product in Bangladesh. Our main goal is saving people's life by making the medical system easy and digital and we believe that our project will be able to complete our goal.

# System Design Specification with UML Diagram

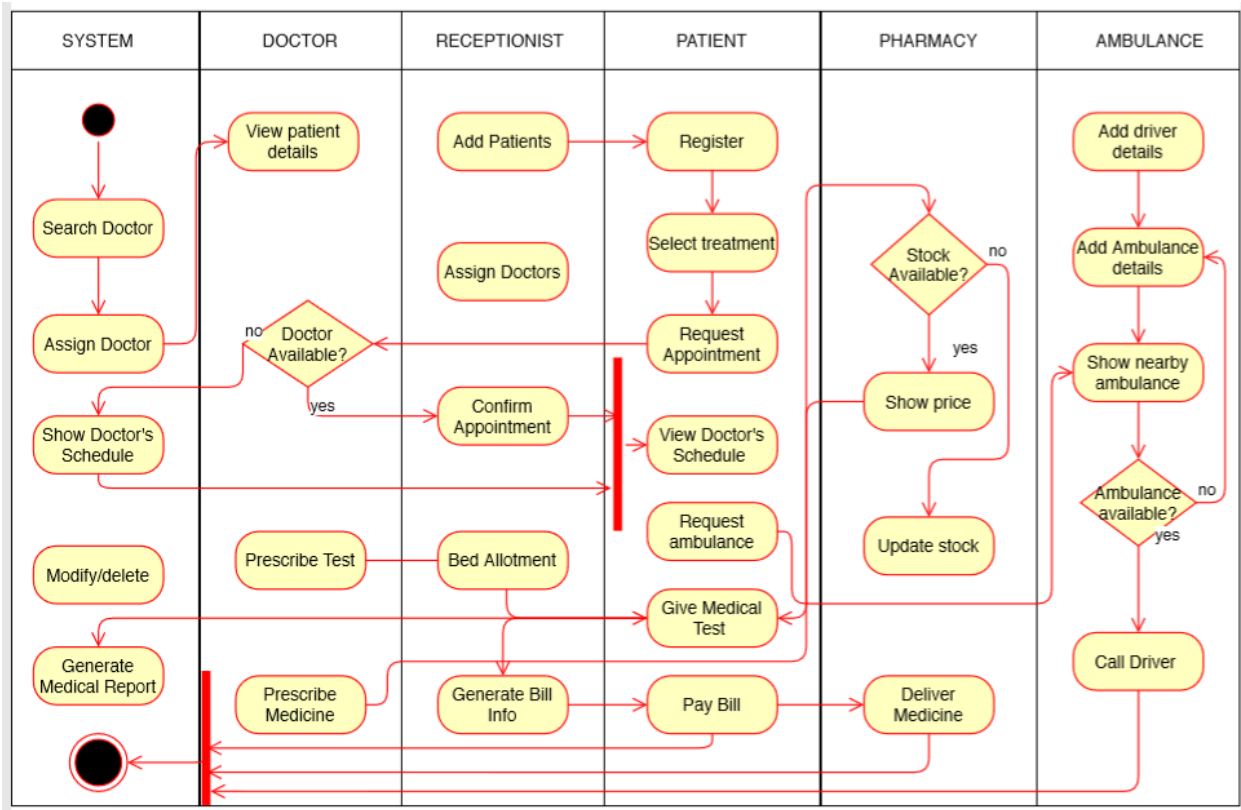
## Use Case Diagram



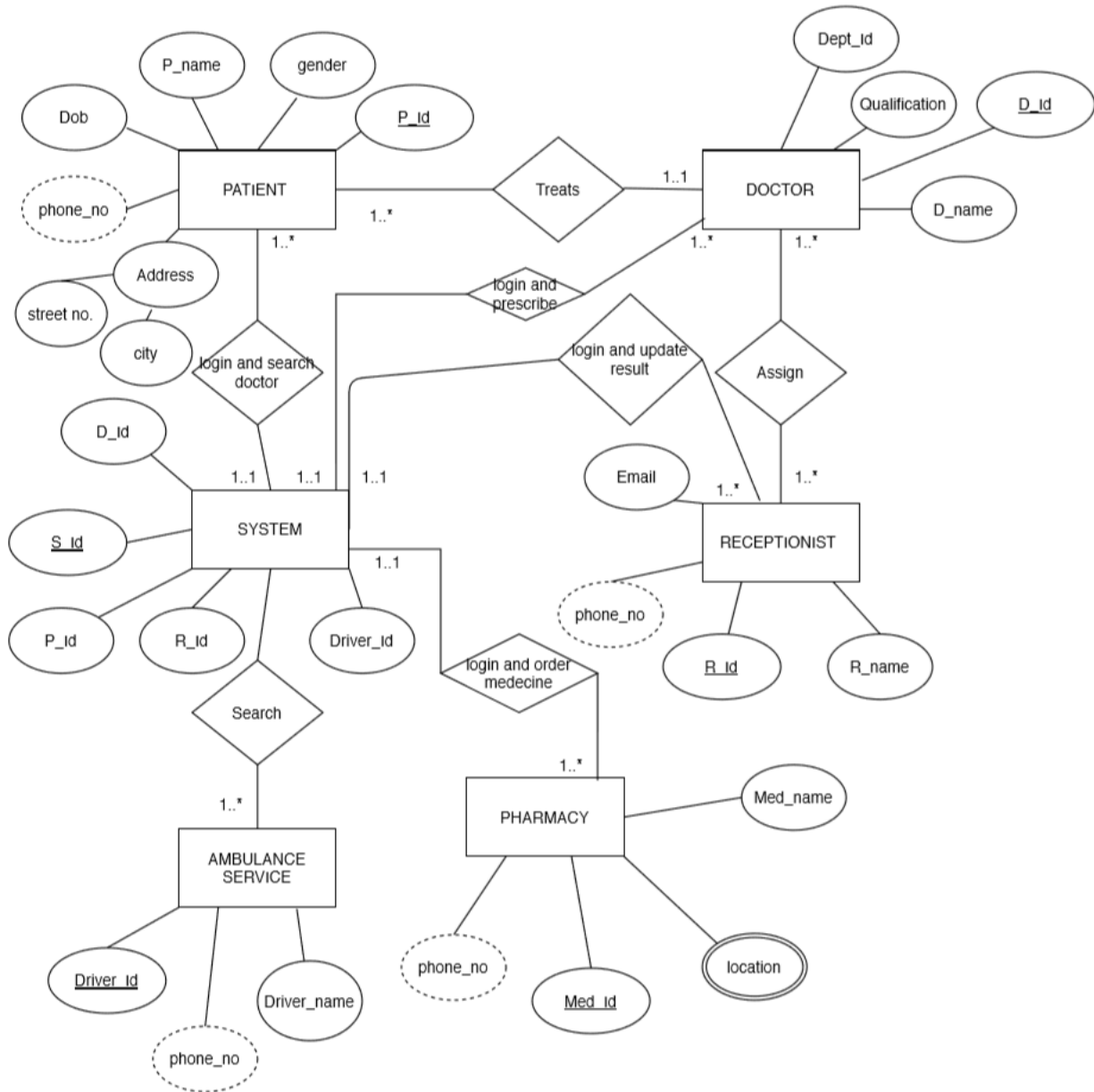
## Class Diagram



## Activity Diagram



## ER Diagram



## **Data Dictionary**

Patient Table

Attribute	Data Type	Key
Patient id	int	primary
Patient Name	varchar	
Patient_phone	varchar	
Patient Email	varchar	
Patient address	varchar	
Doctor id	int	FK
Patient address	varchar	
DateofBirth	varchar	

Doctor Table

Attribute	Data Type	Key
Doctor id	int	primary
Doctor Name	varchar	
Doctor_phone	varchar	
Doctor Email	varchar	
Department	varchar	
Qualification	varchar	
address	varchar	
Receptionist id	int	fk

Receptionist Table

Attribute	Data Type	Key
Receptionist id	int	primary
Receptionist Name	varchar	



Receptionist_phone	varchar	
Receptionist_Email	varchar	
Doctor_id	int	FK

System Table

Attribute	Data Type	Key
receptionist_id	int	fk
Patient_id	varchar	fk
driver_id	varchar	fk
Medicine_id	varchar	fk
System_id	int	pk

Medicine Shop table

Attribute	Data Type	Key
Medicine_id	int	primary
Medicshop_Name	varchar	
medic_phone	varchar	
medic_Email	varchar	
medic_address	varchar	
patient_id	int	FK

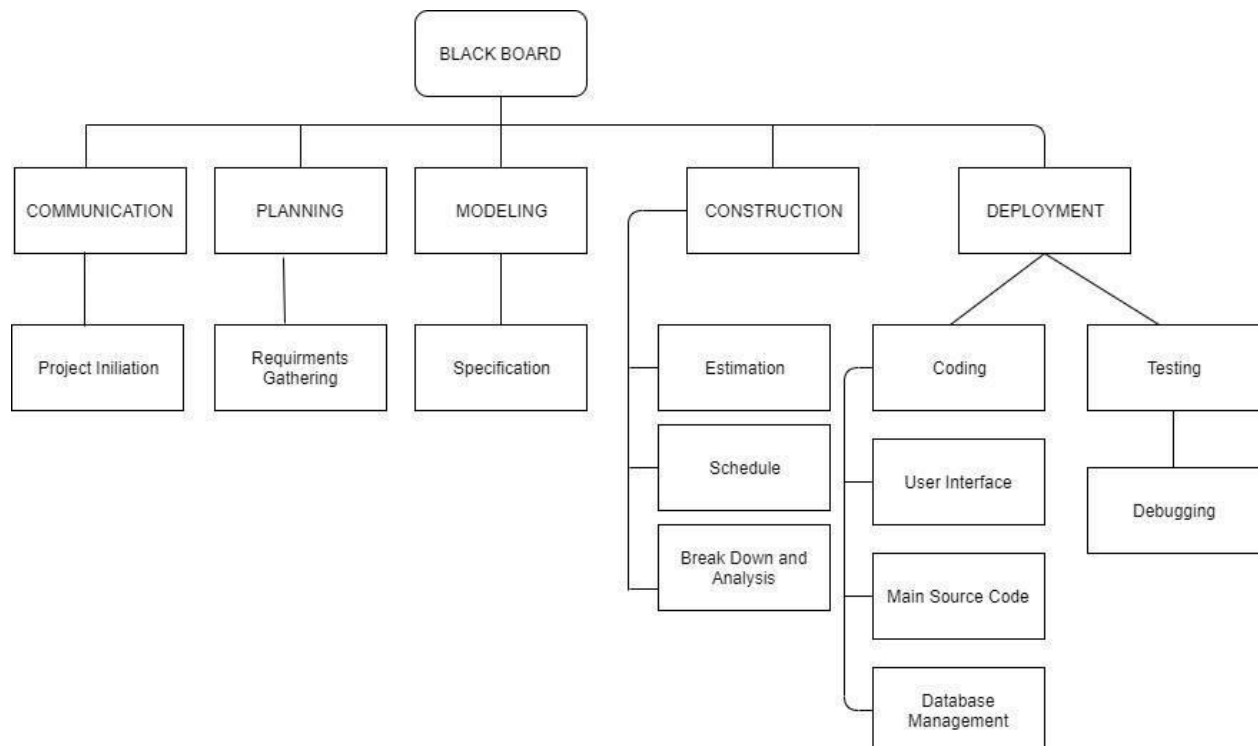
Ambulance service

Attribute	Data Type	Key
driver_id	int	primary
driver_Name	varchar	
driver_phone	varchar	
driver_Email	varchar	
driver_address	varchar	
patient_id	int	FK


## Effort Estimation

As the project does not have any historical data available and it contains unique characteristics, we have decided to follow bottom up approach of estimation. Bottom up approach follows basic WBS (work breakdown structure) where effort for each bottom level task is estimated. The broken estimated parts later will be added together to get a more descriptive overview of the effort needed for the project. WBS is basically followed in bottom up approach only.

## Work Breakdown Structure



### Constructive Cost Model

Software Project Type	Coefficient	P	T
Organic	2.4	1.05	0.38
Semi Detached	3.0	1.12	0.35
Embedded	3.6	1.20	0.32

PM: person-month needed for project

SLOC: source lines of code

P: project complexity ( 1.04 – 1.24 )

DM: duration time in months for project

T: SLOC dependent coefficient ( 0.32 – 0.38 )

ST: average staffing necessary

Project type is semi detached

$$\begin{aligned}\text{Effort} = \text{PM} &= \text{Coefficient} < \text{Effort Factor} > * ( \text{SLOC} / 1000 ) ^ P \\ &= 3.0 * (50) ^ {1.12} \quad \text{Here [50000SLOC/1000=50k SLOC]} \\ &= 293.86\end{aligned}$$

$$\begin{aligned}\text{Development time} = \text{DM} &= 2.50 * ( \text{PM} ) ^ T \\ &= 2.50 * (293.86) ^ {0.35} \\ &= 18.27\end{aligned}$$

$$\begin{aligned}
 \text{Required number of people} &= \text{ST} = \text{PM} / \text{DM} \\
 &= 293.86 / 18.27 \\
 &= 16
 \end{aligned}$$

Term	Description
BA	Business Analysis
PM	Project Manager
D	Developer
QT	Quality Tester

### Activity Planning

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Task: Person																		
Project Manager / Business Analysis	Project Analysis																	
Project Manager / Developer				Design														
Developer / Quality Tester									System Development									

<b>Developer / Quality Tester</b>															<b>System Integration</b>			
<b>Quality Tester</b>																	<b>Overall System Test</b>	
<b>Project Manager</b>																		<b>Trial Trading</b>

## **Project Schedule**

WBS	Task	Lead	Duration
1	Project Analysis	PM/BA	3 Week
1.1	Define User Requirements		
1.2	Analyze Software(android app) Requirements		
1.3	Cost & Functionality Analysis		
2	Design	PM/D	5 Week
2.1	Define Standards For Project		
2.2	Design Software(android app) Structure		
2.3	Mobile User interface		
2.4	Security Features		
2.5	Prototyping		
3	System Development	D/QT	5 Week
3.1	Activity Pages		
3.2	Database/implement		
3.3	Unit/Component Test		
4	System Integration	D/QT	2 Week
4.1	Link Pages and Activities		
4.2	Link Database		
5	Overall System Test	QT	2 Week
5.1	Page Link		
5.2	User Interface		

5.3	Database Access		
5.4	Exception Handling		
6	Trial Trading	PM	1 Week
6.1	Connection To The Internet		
6.2	Overall Check		

### Resource Analysis

1. According to the activity planned a group of 16 experienced employees will be recruited.
2. At an early stage of the project, official space is not agreed to be required. As soon as the profits are more than investment than a separate official space will be taken.
3. Official necessary equipment and materials will be needed to be purchased. Once official space will be taken where the budget will be 1,00,000tk.
4. Project might need special services but that will be only considered after making a proper evaluation of the profit and loss statement. The statement is scheduled after 1 year of the deployment.
5. Budget of the project for 1 year is estimated to be around 4,50,000tk.

## Risk Analysis

Risk No.	Risk Description	Probability	Impact	Mitigation Plan
01.	Team members are not available because of sickness.	20%	Moderate	Before starting work, everyone's health needs to be checked and everyone's health and activity monitored at least once per week.
02.	Larger number of users than planned.	40%	Significant	If the user becomes larger than the system, then the designated area should be kept in order that it can be further expanded.
03.	Less reuse than planned.	10%	Low	Extra precautions should be taken.
04.	End users resist systems.	50%	High	Proper instruction.
05.	Funding will be lost.	80%	High	Manage some extra funding members for backup.
06.	Technology will not meet expectations.	55%	High	Full fill the user expectations & Collect proper feedback.
07.	Lack of training on tools.	50%	Significant	Before starting work, everyone has to be properly trained about things.
08.	Staff inexperienced.	35%	Significant	The appropriate experience must be worked with the whole people.
09.	Staff turnover will be high.	60%	High	The contract should be signed before starting the project.

