American International University- Bangladesh

Software Project Management Plan for Doctor's Assistant

Submitted to

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Course: Software Development Project Management
Section: B

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Table of Contents

Contents	Page no.
Introduction	03
UML Diagram	05
Effort estimation	09
Work break down structure	11
Activity planning	13
Resource analysis	13
Risk analysis	15

Project name: Doctor's assistant

Technology: Desktop and mobile-based application

The problem:

Nowadays, in country like Bangladesh, India and Pakistan doctors checkup 2/3 patients at a time. When doctors observing patients their disease symptoms can be ambiguous. Doctors might forget about previous diseases. In addition, a doctor sometimes made medical error and doctor's prescription might be harmful for patients. Sometimes doctor face a new disease symptoms then doctor might be prescribe from guessing the disease. However, it's can cost patients life. Sometimes patients cannot remember to carry or can lost their previous disease records. Then doctor's prescription without knowing previous records can harm more than good.

How provide solution:

Our system will be doctors assistant. It will help doctor when doctor prescribe the patient about disease, suggesting medicine, suggesting test, suggesting admit to the hospital situation or not. It will records patient's previous medical history. Suggest the doctor about patient's previous history when prescribing the patient. When a doctor facing a new problem/diseases symptoms doctor can communicate with another doctors by posting the symptoms status. Doctor can accept system suggestions about disease or not because doctor is the superior being in that environment. Patient can see their prescription from home or workplace.

System users:

Admin - Government or hospital authority who will hire or assign doctor in the system, can appoint receptionist to a doctor.

Doctor - Prescribed patient, communicate with another doctors, see appointment list.

Patient - Can login, see prescription and see doctor's information.

Receptionist - Make appointment, provide patients account, collect patient's previous medical history from patient and input in the system and take payment from patient.

Feasibility study:

A feasibility study is an assessment of the practicality of a proposed project a system.

Economic feasibility

Analysis of a project's costs and revenues in an effort to determine whether it or not it is logical and possible to complete.

Technical feasibility

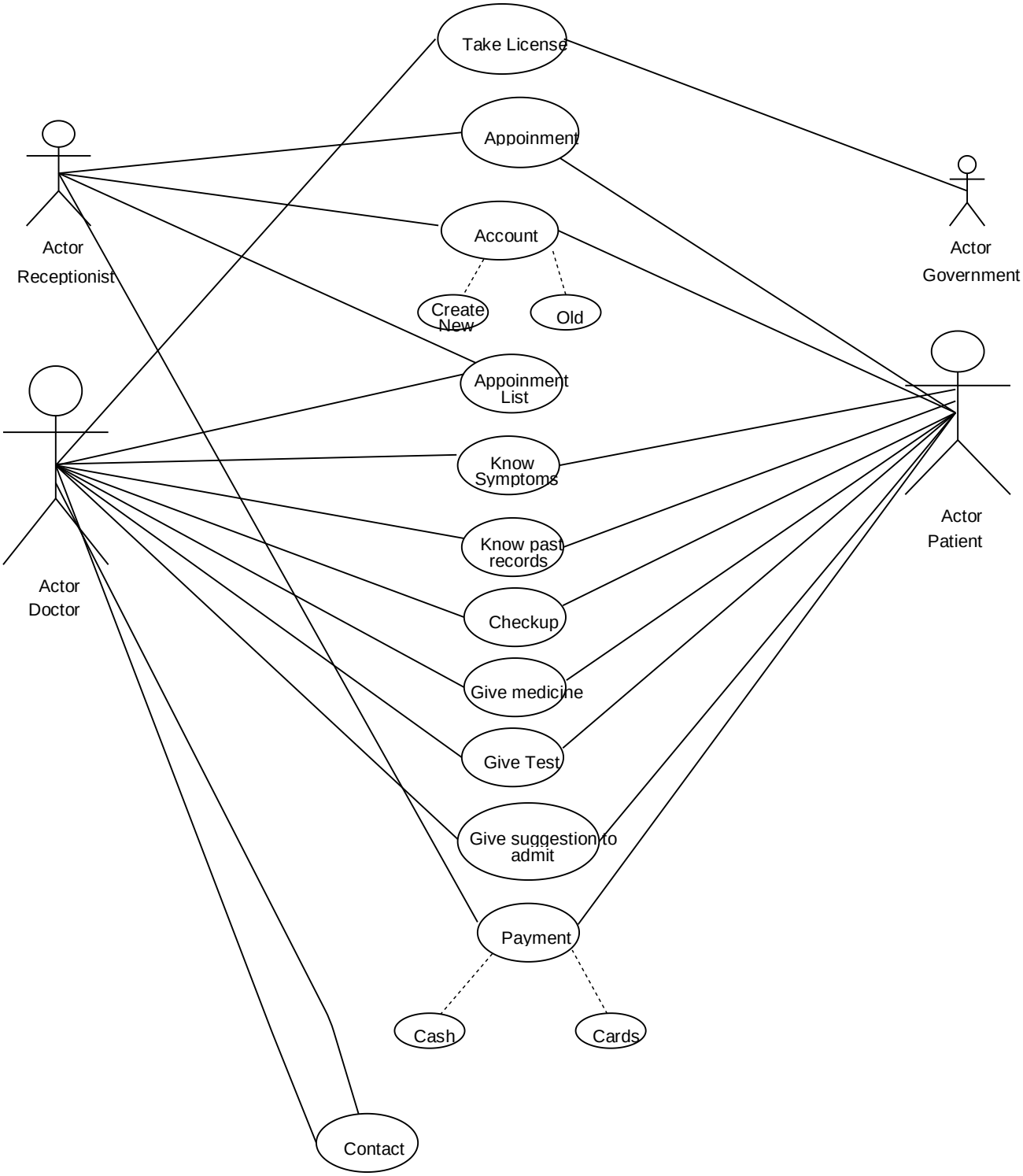
Technical feasibility helps organizations determine whether the technical resources meet capacity and the team is capable to build the system. Technical feasibility also involves evaluation of the hardware, software, and other technical requirements of the proposed system.

Operational feasibility

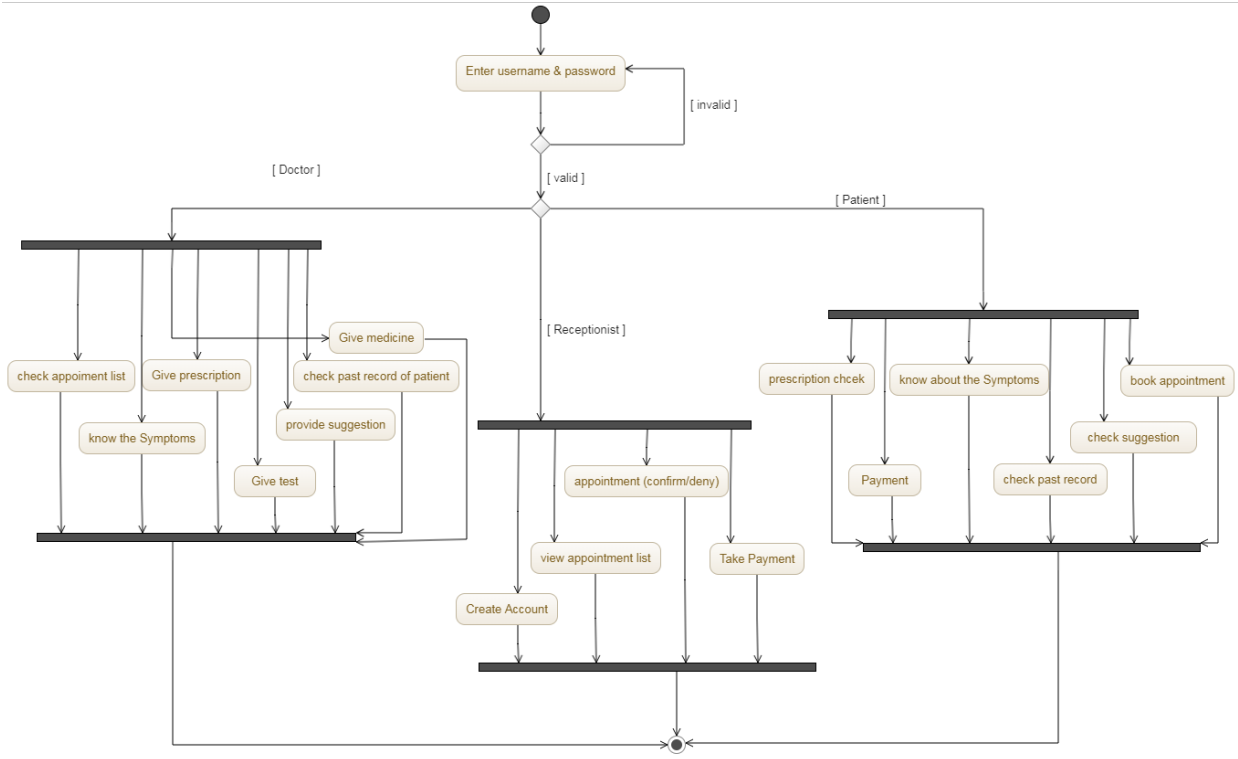
Operational Feasibility, we consider whether the current system become implemented using existing human resource or not. To find functional feasibility we determine whether the proposed solution can participate in existing operations and whether the right information in the right time is, provide to end users. Operational feasibility of our proposed system is modularized.

UML Diagram:

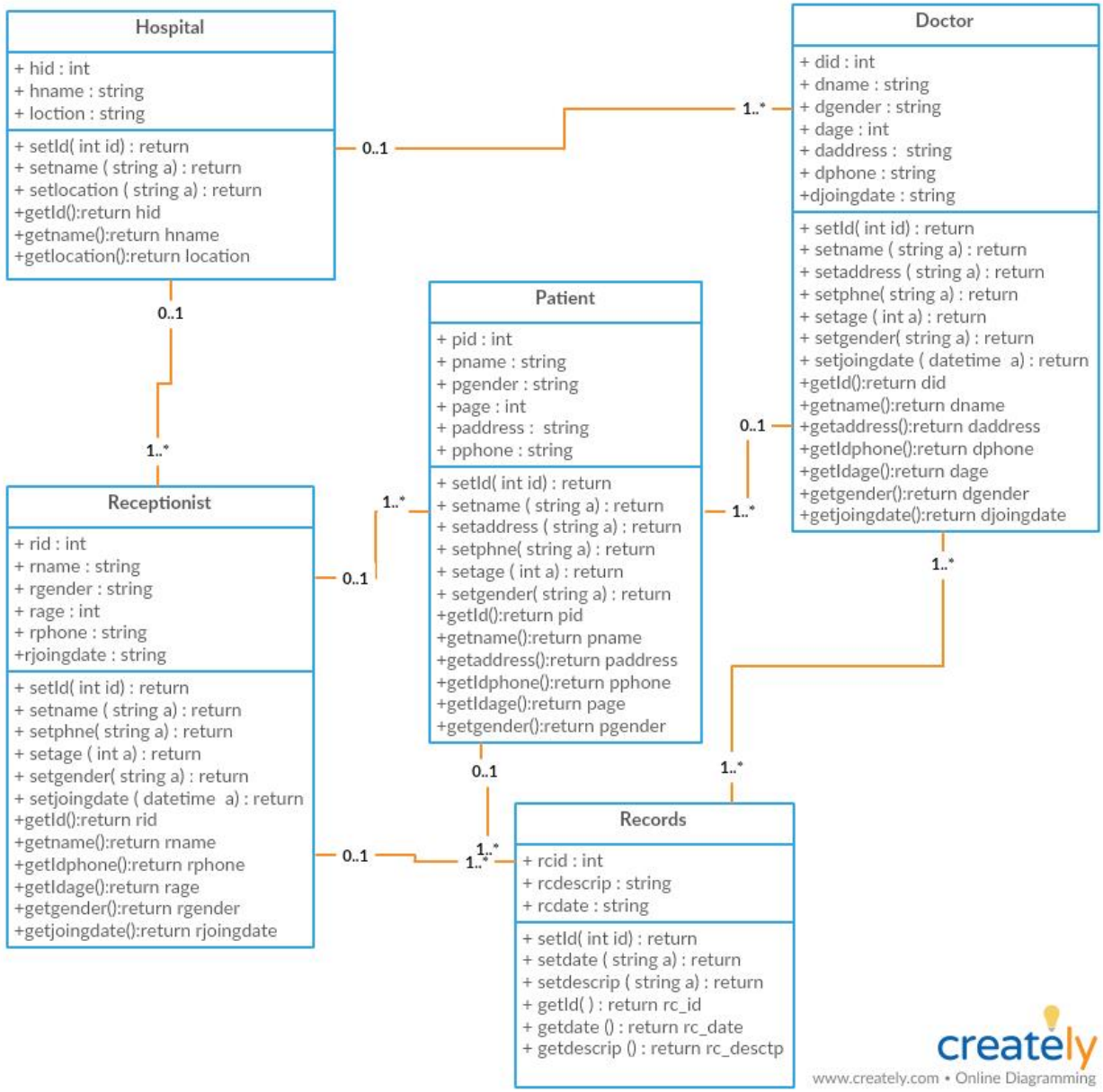
- **Use case Diagram**



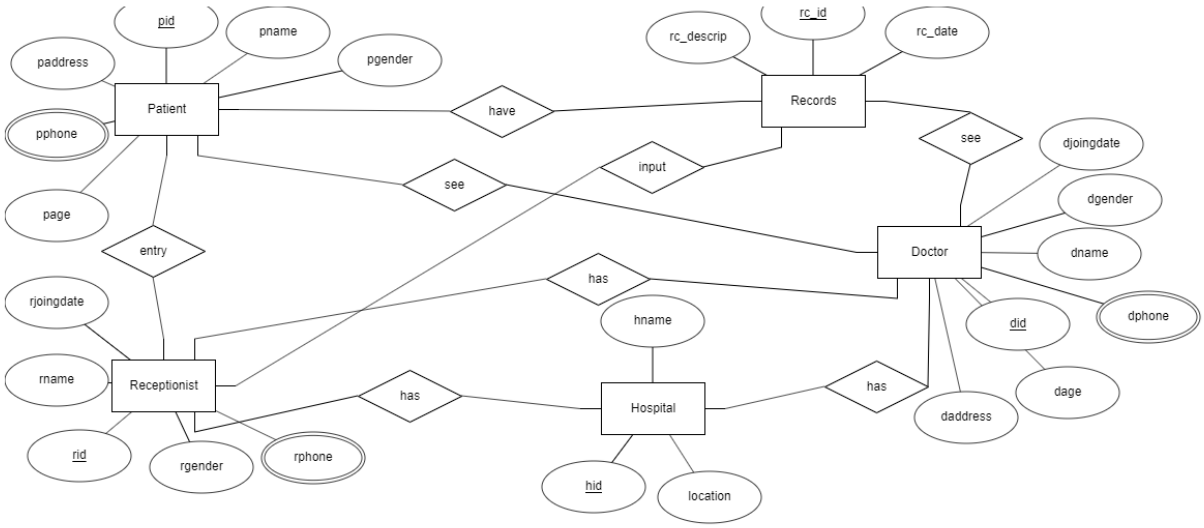
❖ Sequence Diagram



❖ Class Diagram



❖ ER Diagram



➢ Data Dictionary

- Hospital

No.	Attribute	Data Type	Type
01	hid	int(10)	Primary key
02	hname	Varchar(30)	
03	location	Varchar(30)	

- Doctor

No.	Attribute	Data Type	Type
01	did	Int(10)	Primary key
02	dname	Varchar(30)	
03	dphone	Varchar(30)	
04	dage	Varchar(30)	
05	daddress	Varchar(30)	
06	dgender	Varchar(30)	
07	djoindate	Varchar(30)	

- Receptionist

No.	Attribute	Data Type	Type
01	rid	Int(10)	Primary key

02	rname	Varchar(30)	
03	rgender	Varchar(30)	
04	rphone	Varchar(30)	
05	rjoindate	Varchar(30)	

- Patient

No.	Attribute	Data Type	Type
01	pid	Int(10)	Primary key
02	pname	Varchar(30)	
03	page	Varchar(30)	
04	pphone	Varchar(30)	
05	paddress	Varchar(30)	
06	pgender	Varchar(30)	

- Records

No.	Attribute	Data Type	Type
01	rc_id	Int(10)	Primary key
02	rc_date	Varchar(30)	
03	rc_descrip	Varchar(30)	

Effort estimation:

For effort estimation, we are going to use the Cost Constructive Model (COCOMO).

Based on SLOC characteristics, it operates according to these equations

1) Effort = PM = Coefficient <Effort Factor> * (SLOC/1000) ^ P

2) Development time = DM = 2.50 * (PM) ^ T

3) Required number of people = ST = PM / DM

Here,

PM- Person-months needed for project (labor working hours)
SLOC- Source lines of code
P- Project complexity (1.04-1.24)
DM- Duration time in months for project (week days)
T- SLOC-dependent coefficient (0.32-0.38)
ST- Average staffing necessary

Software Project Type	Coefficient <Effort Factor>	P	T
Organic	2.4	1.05	0.38
Semi-detached	3.0	1.12	0.35
Embedded	3.6	1.20	0.32

According to the definition, our system is an organic type of project

A software development project can considered of organic type, if the project deals with developing a well understood application program. In organic type, the size of the development team is reasonably small, and the team are experienced in developing similar types of projects.

1) Effort = PM = Coefficient $_{\text{<Effort Factor>}}$ * (SLOC) ^ P

PM= 2.4*(80k) ^1.05 [As Coefficient $_{\text{<Effort Factor>}}$ =2.4, SLOC= 80,000/1000= 80k, P=1.05] = 239.032

2) Development time = DM = 2.50 * (PM) ^ T

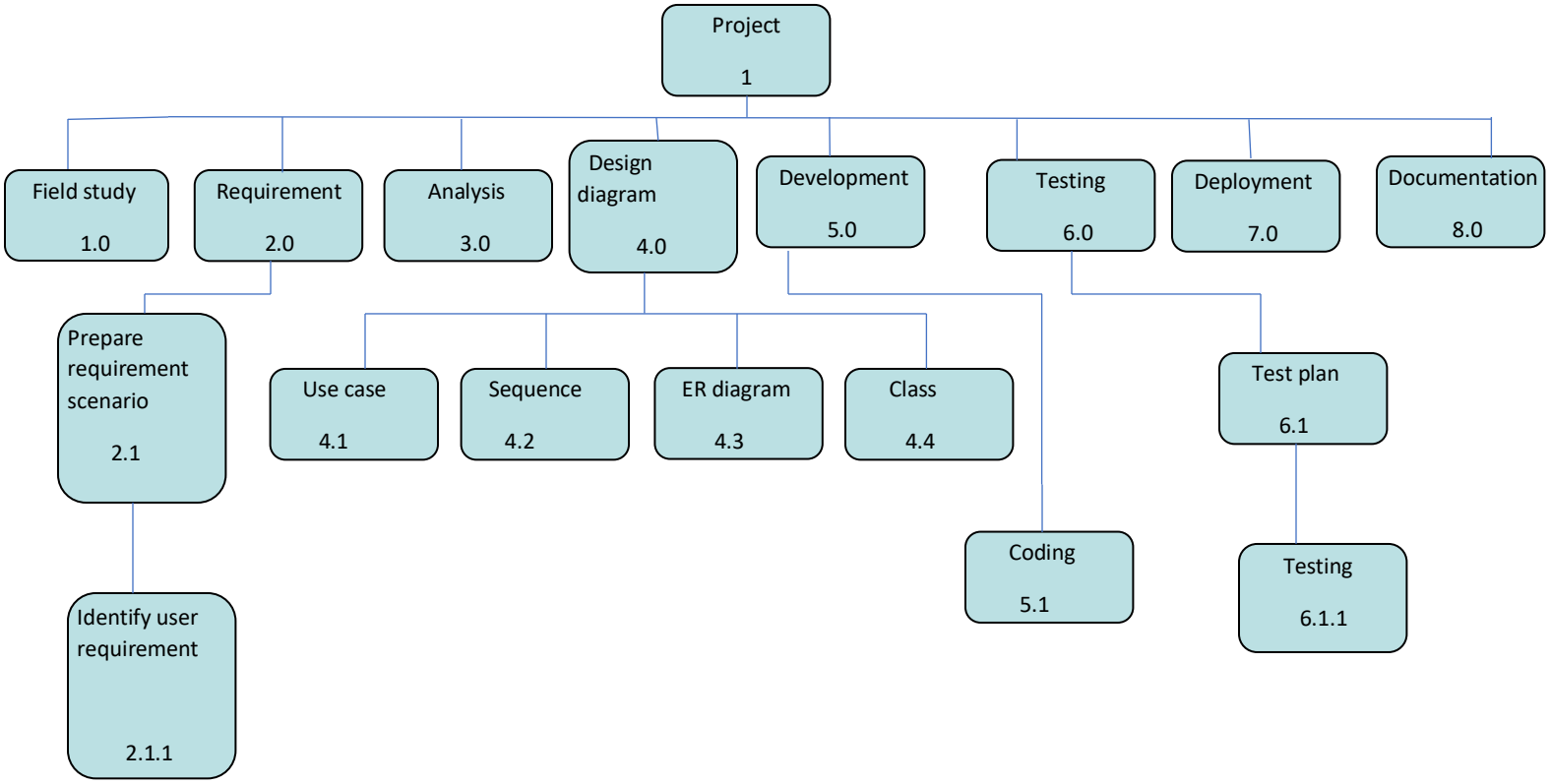
DM= 2.50 * (239.032) ^ 0.38 [As PM= 239.032, T= 0.38]

= 20.033

3) Required number of people = ST = PM / DM

ST= 239.032/ 20.033 [As PM= 239.032, DM= 20.033] = 11.932

Work break down structure:



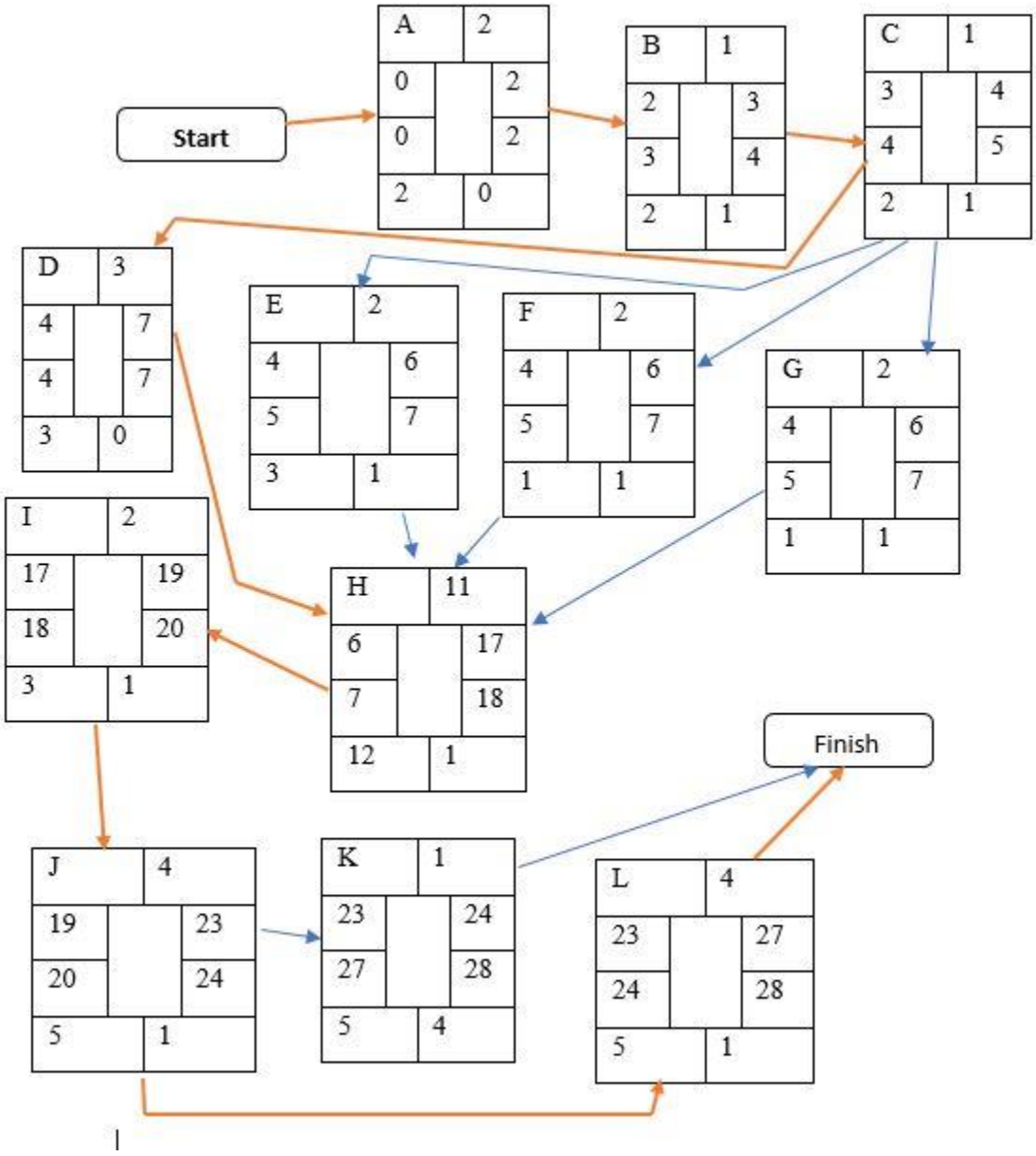
Scheduling:

Label	Task	Week	Duration(Weeks)	Precedence
A	Field study	1^{st}-2^{nd}	2	
B	Prepare requirement scenario	2^{nd} -3^{rd}	1	A
C	Identify user requirements	3^{rd}	1	B
D	Design Use case diagram	4^{th} – 6^{th}	3	C
E	Design Activity diagram	6^{th} – 7^{th}	2	C
F	Design ER diagram	7^{th}	1	C
G	Design Class diagram	8^{th} – 9^{th}	2	C

H	Coding	9th-20th	1 1	D,E,F,G
I	Construct Test plan	21st -22nd	2	H
J	Testing software	23rd – 27th	4	I
K	Deployment	28th	1	J
L	Documentation	27th -30th	4	J

Total project time: 30 weeks

Activity Planning:



Resource Analysis:

SL	Name	Category	Quantity	Time (Week)
01	Project manager	Human Resource	1	1st -30th
02	System Analyst	Human Resource	1	1st -27th
03	Designer	Human Resource	2	4th-20th
04	Requirement analyst	Human Resource	1	1st – 20th

05	Senior Developer	Human Resource	2	4^{th} – 30^{th}
06	Junior Developer	Human Resource	5	4^{th} – 30^{th}
07	Tester	Human Resource	3	21^{st} – 27^{th}
08	Office Space	Space	1	1^{st} -30^{th}
09	PCs	Equipment	17	1^{st} -30^{th}
10	Desks	Equipment	17	1^{st} -30^{th}
11	Software	Equipment	As required	1^{st} -30^{th}
12	Pen Drives	Materials	10	1^{st} -30^{th}
13	Internet Connection	Services	As required	1^{st} -30^{th}
14	Utilities	Services	As required	1^{st} -30^{th}

Budget:

Items	Category	Staffs	Total (Items) (BDT)
Project Manager	Staff Cost	1	3,00,000
Analyst	Staff Cost	2	4,00,000
Designer	Staff Cost	2	3,00,000
Developers	Staff Cost	7	4,00,000
Hardware Devices	Overheads	As required	1,00,000
Tools	Overheads	As required	50,000
Tester	Staff Cost	3	2,00,000
Rent	Overheads	As required	1,50,000
Utility	Usage Charges	As required	1,00,000

Total Cost= 20,00,000 BDT

Risk Analysis:

Risk Check List- These are the types of risks associated with project development

- Product size (PS) — risks associated with the overall size of the software to be built or modified
- Business impact (BU) — risks associated with constraints imposed by management or the marketplace
- Customer characteristics (CU) — risks associated with the sophistication of the customer and the developer's ability to communicate with the customer in a timely manner
- Process definition (PR) — risks associated with the degree to which the software process has been defined and is followed by the development organization [autopilot performance fixing with XP]
- Development environment (DE) — risks associated with the availability and quality of the tools to be used to build the product [resource allocation plan]
- Technology to be built (TE) — risks associated with the complexity of the system to be built and the "newness" of the technology that is packaged by the system
- Staff size and experience (ST) — risks associated with the overall technical and project experience of the software engineers who will do the work

Risk Table*:*

Risk	Category	Probability	Impact	RMMM
Misunderstood requirements	PS	30%	2	Requirement engineering
Customer will change requirements	PS	40%	2	Change control process
Less reuse than planned	PS	50%	2	Proper management
Delivery deadline will be tightened	BU	40%	2	Float should be proper use
Funding will be lost	CU	30%	1	Seek additional funding
Staff unexperienced	ST	10%	2	Training
Project can go over budget	CU	35%	1	Historical data, estimate using multiple techniques, standardization of methods
New technology	TE	30%	3	Training
High staff turnover	ST	40%	3	Increase job satisfaction
Too difficult to develop	DE	25%	3	Technical analysis
Lack of externally supplied components	DE	40%	3	Formal specification, contractual agreement
Product fails to deliver the business objective	BU	40%	1	Market research

Performance issues	BU	60%	3	Improve quality
Lack of users' involvement	CU	60%	3	Involve user in development, feedback
Lack of communication	ST	40%	4	Project charter, plan meetings
Lack of interoperability	BU	20%	3	Improve quality attributes

RMMM- Risk Mitigation, Monitoring & Management Plan

Impact Values-

- ✓ (1)- Catastrophic
- ✓ (2)- Critical
- ✓ (3)- Marginal
- ✓ (4)- Negligible