



AMERICAN INTERNATIONAL UNIVERSITY- BANGLADESH
SOFTWARE PROJECT MANAGEMENT PLAN
FOR
ONLINE PC CONFIGURATION SYSTEM

SUBMITTED TO

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SOFTWARE DEVELOPMENT PROJECT MANAGEMENT

SECTION B

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Technology

It is a web based application for configuring PCs.

The problem addressed

Personal computers are used all over the world for different purposes and there are more than a billion computers in use currently. Even in our country, the use of personal computers has increased rapidly in the recent years. But building a personal computer is still very stressful. Choosing the right products from a large number of options can be very difficult. There are many companies that provide a wide range of products of different capabilities in different price range. So building the best suited system according to the need and within budget is the primary focus of the customers. But there are no platforms where the customers can view different products of distinct capabilities and compare among those products in terms of the brand or price. Availability of the products is another major concern in this regard. Our system looks to address this situation and tries to provide a solution to this problem.

How our system provides a solution

Our system, PC Builders, provides a platform to the customers to build their system according to their choice by allowing them to view products of different capabilities and models from the top sellers of the country. It also enables them to compare prices among many companies and shops. Customers can check what products are available and can order their desired system sitting at home. They do not need to roam around shops to check and compare products, prices, availability or to buy computers. Using our system, their product is just a few clicks away. As our system is affiliated to the biggest companies, customers can trust the system without being worried about getting conned. As a result, this system will go a long way in making the customers' life easier to configure and build their personal computers.

User Classes

1. Customers- Customers can view, compare and order products. Also they can sign up, login and update/delete accounts
2. Admin- Admin panel will approve or deny different requests and maintain the system and its activities.

Features

- Customers can check out products based on brands, categories, prices etc.
- Customers can compare price among vendors and brands
- They can check the availability of products
- They can order products
- Customers can sign up, login and update/delete accounts
- Customers can also track progress and view history
- Customers have multiple payment options
- Admin panel will get notifications about requests and can approve or deny accordingly

Feasibility Study

A feasibility study evaluates the project's potential for success; therefore, perceived objectivity is an essential factor in the credibility of the study for potential investors and lending institutions.

Technical Feasibility

This assessment focuses on the technical resources available to the organization. Technical feasibility also involves evaluation of the hardware, software, and other technical requirements of the proposed system.

Economic Feasibility

Economic feasibility typically involves a cost/ benefits analysis of the project, helping organizations determine the viability, cost, and benefits associated with a project before financial resources are allocated. It also serves as an independent project assessment and enhances project credibility—helping decision-makers determine the positive economic benefits to the organization that the proposed project will provide.

Legal Feasibility

In our development project, we want to construct a new office building in a specific location. A feasibility study might reveal the organization's ideal location isn't zoned for that type of business. That organization has just saved considerable time and effort by learning that their project was not feasible right from the beginning.

Operational Feasibility

In this project management plan, we satisfies the requirements identified in the requirements analysis phase of system development.

Scheduling Feasibility

This assessment is the most important for project success; after all, a project will fail if not completed on time. In scheduling feasibility, an organization estimates how much time the project will take to complete.

When these areas have all been examined, the feasibility study helps identify any constraints the proposed project may face, including:

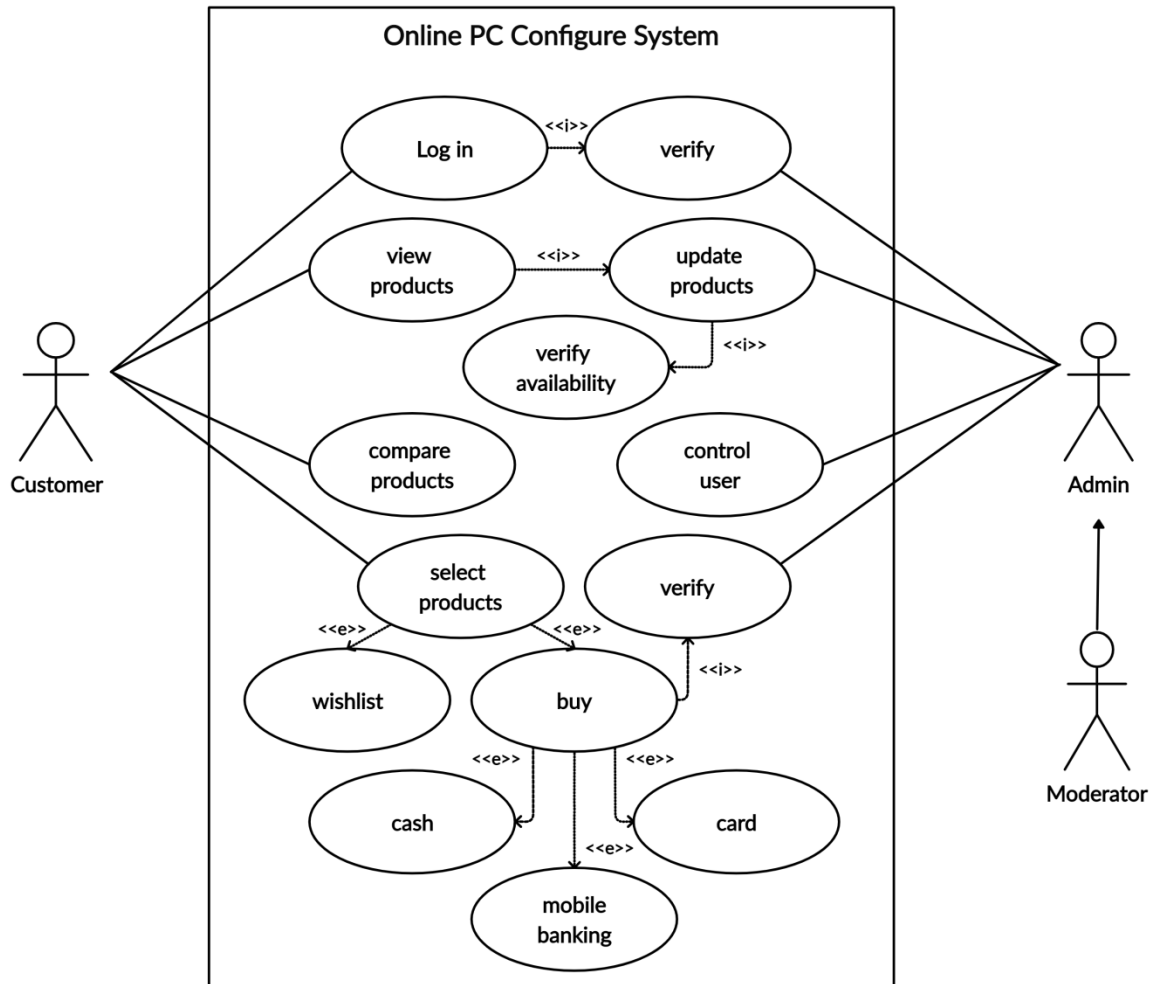
Internal Project Constraints: Technical, Technology, Budget, Resource, etc.

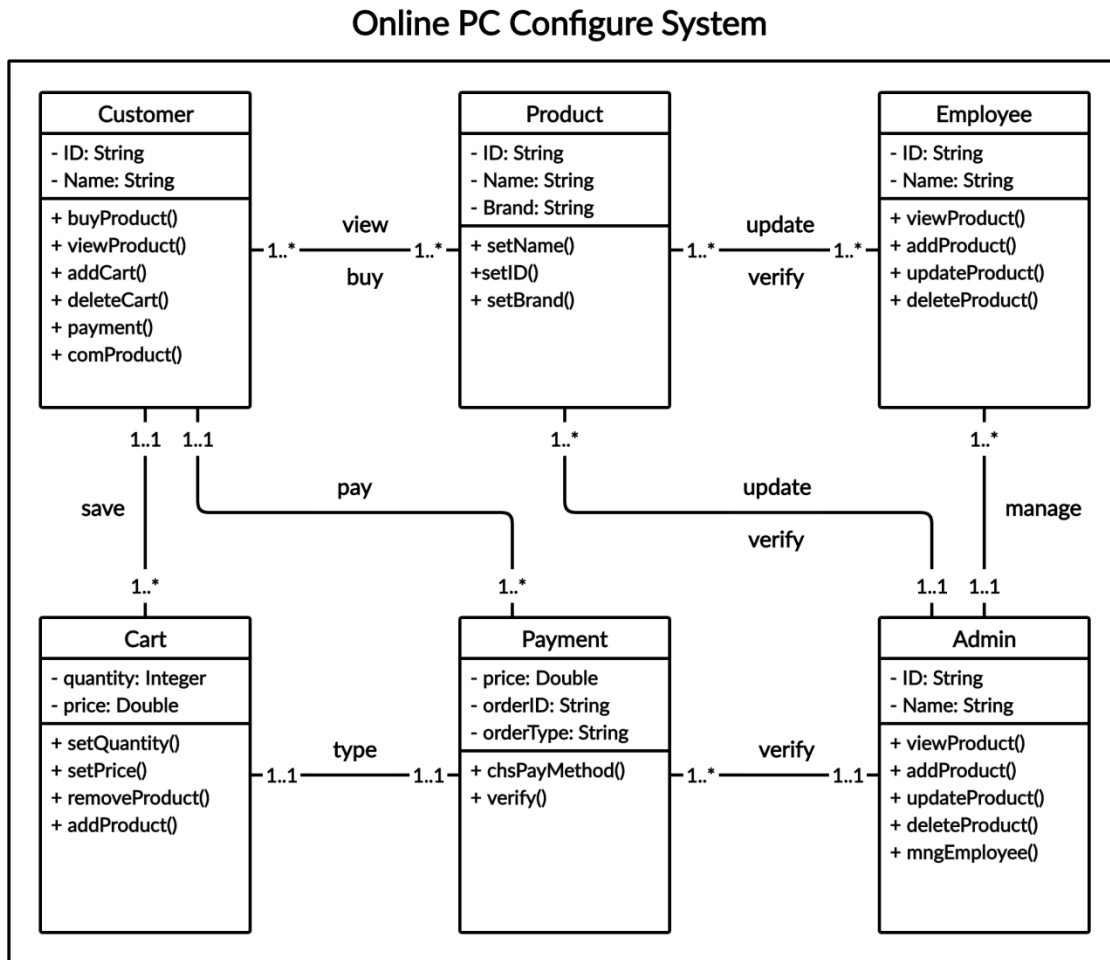
Internal Corporate Constraints: Financial, Marketing, Export, etc.

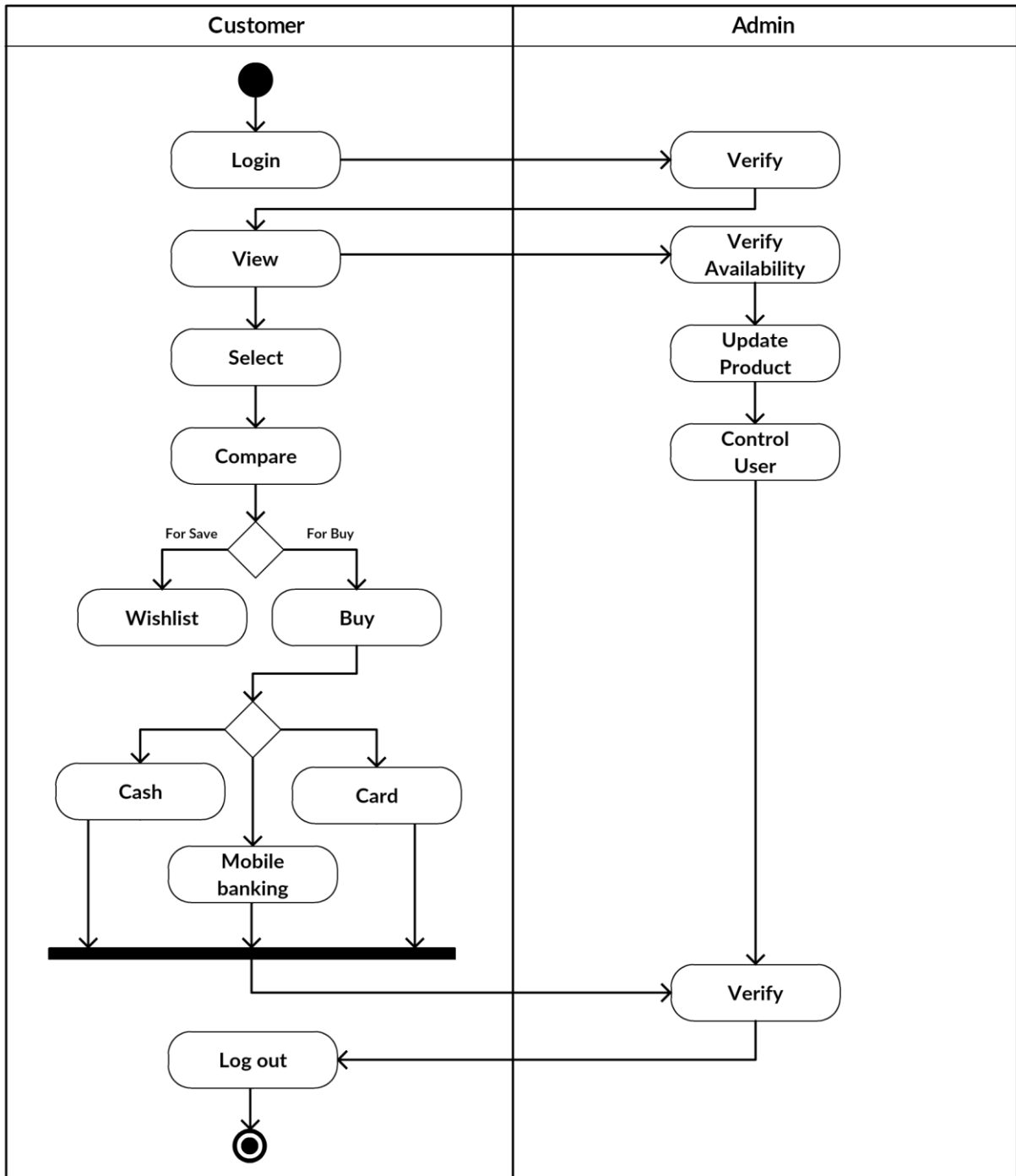
External Constraints: Logistics, Environment, Laws and Regulations, etc.

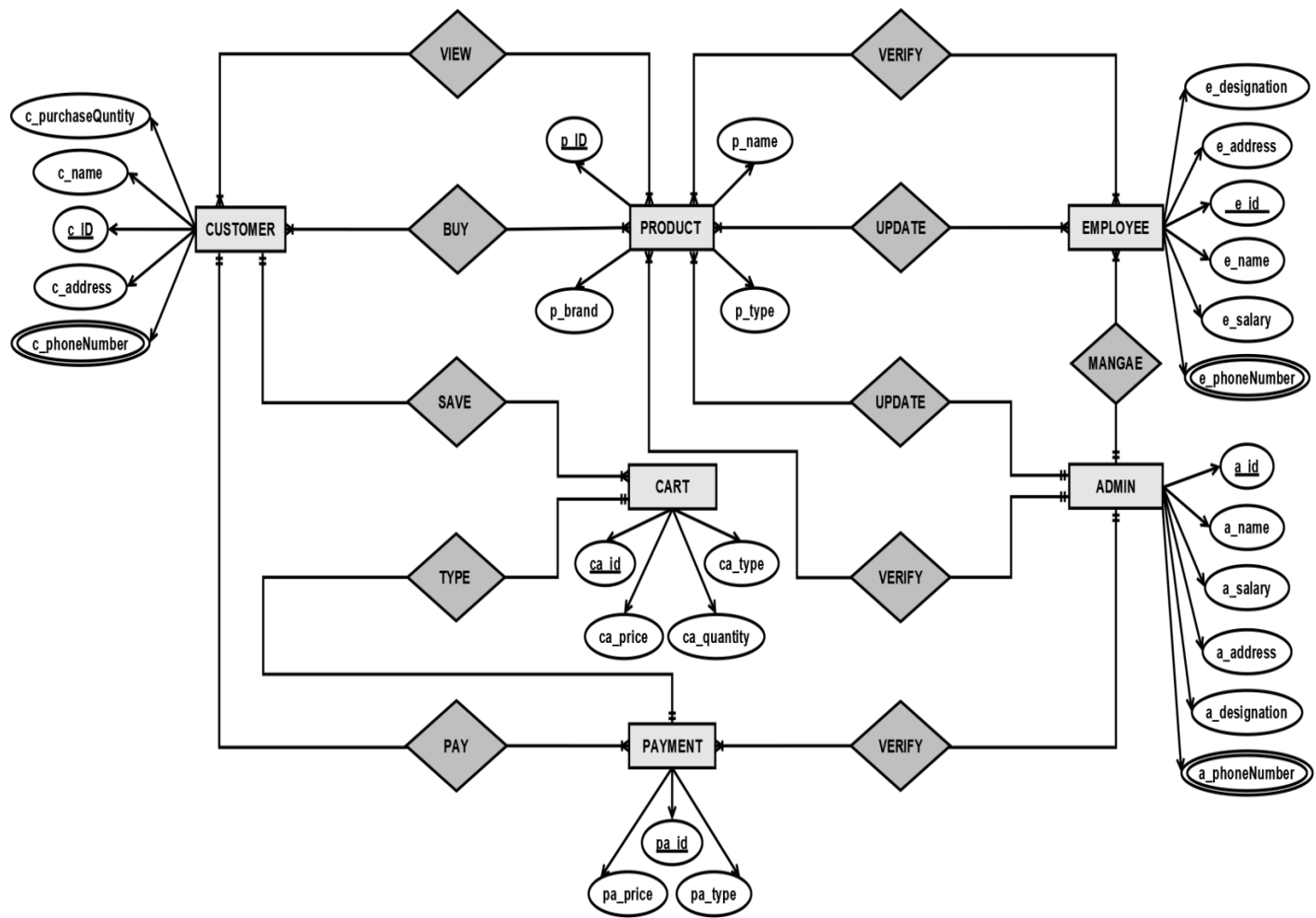
System Design Specification with UML Diagrams

Use Case Diagram



Class Diagram

*Activity Diagram***Online PC Configure System**

ER Diagram

Data Dictionary

I. ADMIN

No.	ATTRIBUTE	DATA TYPE	Type
1	a_id	Varchar(8)	Primary key
2	a_name	Varchar(30)	
3	a_address	Varchar(50)	
4	a_phoneNumber	Varchar(11)	Multivalued
5	a_salary	Integer(7)	
6	a_designation	Varchar(20)	

II. CUSTOMER

No.	ATTRIBUTE	DATA TYPE	Type
1	c_id	Varchar(8)	Primary key
2	c_name	Varchar(30)	
3	c_address	Varchar(50)	
4	c_phoneNumber	Varchar(11)	Multivalued
5	c_purchaseQuntity	Integer(10)	

III. EMPLOYEE

No.	ATTRIBUTE	DATA TYPE	Type
1	e_id	Varchar(8)	Primary key
2	e_name	Varchar(30)	
3	e_address	Varchar(50)	
4	e_phoneNumber	Varchar(11)	Multivalued
5	e_salary	Integer(7)	
6	e_designation	Varchar(20)	

IV. PRODUCT

No.	ATTRIBUTE	DATA TYPE	Type
1	p_id	Varchar(20)	Primary key
2	p_brand	Varchar(20)	
3	p_name	Varchar(20)	
4	p_type	Varchar(20)	

V. CART

No.	ATTRIBUTE	DATA TYPE	Type
1	ca_id	Varchar(30)	Primary key
2	ca_price	Integer(10)	
3	ca_type	Varchar(20)	
4	ca_quantity	Integer(10)	

VI. PAYMENT

No.	ATTRIBUTE	DATA TYPE	Type
1	pa_id	Varchar(30)	Primary key
2	pa_price	Integer(10)	
3	pa_type	Varchar(20)	

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

$$1) \text{ Effort} = \text{PM} = \text{Coefficient}_{\langle \text{Effort Factor} \rangle} * (\text{SLOC}/1000)^P$$

$$2) \text{ Development time} = \text{DM} = 2.50 * (\text{PM})^T$$

$$3) \text{ Required number of people} = \text{ST} = \text{PM} / \text{DM}$$

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

Organic software- Relatively small, simple software projects in which a small teams with good application experience work to a software development project (e.g. showing VUES information to webpage)

Calculation-

$$1) \text{ Effort} = PM = \text{Coefficient} \langle \text{Effort Factor} \rangle * (\text{SLOC}) ^ P$$

$$PM = 2.4 * (50k) ^{1.05} \quad [\text{As Coefficient} \langle \text{Effort Factor} \rangle = 2.4, \text{SLOC} = 50,000/1000 = 50k, P = 1.05]$$

$$= 145.925$$

$$2) \text{ Development time} = DM = 2.50 * (PM) ^ T$$

$$DM = 2.50 * (145.925) ^{0.38} \quad [\text{As } PM = 145.925, T = 0.38]$$

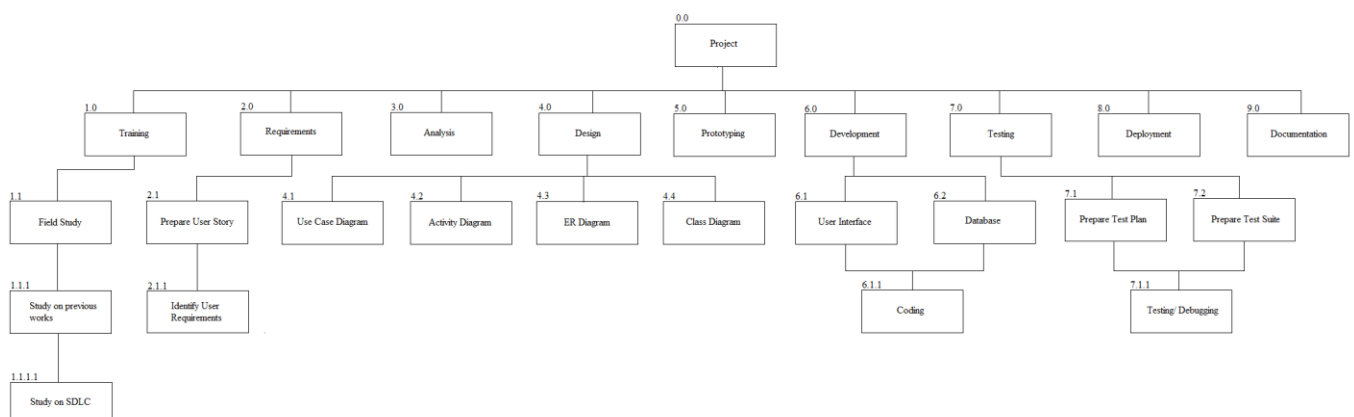
$$= 16.608$$

$$3) \text{ Required number of people} = ST = PM / DM$$

$$ST = 145.925 / 16.608 \quad [\text{As } PM = 145.925, DM = 16.608]$$

$$= 8.786$$

Work Breakdown Structure (WBS)

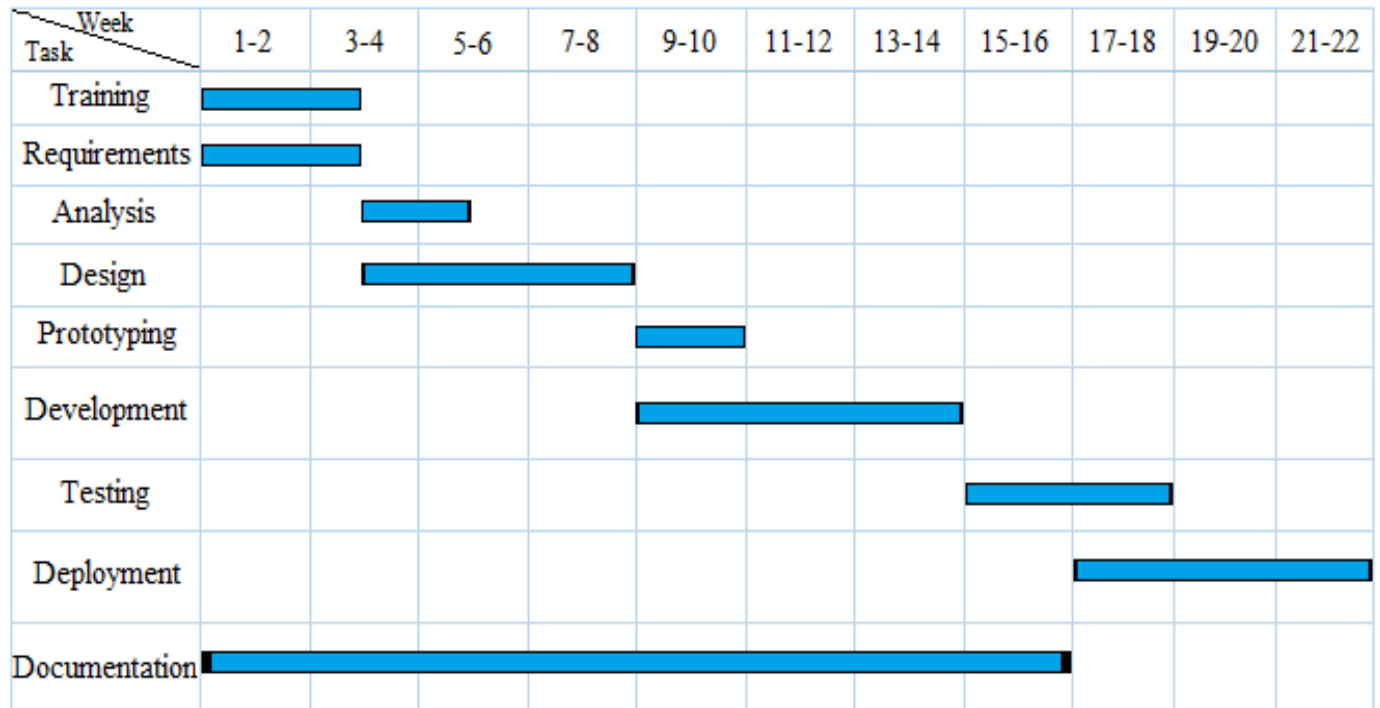


Scheduling

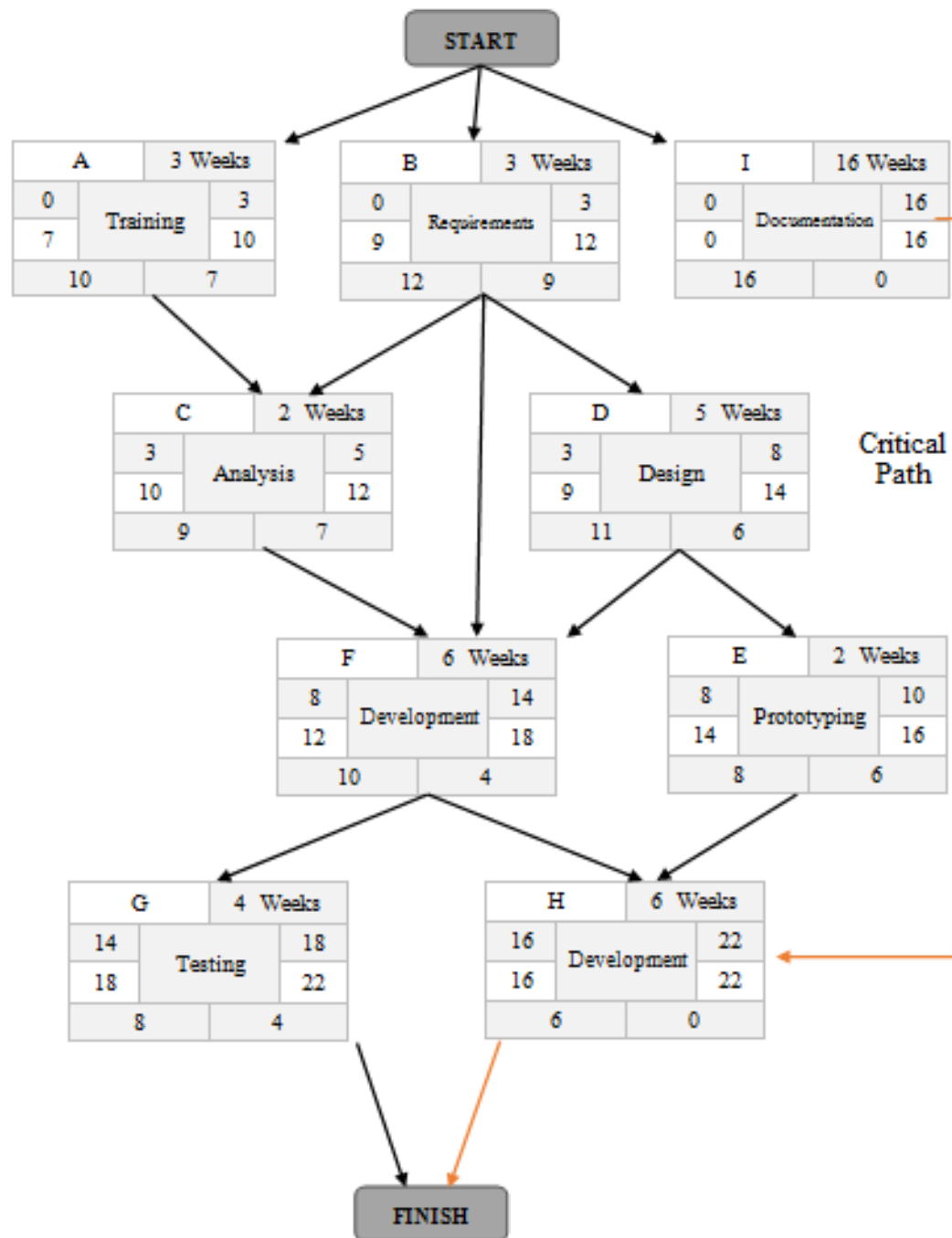
Label	Task	Schedule(Week)	Duration(Week)	Precedence
A.	Training	1 st -3 rd	3	
B.	Requirements	1 st -3 rd	3	
C.	Analysis	4 th -5 th	2	A, B
D.	Design	4 th -8 th	5	B
E.	Prototyping	9 th -10 th	2	D
F.	Development	9 th - 14 th	6	B, C, D
G.	Testing	15 th - 18 th	4	F
H.	Deployment	17 th - 22 nd	6	E, F, I
I.	Documentation	1 th - 16 th	16	

Total Project Time: 22 Weeks

Scheduling Bar Chart



Activity Planning (Network Diagram)



Resource Allocation

SL	Name	Category	Quantity	Time (Week)
01	Project manager	Human Resource	1	1 st -22 nd
02	System Analyst	Human Resource	1	1 st -12 th , 17 th -22 nd
03	Designer	Human Resource	2	1 st -12 th , 17 th -22 nd
04	Senior Developer	Human Resource	1	1 st -22 nd
05	Junior Developer	Human Resource	4	1 st -22 nd
06	Tester	Human Resource	2	15 th - 18 th
07	Office Space	Space	1	1 st -22 nd
08	PCs	Equipment	12	1 st -22 nd
09	Desks	Equipment	12	1 st -22 nd
10	Software	Equipment	As required	1 st -22 nd
11	CDs	Materials	5	1 st -22 nd
12	Internet Connection	Services	As required	1 st -22 nd
13	Utilities(Electricity, Mobile Bill etc)	Services	As required	1 st -22 nd
14	Database	Equipment	1	1 st -22 nd
15	Server	Equipment	1	1 st -22 nd
16	Project Management Tools	Equipment	As required	1 st -22 nd
17	Testing Tools	Equipment	As required	15 th - 18 th
18	Documentation Tools	Equipment	As required	1 st - 22 nd
19	Licensed Software	Services	As required	1 st -22 nd

Budget

Items	Category	Month 1 (BDT)	Month 2 (BDT)	Month 3 (BDT)	Month 4 (BDT)	Month 5 (BDT)	Total (Items) (BDT)
Project Manager	Staff Cost	12,000	12,000	12,000	12,000	12,000	60,000
Analyst	Staff Cost	6,000	3,000	3,000		3,000	15,000
Designer	Staff Cost	6,000	2,000	2,000		2,000	12,000
Developers	Staff Cost	26,000	26,000	26,000	26,000	26,000	1,30,000
Hardware Devices	Overheads	20,000	20,000	20,000	20,000	20,000	1,00,000
Servers	Overheads	10,000	10,000	10,000	10,000	10,000	50,000

Software/Licensed Software Fee	Overheads	10,000	10,000	10,000	10,000	10,000	50,000
Tools (Testing, Documentation/ Management)	Overheads				15,000	15,000	30,000
Tester	Staff Cost				10,000	10,000	20,000
Training	Staff Cost	10,000					10,000
Rent	Overheads	15,000	15,000	15,000	15,000	15,000	75,000
Utility	Usage Charges	20,000	20,000	20,000	20,000	20,000	1,00,000
Monthly Total (BDT)		1,35,000	1,18,000	1,18,000	1,38,000	1,43,000	

Total Cost= 6,52,000 BDT

Risk Assessment

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
- Development environment (DE) - risks associated with the availability and quality of the tools to be used to build the product
- 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
- Political Implications (PI) – risks associated with political reasons

Risk Table

Risk	Category	Probability	Impact	RMMM
Incomplete requirements	PS	30%	2	Requirement engineering
Late changes in requirements	PS	40%	2	Change control process
Unrealistic time estimate	BU	40%	1	Multiple estimation techniques, historical data
Project can go over budget	CU	35%	1	Historical data, estimate using multiple techniques, standardization of methods
Personnel shortfall	ST	20%	2	Experienced stuff, teambuilding
Inexperienced stuff	ST	40%	3	Training
New technology	TE	30%	3	Training
Customers deny the product	CU	50%	2	User involvement in development, explaining benefits to users, marketing
Wrong user interface	DE	35%	3	Prototyping, task analysis
Incorrect functionalities	DE	20%	2	Improve analysis & software evaluation
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
Less reuse than planned	PS	50%	3	Improve analysis
Product fails to deliver the business objective	BU	40%	1	Market research
Problems is externally performed tasks	DE	50%	4	Competitive design
Performance issues	BU	60%	3	Improve quality
Lack of users' involvement	CU	60%	3	Involve user in development, feedback
Political risks	PI	30%	3	Identify project goals
Lack of communication	ST	40%	4	Project charter, plan meetings
Size of the database used	PS	40%	3	Estimate database requirement while analyzing
Lack of interoperability	BU	20%	3	Improve quality attributes
Problem in process framework	PR	15%	4	Establish common process framework

RMMM- Risk Mitigation, Monitoring & Management Plan

Impact Values-

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