Project Report

Software Engineering

For Implementing SDLC while developing

XYZ Management System

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November, 2021

Submitted to: Dr. Umema Hani

CoCIS, PAF Kiet University, Karachi, Pakistan.

Executive Summary

This report covers major "Software Development" activities on our selected Software. This project activity lasts for duration of 3.5 month time period.

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1. PROJECT INITIATION: PROPOSAL FORM

<Copy and Paste your Proposal Form here>

SOFTWARE ENGINEERING
PROPOSAL

SID	NAME
9779	MUHAMMAD OSAMA
9760	HASSAN HABIB KHAN
9646	MUHAMMAD HASSAAN
9910	SUMAIR UL HAQ
9763	MASOOD ARIF

PROJECT TITLE

LIBRARY MANAGEMENT SYSTEM

1. Motivation:

The motivation is to provide complete solutions for customers as well as administrators through a single platform using the internet as a sole medium for empowering the customers to purchase online products.

2. Functional Features

Specify the features of your project which would make it significant for the evaluators.

1. Administrator:

1. ***Database Management:*** *Control the database and keep track of all records of customers, orders, products and employee details.*
2. ***Buying From Vendors:*** *Contact with the vendors and buy products from them to sell products.*
3. ***View all details:*** *View the details of all employees and control the whole site.*
4. ***Supplier:*** *Admin can assign ordered products to relative supplier.*
5. ***Search:*** *Admin can search in his panel.*
6. ***Rejection of Orders:*** *Admin can reject orders in case of any disruption.*
7. ***View Product Stocks:*** *Administrator keeps track of each product item's stocks for selling purpose*

through website.

8. ***View customer details:****View the personal details of the customer.*

9. ***Managing Sales to Customers:****Responsible for properly allocating the selected product according to the customer's choice and delivering product to the customer.*
10. ***View Product Stocks:****Administrator keeps track of each product item's stocks for selling purpose through website.*

2. Customers:

1. ***Login:*** *Customers must have a valid login id to enter into the site.*
2. ***Registration:*** *New users can sign up by creating new ID.*
3. ***View and edit Own Details:*** *Can view/edit his personal details, payment details.*

Choosing and comparing products: *Can view all available products and can compare them and make a choice for purchasing products.*

5. ***Giving Feedback to Customer Care:*** *Can give feedback to the 24X7 Customer Care Service center about their impression for the site and services.*
6. ***Logout:*** *Customer must logout of the site after purchasing products.*
7. ***Add to Cart:*** *Customer can add products to their carts.*
8. ***Add to Wish List:*** *Customer can add products to their wish list.*
9. ***Search Products:*** *Customer can search products of their desired choice.*
10. ***Change Quantity of Products:*** *Customer can change the quantity of the products while ordering.*
11. ***Consulting with Administrator:*** *User can consult with the Administrator regarding product's quality and orders through email.*
12. ***Customer Care:*** *Getting Feedback from the Customers, Responsible for receiving complaints, queries and feedback from the customers.*
"Will demonstrate implemention of all engineering activities expected under different pahses of SDLC on Product Development".

11. List down 5 unique but relevant Modules/Features for 5 members

SDLC Phases:

- *Requirement Gathering*
- *Planning*
- *Analysis*
- *Design*
- *Testing*
- *Implementation*
- *Review*

In Phases Requirement gathering, planning, Analysyis all project members worked together, after analysyis phase working is distributed as follows:

a. ***Module 1:*** Member Maintenance Module

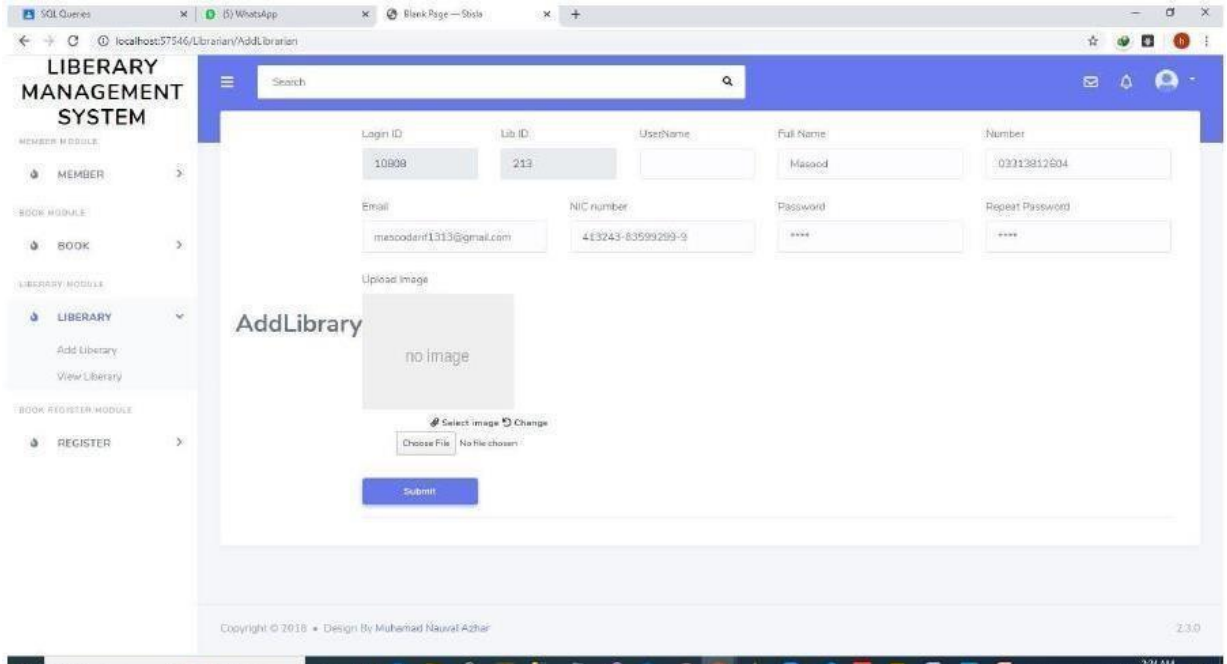
b. ***Module 2:*** Book Maintenance Module

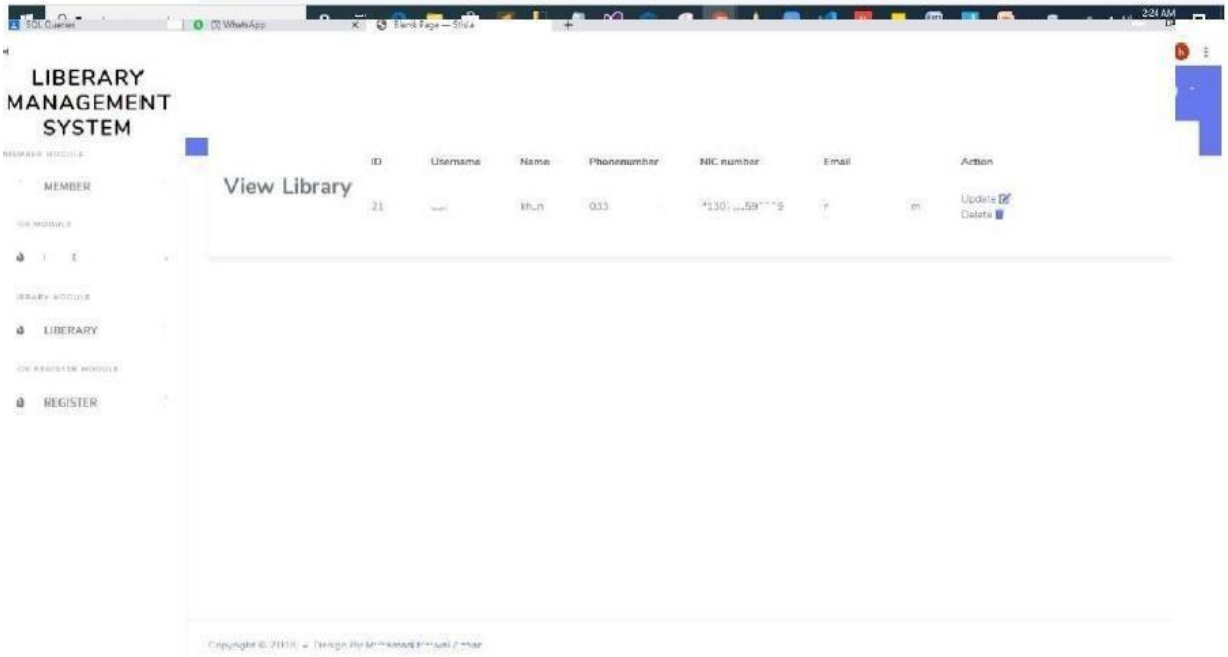
c. ***Module 3:*** Publisher Maintenance Module

d. ***Module 4:*** Report Module

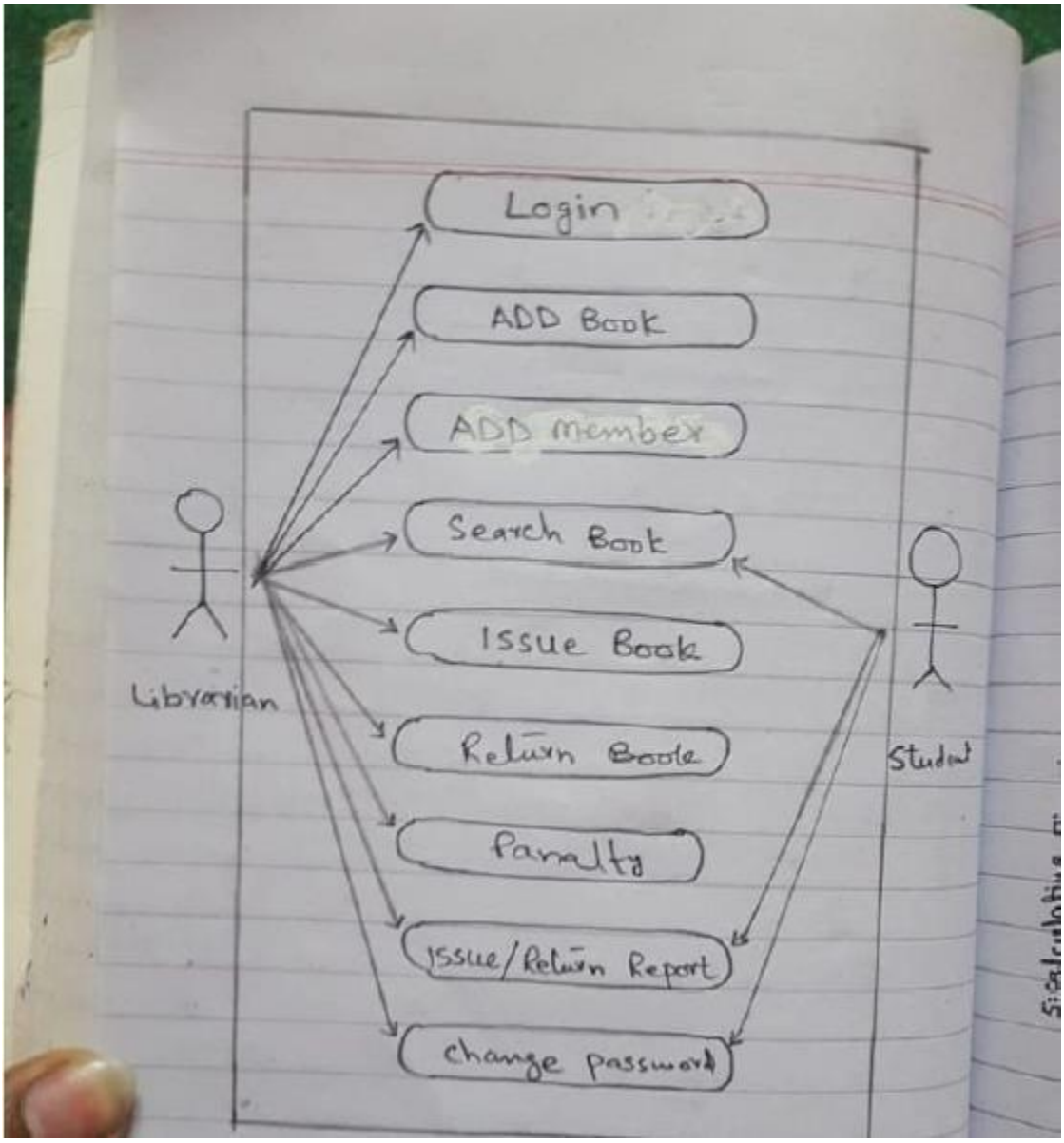
e. ***Module 5:*** Book Transaction Module

12. ***Expected Detail of all Modules to be covered by each Member***





USE CASE DIAGRAM



3. Project Planning

Provide a detailed schedule for the successful completion of the project using Gantt charts for this purpose. (You may attach some extra sheet)

DISTRIBUTED TASK	**ASSIGNED TO**
Setting Up the Project Environment (Preapre Visual Studio and SQL for project running) + Database Identify the modules in the project	**HASSAN HABIB KHAN**
Draw Flow Diagram Of the Website in the proposal+Write Functional Features of the Application (half)	**MASOOD ARIF**
Write Project Planning Part in the Proposal	**MUHAMMAD OSAMA**

Write Modules Part in the Proposal	**MUHAMMAD HASSAAN**
Write remaining functional features and motivation part in the proposal	**SUMAIR UL HAQ**

2. REQUIREMENT ENGINEERING AND CONFIGURATION MANAGEMENT

<Copy and Paste your SRS document here>

Software Requirements Specification

for

ONLINE LIBRARY MANAGEMENT SYSTEM

SID	NAME
9779	MUHAMMAD OSAMA
9760	HASSAN HABIB KHAN
9646	MUHAMMAD HASSAAN
9910	SUMAIR UL HAQ
9763	MASOOD ARIF

Table of Contents:

References:

https://github.com/hinjorr/SE-project

1. Introduction

Purpose

The purpose of the project is to maintain the details of books and library members of different libraries. The main purpose of this project is to maintain a easy circulation system between clients and the libraries, to issue books using single library card, also to search and reserve any book from different available libraries and to maintain details about the user (fine, address, phone number).Moreover, the user can check all these features from their home.

Scope

Manually updating the library system into an android based application so that the user can know the details of the books available and maximum limit on borrowing from their computer and also through their phones. The ILM System provides information's like details of the books, insertion of new books, deletion of lost books, limitation on issuing books, fine on keeping a book more than one month from the issued date. Also user can provide feedback for adding some new books to the library.

Definitions, Acronyms, and Abbreviations.

1. JAVA -> platform independence
2. SQL -> Structured query Language
3. DFD -> Data Flow Diagram
4. CFD -> Context Flow Diagram
5. ER -> Entity Relationship
6. IDE -> Integrated Development Environment
7. SRS -> Software Requirement Specification

1.5 Overview

Chapter 2 of the SRS is a brief description of the characteristics of the software to be built, its functions, its users, its constraints and its dependencies.

Chapter 3 is about specific requirements, such as functional requirements, external interface requirements, performance requirements, and also design constraints and quality characteristics.

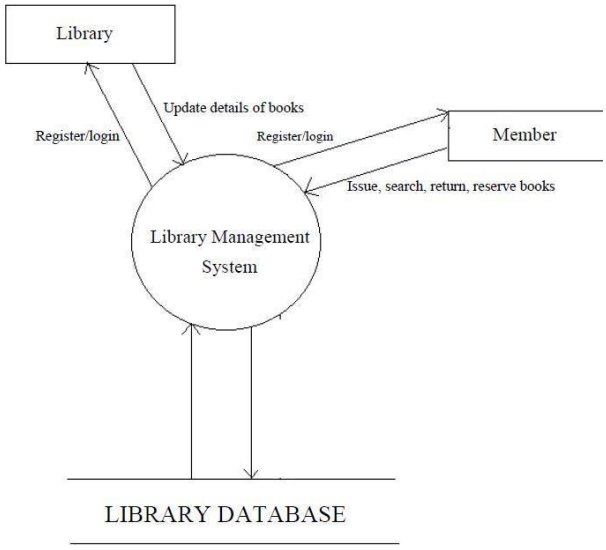
Finally, chapter 4 includes all the supporting information, such as the Table of Contents, the Appendices, and the Index.

2. The General Description

Product Perspective

• The Online Library System is a package to be used by Libraries to improve the efficiency of Librarians and Users. • The Online Library System to be developed benefits greatly the members and the Librarian of University. • The system provides books catalog and information to members and helps them decide on the books to borrow from the library. • The Librarian can keep the books catalog updated all the
time so that the members (students and the professors) get the updated information all the time.

Figure 2.1 Overview/Architecture Diagram of the ARRS



Functions of System Components:

- Computer System.
- **Networking** Device.
- Software.
- Database.
- Server.

External Interfaces:

The software provides good graphical interface for the user and the administrator can operate on the system, performing the required task such as create, update, viewing the details of the book.

- It allows user to view quick reports like Book Issued/Returned in between particular time.

- § It provides stock verification and search facility based on different criteria.
- § The user interface must be customizable by the administrator
- § All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined

Product Functions

• The Online Library System provides online real time information about the books available in the Library and the user information.

• The Product functions are more or less the same as described in the product perspective. The functions of the system include the system providing different type of services based on the type of users [Member/Librarian].

• The member should be provided with the updated information about the books catalog.

• Provisions for the members to borrow the books they want, if all the other required rules hold good.

• The member is given a provision to check his account information and change the account information any time in the given valid period.

• The members should be allowed to see the status of the books/journals borrowed/reserved by him and the respective due dates and other relevant details.

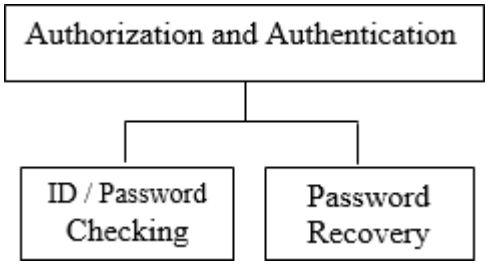
• The members should be able to place requests for purchasing new books to the library, by giving details about the name of the book, name of the author, publisher.

• The librarian is provided with interfaces to add/delete the books available in the book catalog

Function Descriptions (Functional Requirement Listings)

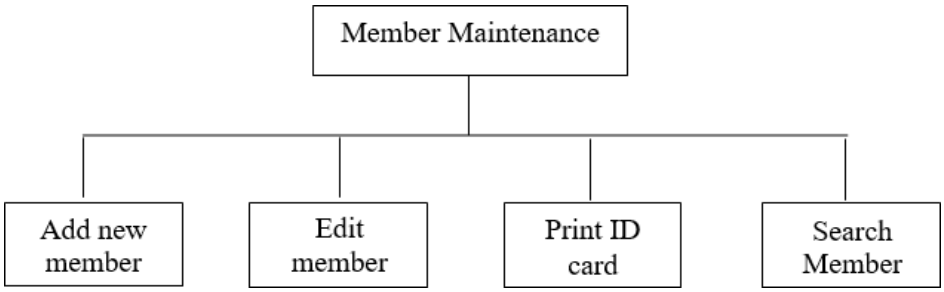
Log In Function

This module is used by user which means librarian in the library. They need to login to the system using their id and password. In order to distinguish the user's level, user can access to different module when successfully login. For example, only admin level users are able to access the report module.



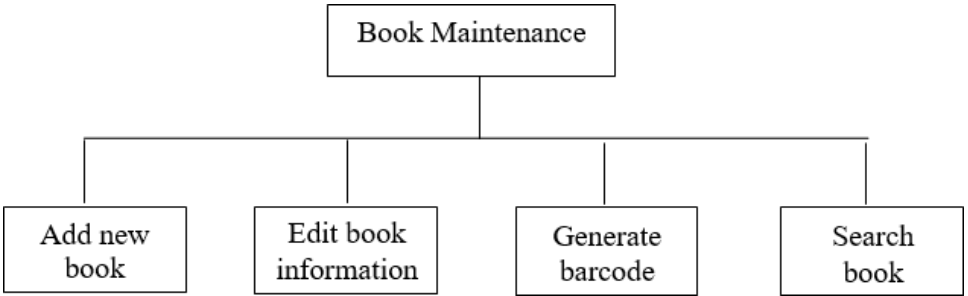
➢ 2.2.2 Module 1: Member Maintenance Module

This module can be accessed by either librarian or library admin to maintain member's profile or record such as search, add, edit and print ID card.



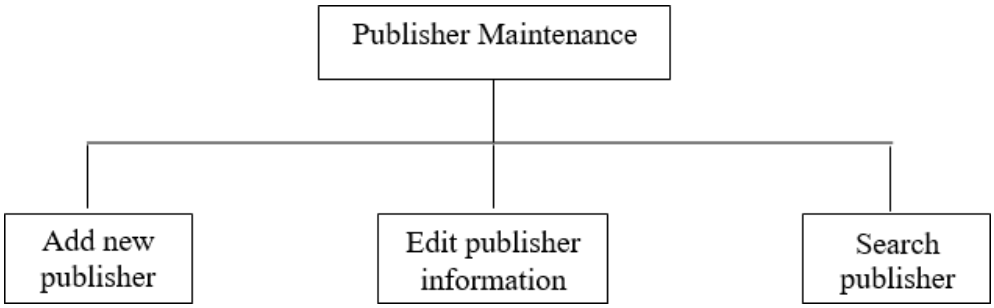
➢ 2.2.3 Module 2: **Book Maintenance Module**

Book Module can access by any user from all levels. This module can used to maintain the book inventory record such as search, add and edit. In addition, we can generate the barcode for particular book and print it out so that librarian can stick the barcode on the book cover.



- 2.2.4 Module 3: **Publisher Maintenance Module**

This module allows user to add and edit the book's publisher. Publisher is used when register a new book.



- 2.2.5 Module 4: **Report Module**

Report module is the main module for admin user. It is because normal user is not allowed to view the report. The report divided into 3 types. First one is transaction report which can let admin views the book transaction happen on particular date such as rental report and return report.

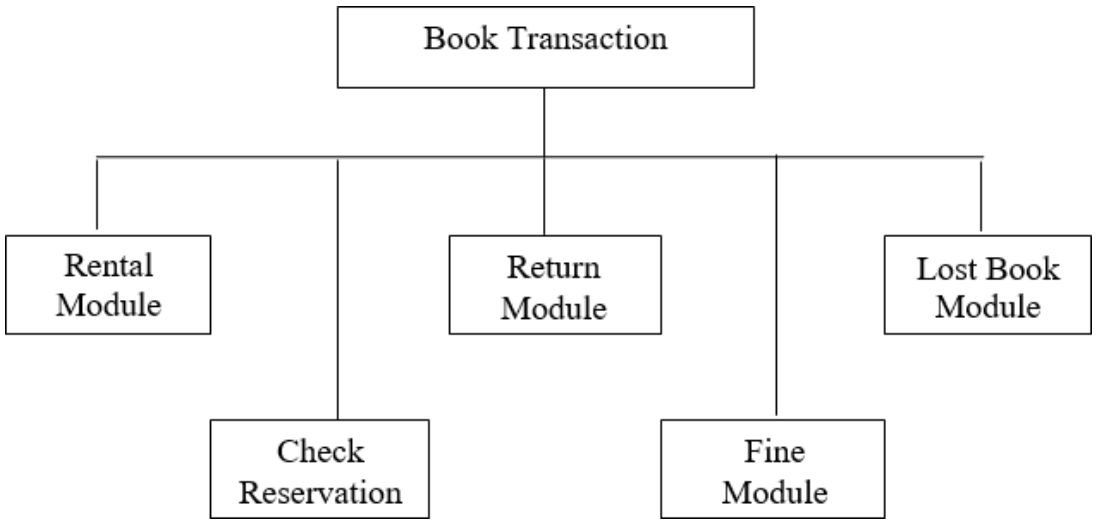
Top10 Report is the top rental rate's book. Admin can filter the information based on book's category and also filter by date in type of daily, monthly and yearly.

Activity Log File is a log which records every process in the Library Management System such as login / logout activity, register new book, new member or edit information or a member. All the activity done by every user will be record so that when system crash, admin or system admin are able to check the activity that may crash the system.

➢ 2.2.6 Module 5: **Book Transaction Module**

Book Transaction module is a main module in Library Management System. When member wants to borrow books, return books or they want to register lost book, it is all under book Transaction module. This module can be accessed by normal user or admin user. When member wants to borrow a book, librarian needs to scan in their member id. After that, librarian will scan their book's barcode id. If the book is under reservation, the book is not available to rent.

For return module, librarian just needs to scan the book's barcode id, and confirm the rental detail with user. If the rental detail is correct, return module can be complete if no any fine issued.



User Characteristics

Users of the website are members, librarians and the administrators who maintain the website. Members and librarians are assumed to have basic knowledge of computers and Internet browsing. Administrators of the system should have more knowledge of internal modules of the system and are able to rectify small problems that may arise due to disk crashes, power failures and other catastrophes. Friendly user interface, online help and user guide must be sufficient to educate the users on how to use this product without any problems or difficulties

General Constraints

- The information of all users, books and libraries must be stored in a database that is accessible by the website.
- MS SQL Server will be used as SQL engine and database.
- The Online Library System is running 24 hours a day.
- Users may access WLMS from any computer that has Internet browsing capabilities and an Internet connection.
- Users must have their correct usernames and passwords to enter into their online accounts and do actions.

Assumptions and Dependencies or Business Logic

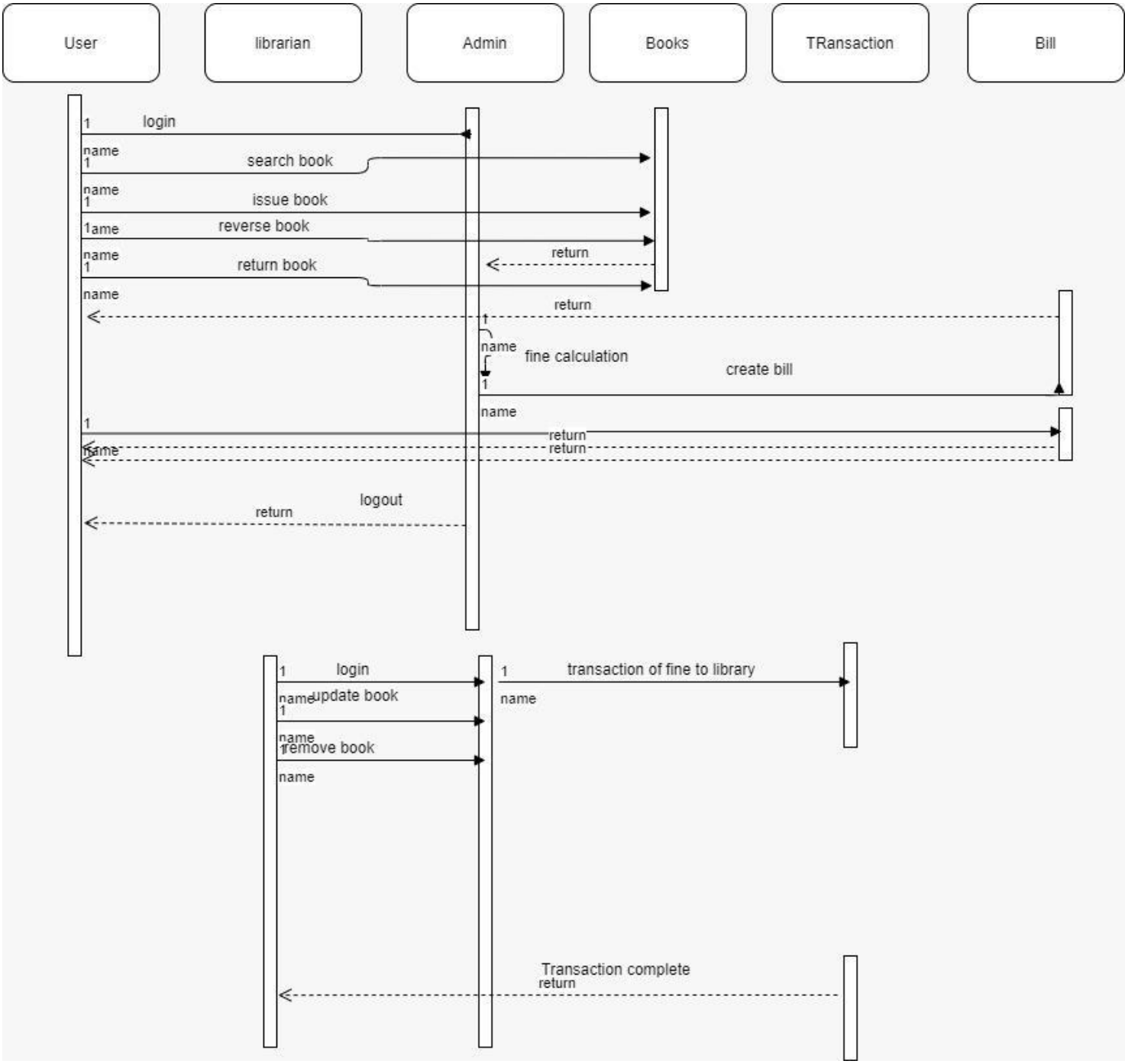
The assumptions are:-

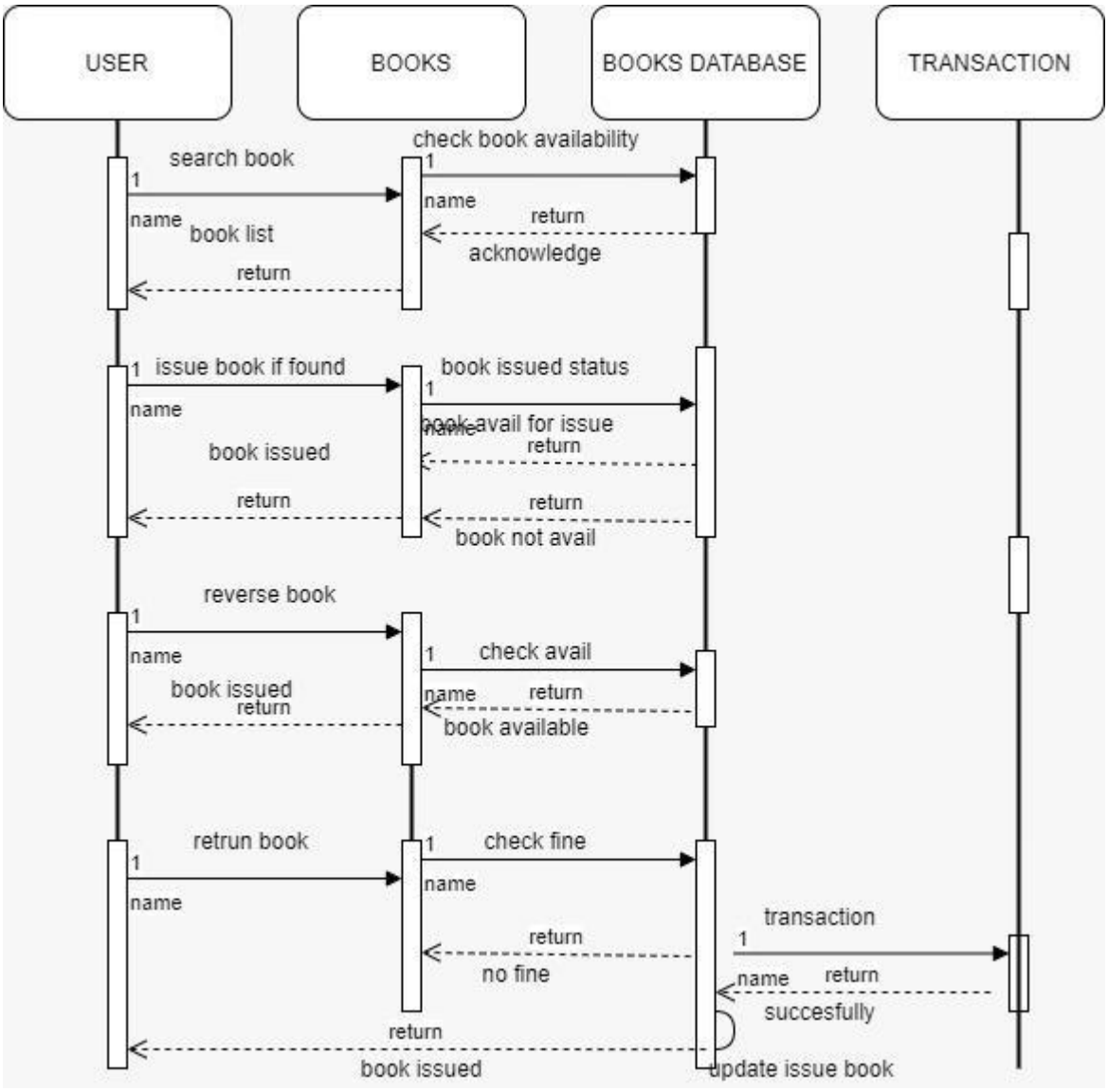
- The coding should be error free
- The system should be user-friendly so that it is easy to use for the users
- The information of all users, books and libraries must be stored in a database that is accessible by the website
- The system should have more storage capacity and provide fast access to the database
- The system should provide search facility and support quick transactions
- The Library System is running 24 hours a day
- Users must have their correct usernames and passwords to enter into their online accounts and do actions

The dependencies are:-

- The specific hardware and software due to which the product will be run
- On the basis of listing requirements and specification the project will be developed and run
- The end users (admin) should have proper understanding of the product
- The system should have the general report stored
- The information of all the users must be stored in a database that is accessible by the Library System

- Any update regarding the book from the library is to be recorded to the database and the data entered should be correct




USER
BOOKS
BOOKS DATABASE
TRANSACTION
check book availability
search book
1
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book list
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acknowledge
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issue book if found
book issued status
book avail for issue
book issued
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return
return
book not avail
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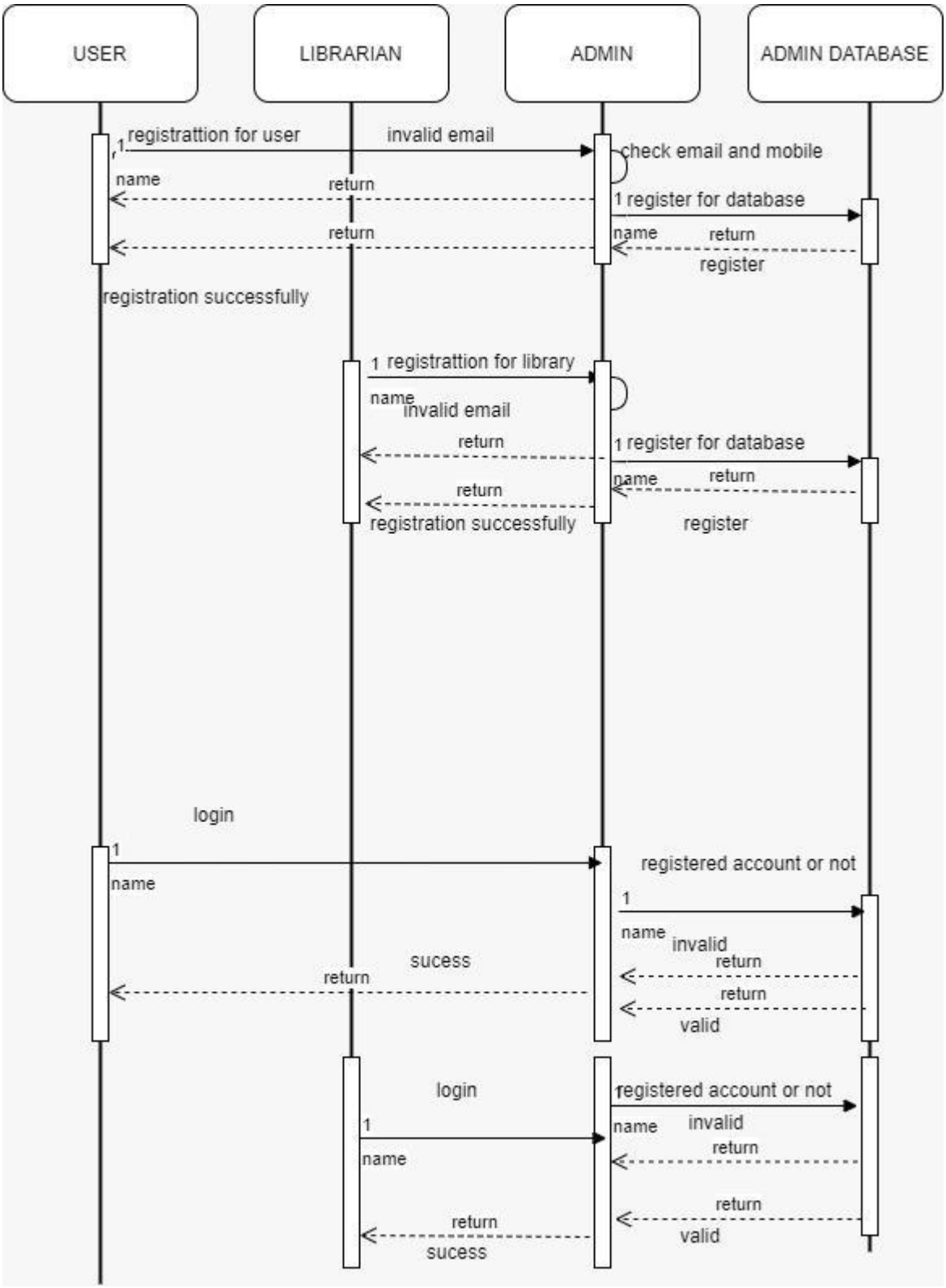
USER
LIBRARIAN
ADMIN
ADMIN DATABASE
registrattion for user
invalid email
check email and mobile
name
return
register for database
return
name
return
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invalid email
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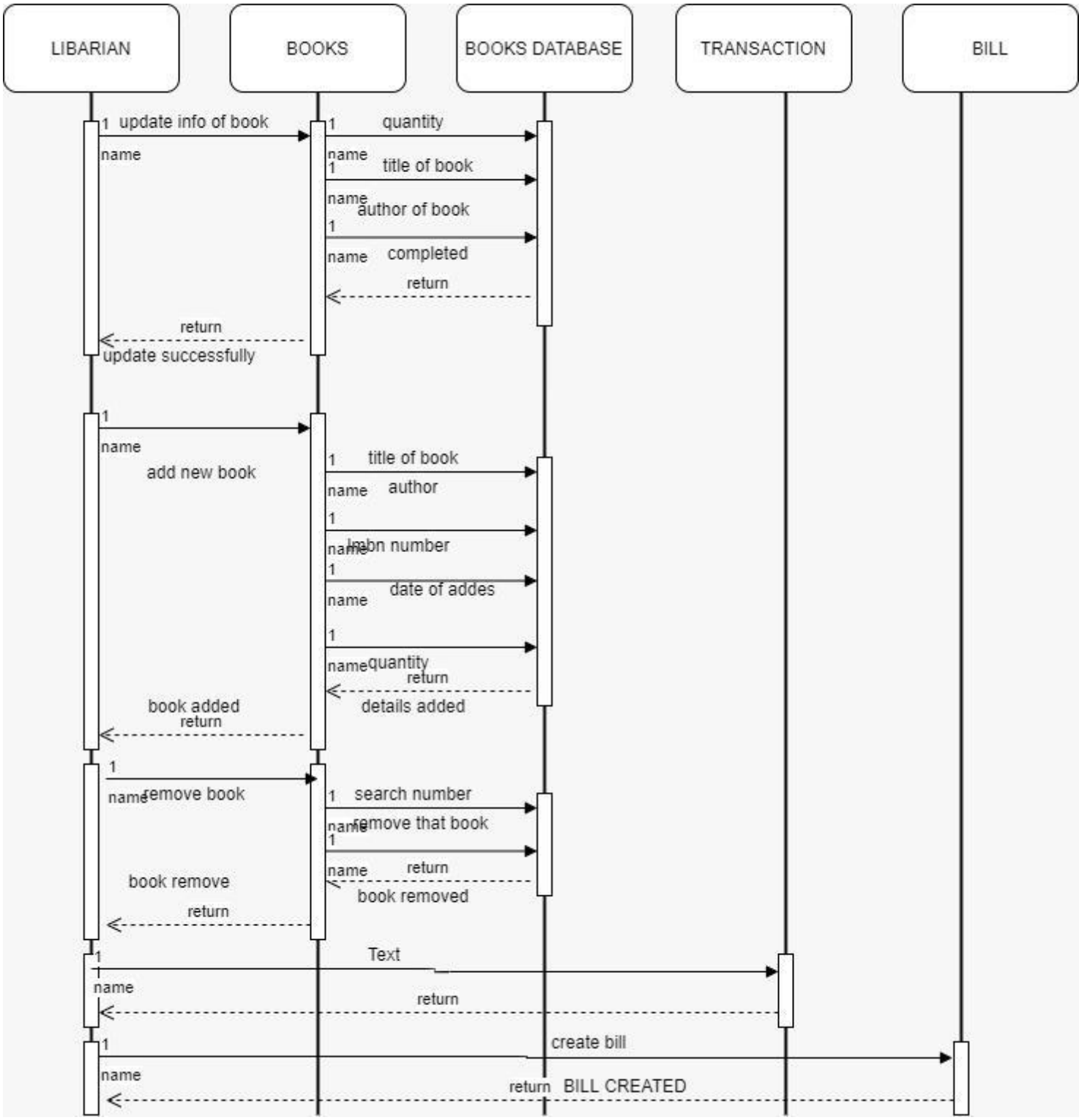
LIBARIAN
BOOKS
BOOKS DATABASE
TRANSACTION
BILL
1 update info of book
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1 quantity
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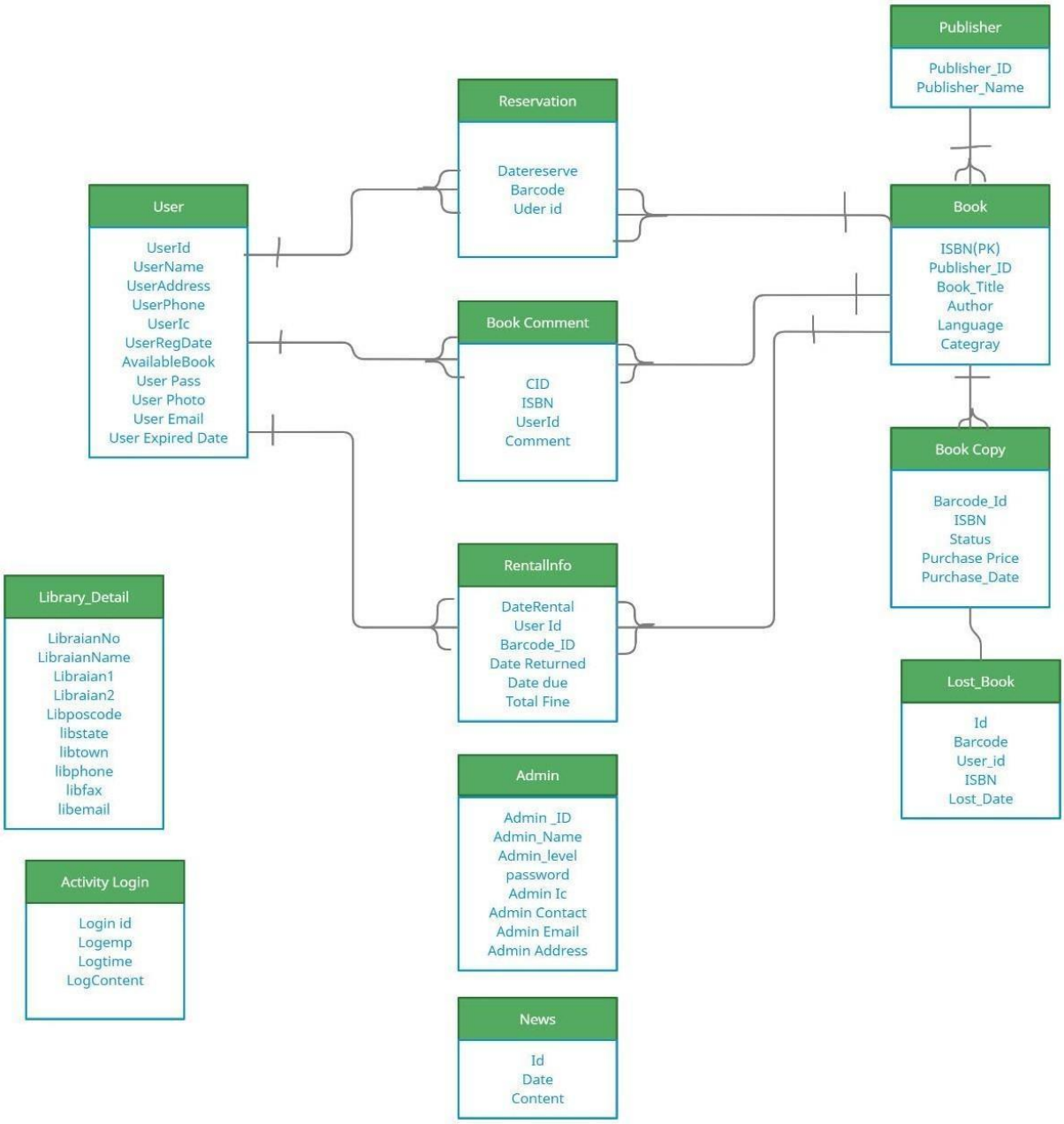
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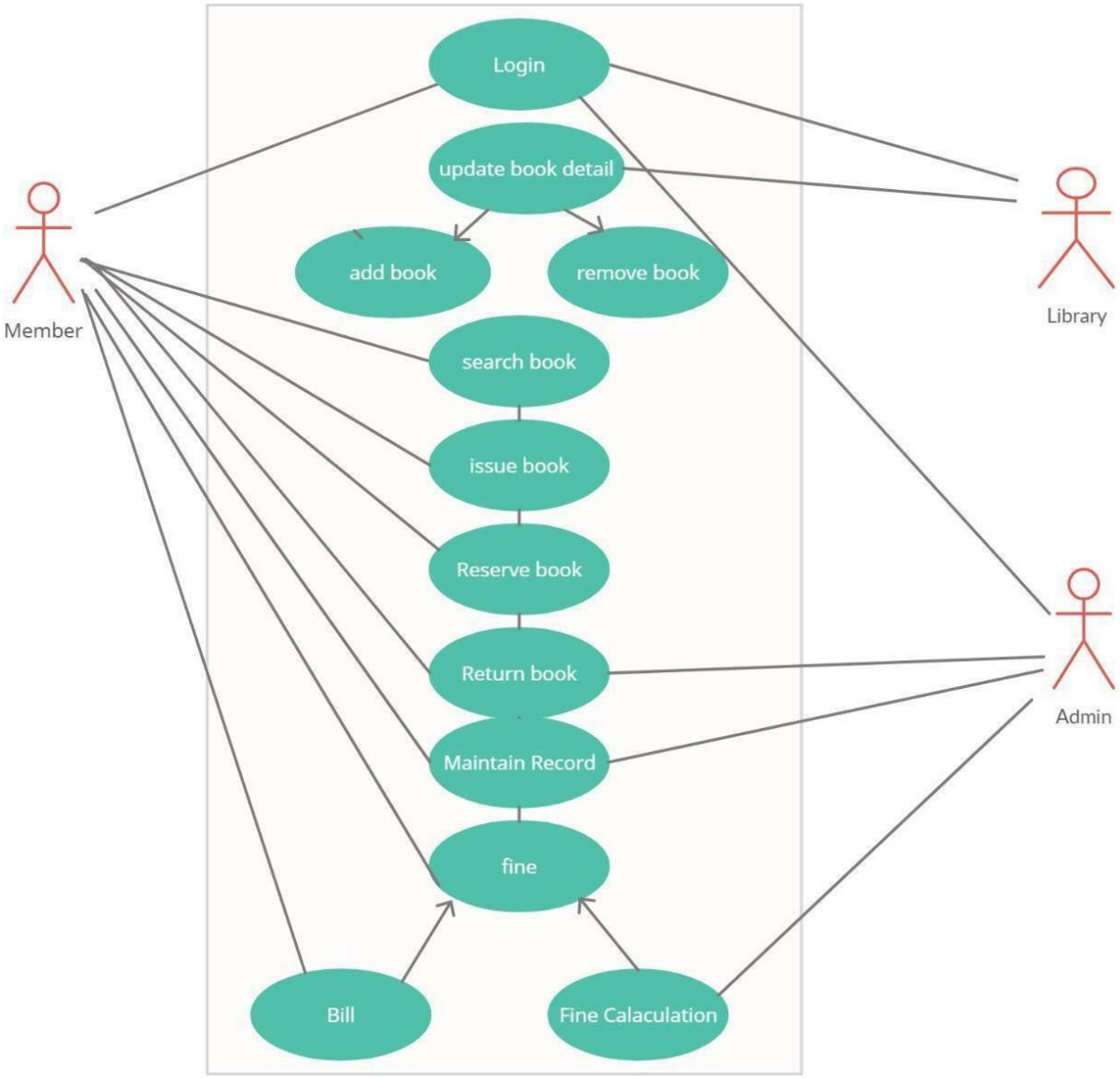
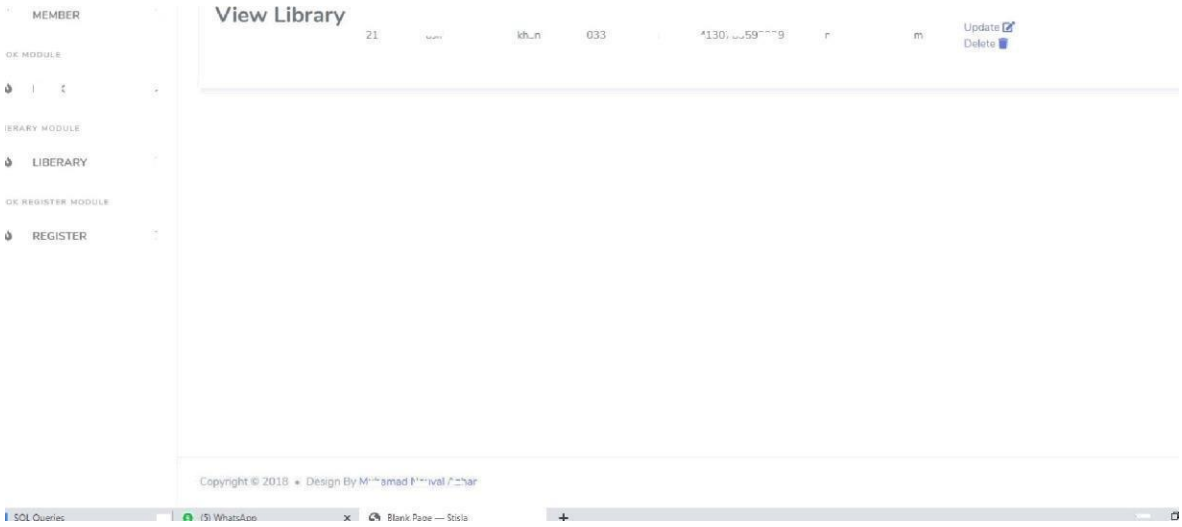


3. Specific Requirements

External Interface Requirements

User Interfaces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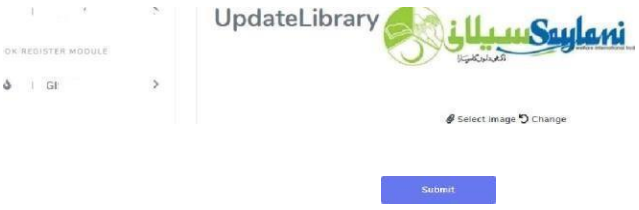
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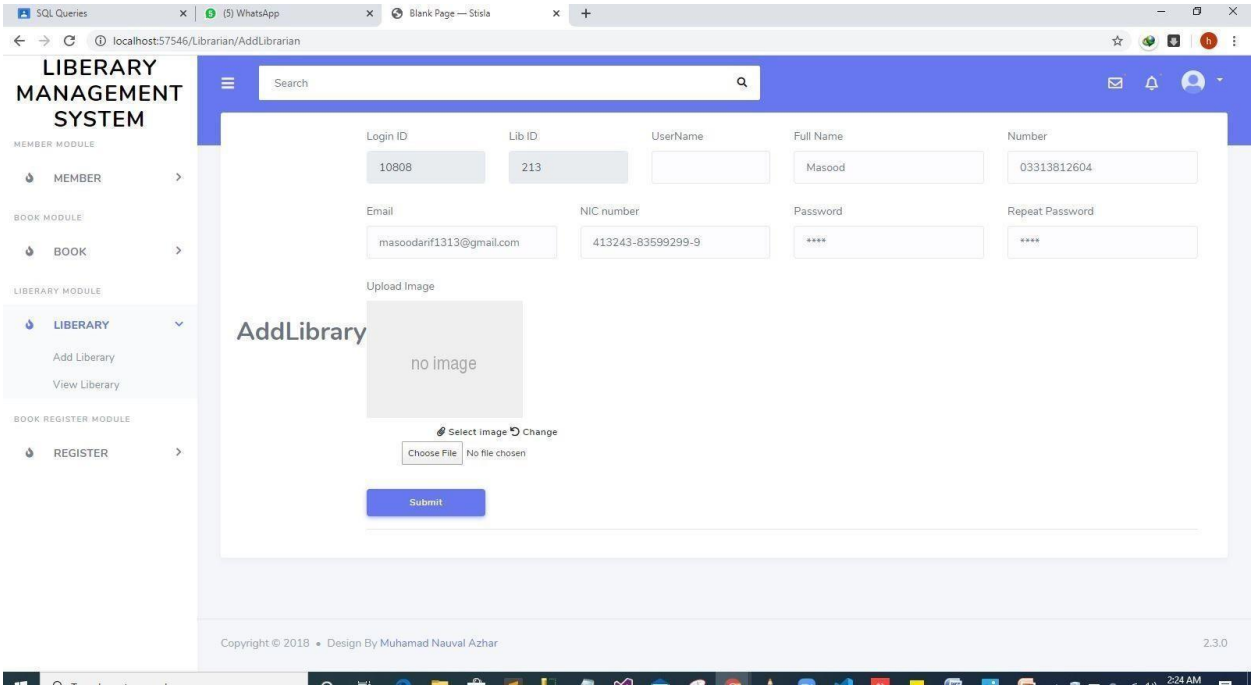


Hardware Interfaces

Intel core i5 2nd generation is used as a processor because it is fast than other processors an provide reliable and stable and we can run our pc for longtime. By using this processor we can keep on developing our project without any worries.

Ram 1 gb is used as it will provide fast reading and writing capabilities and will in turn support in processing.

Software Interfaces

Operating system- Windows 7 is used as the operating system as it is stable and supports more features and is more user friendly

Database MYSQL-MYSQL is used as database as it easy to maintain and retrieve

records by simple queries which are in English language which are easy to understand and easy to write.

Development tools and Programming language- HTML is used to write the whole code and develop webpages with css, java script for styling work and php for sever side scripting.

Standards Compliance

There are no design constraints that can be imposed by other standards limitations.

Software Limitations

- must be able to run Internet Explorer or google chrome browsers to access the system.

- must have cell-phone web based capability to access the system from a mobile phone.

Hardware Limitations

- Input/Output: One or two-button mouse, keyboard, cell-phone, or touch screen required.
- Network card required at thin-client terminals to make communication with server possible.

Quality Characteristics

There are a number of quality characteristics that apply to the ARRS software system.

Portability

The ARRS system will be developed using HTML and c# so that it can be accessed from any type of system using just a regular web browser. It will also be available to users that have web access on their cellular phones. The system will be tested on all types of hardware before being released to ensure that is it compliant with this requirement.

Reliability

The system should be capable of processing a given number of reservations within a give time frame with no errors and the system should be available and operational all the time. During the development of the prototype for the 3 cities, the system will be tested in its actual environment to ensure that it can handle the load of reservations that occur during a regular workday.

Usability

The ARRS system will be developed so that it is an easy to use system that requires the least amount of user input possible. Every input will be validated. The user should only have general computer use knowledge. Error messages will be displayed if the user enters an invalid value or tries to access a function without the required permissions. An easy and well-structured user manual will be provided to the CRM and the system will include descriptive help for all operations allowed.

Correctness

The ARRS system will be considered correct when the CRM approves the prototype presented and agrees that all the functions they require are implemented as stated in the Software Requirements Specification.

Flexibility

The ARRS system should be developed in such a way that it is easily customizable. If new functions are required by CRM, there will be little effort required to update the system to support new cities or new transactions.

Security

Security All the information in the library database and the transaction is secured, authentication is provided to all the users , only authenticated users can use the system.

Maintainability

The ARRS source code will be kept well structure and documented so that it is easier to maintain and extend the system. All changes to the system shall be documented.

Other Requirements

Certain requirements may, due to the nature of the software, the user organization, etc., be placed in separate categories such as those below.

Data Base

Database is the storage device, in which the application information will be stored in database. The information is normalized in the form of tables. The main entity of the storage are mentioned below

- **o Member/ Admin Information**
- **o Book Information**
- **o Book Transactions**
- **o Audit Log**

Figure 5: Entity Diagram

The following are the requirements for these databases that are to be developed as part of the product. They include:

Reservation Database

Types of information	Schedule information for the trains, including date, time, departure city, destination city, ticket cost and ticket availability for a particular train
Frequency of use	Depends on the passenger demand, which may reach 25,000 per day during peak periods
Accessing capabilities	The database should allow access to at least 1,000 people at once; the users will have a general access to the information about the train

	schedule, and a secure access to the reports (available only to CRM officials) using a username and a password
Data element and file descriptions	To be determined
Relationship of data elements, records and files	To be determined
Static and dynamic organization	To be determined
Retention requirements for data	Train schedule information will be available as long as the train for a particular route is in use and at least one year after the train has been cancelled. The reports information will be available at least for 5 years

Passenger Account Database

Types of information	Passenger account information including their name, address, phone numbers, last reservations, balance owed, credit card number (if they paid by a credit card)
Frequency of use	Depends on the passenger demand, which may reach 25,000 per day during peak periods
Accessing capabilities	The database should allow access to at least 500 people at once; the users will have a secure access to the database using a username and a password
Data element and file descriptions	To be determined
Relationship of data elements, records and files	To be determined
Static and dynamic organization	To be determined
Retention requirements for data	Passenger account will be available for as long as a passenger is using the account, and at least for 6 month since the passenger logged on last time.

Operations

The normal operations required by the user can be viewed as the following:

User-initiated Operations:

These operations include the login operation, which is initiated by the users. Also, the process of becoming a new user is in this category. Building, changing, and

viewing itineraries, as well as paying for the itinerary are all initiated by the users. The user initiates the report generation activity, as well as changing train schedules.

Interactive Operations and Unattended Operations:

The users initiate all the operations mentioned above, and almost all of them are somehow interactive. Displaying the train schedule is non-interactive. The report display is a non-interactive operation, although selecting the desired reports will require user input.

Data Processing Support Functions:

The user account data is used to create new accounts, as well as to validate user id's during login functions. For building itineraries, user input, user account data, and train schedule data are used, and processed. User data along with final results of user interaction (whether the user purchased a trip, number of tickets bought, etc.) are collected, and used for report generation purposes. Administrative users' inputs are collected in order to modify and present schedules.

Backup and Recovery Operations:

Both databases used (passenger account database and reservations database) are production databases. The main operation used for the backup and recovery is Oracle's built-in cold backup, which is also known as the "archive mode".

Depending on the customer's needs and budget, additional redundancy can be added using systems like RAID 5 and tape backup.

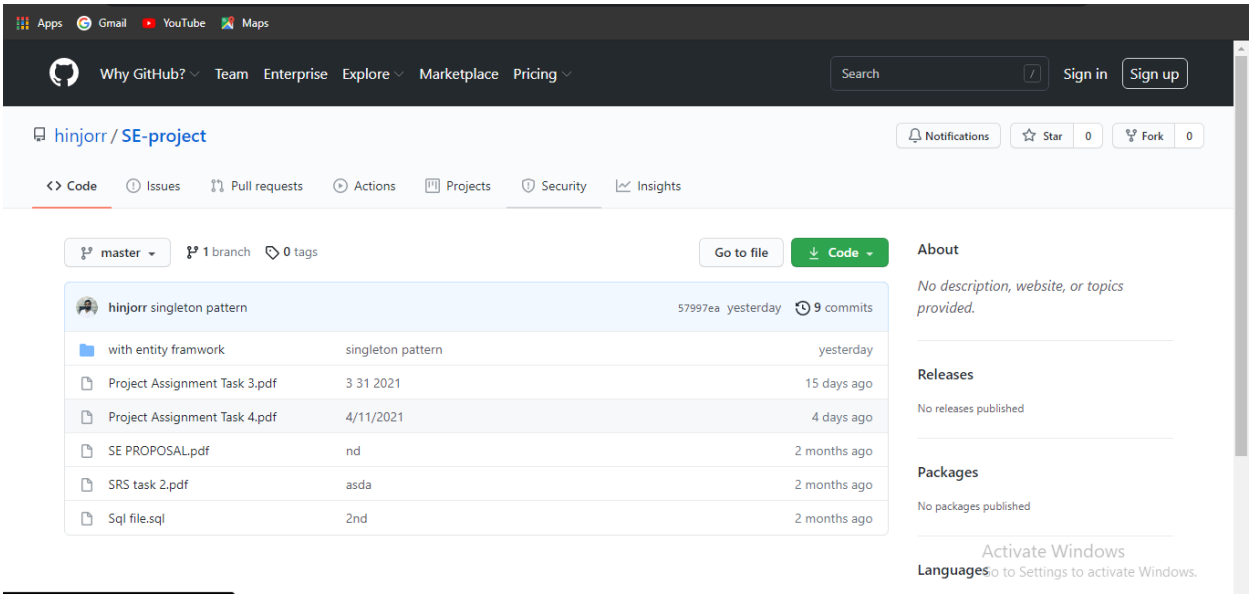
Site Adaptation Requirements

There are no site adaptation requirements for this project.

4. Supporting Information.

There is no supporting information required for this project.

<Copy and Paste your github by Member 1 here>



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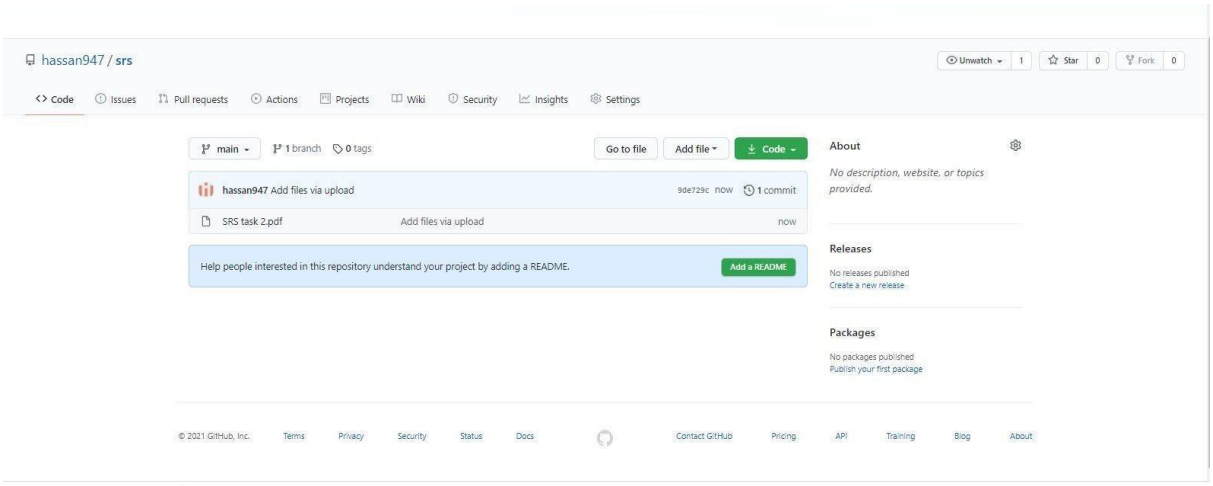

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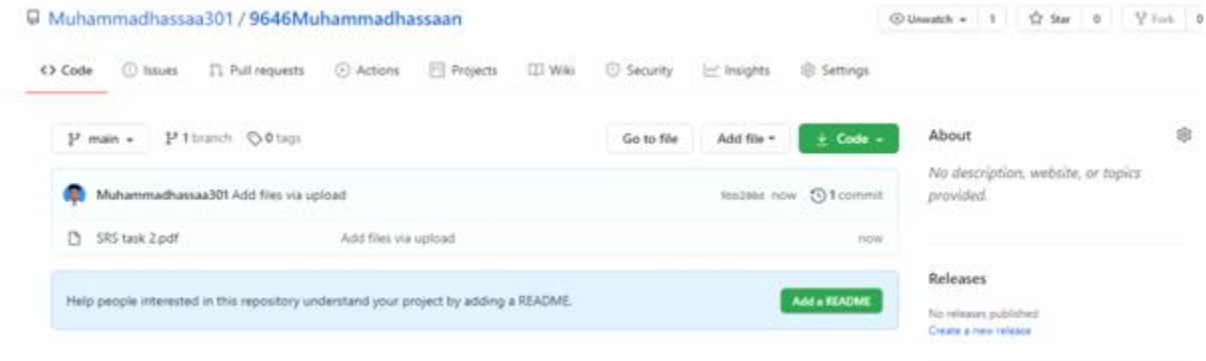

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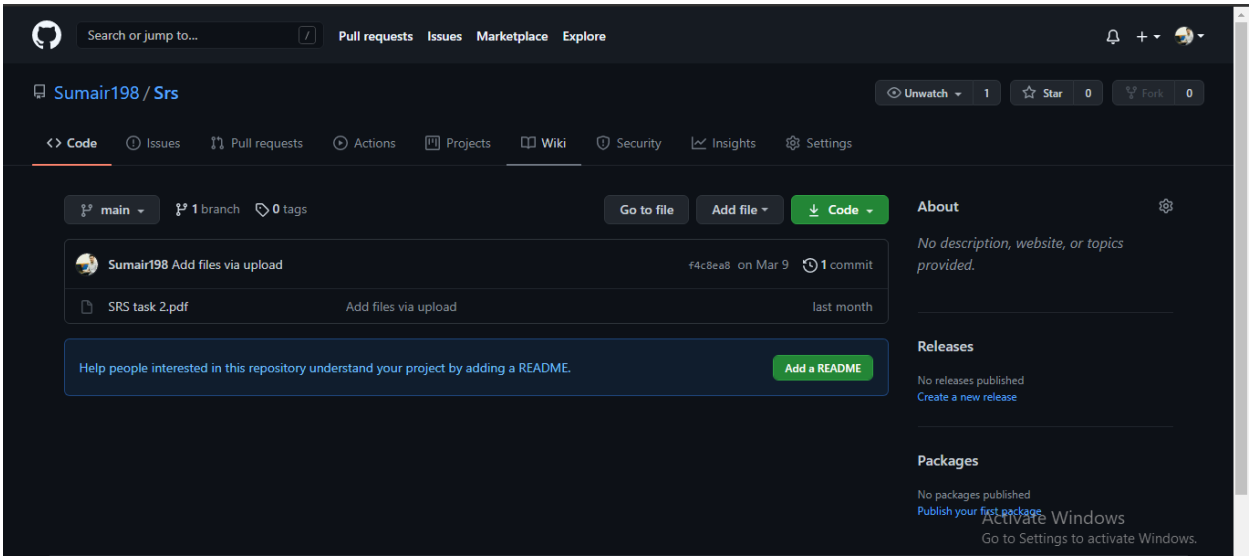

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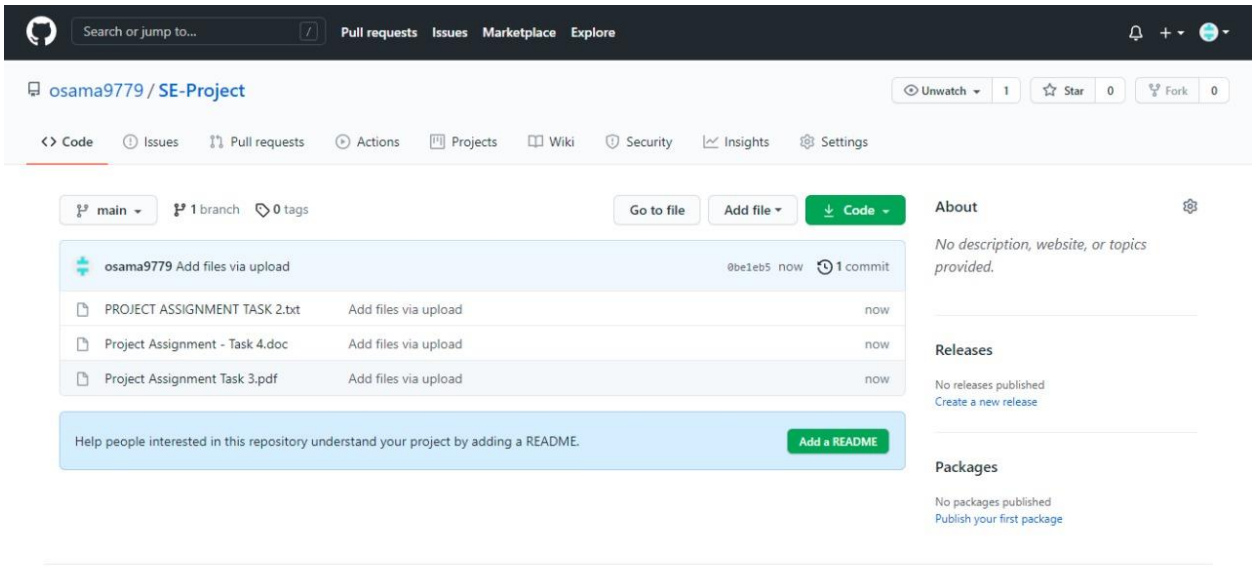

3. PROJECT MANAGEMENT AND RISK MANAGEMENT

<Copy and Paste PMP document by Member 1 here>

https://github.com/hinjorr/SE-project

Form PM - 01

Project Management Plan/Charter

By: Masood Arif 9763

PROJECT MANAGEMENT PLAN TEMPLATE

Release #: 3rd

Project Manager: Masood Arif

Approvals:

Masood Arif_____ _____

Project Manager **Prime Contractor Manager - (if applicable)**

School Library_____ **Sumair & team**

State Organization Management **User Management**

_____ _____

Oversight Manager - (if applicable)

Accounts_____ _____

Department of Finance ***Other:***

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

1. Project Summary

Information in the project summary areas was started during the project concept phase and should be included here.

Project Name:	***Library Management System***	***Start Date:***	***25/3/2021***
State Organization::	***PAF-KIET***	***Submitted by:***	***masood***
Prime Contractor:	***Dr. Umema hani***	***Date Awarded:***	***2/March/2007***
Current Stage of Project:	***Software Development Life Cycle (SDLC) – SPIRAL Model***		

Project is On Schedule:	***Yes:*** ☝ ***No:*** ***Details: the project build was based on the schedule of completion of 4 months' duration in the 25% average on per month.***	***Project is within Budget:***	***Yes:*** ☝ ***No:*** ***Comments: The project has 6 lakhs budget.***

Please answer the following questions by marking "Yes" or "No" and provide a brief response as appropriate			***Yes***	***No***
Is this an updated Project Plan? If so, reason for Update: Yes_____				
Budget for project by fiscal year and is project funded? If so, for what amount(s) and period(s):				
Budget Amount:	Year:2021	Funded?	**yes**	____
Budget Amount:	Year: 2022	Funded?	____	**no**
Budget Amount:	Year: 2023	Funded?	____	**no**
Total Budget:				

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

Project Summary - Continued

Points of Contact

This should be the list of individuals that will be involved with the project during the execution phase.

Position	Name/Organization	Phone	E-mail
Project Manager	**Masood arif**	**7898181480**	**Masoodarif1313@gmail.com**
Senior Management Sponsor	**Sumair ul haq**	**47348734**	**sumairk198@gamil.com**
Senior Technical Sponsor	**Hassan Habib Khan**	**938939389**	**Hassanhabib356@hotmail.com**
Procurement Contact	**Initial**		
Customers:	**Students, Member , Faculty**		
Other Stakeholders (Top 3):			

Prime Contractor Information

Company: School Library

Position	Name	Phone	E-mail
Project Manager	**Masood arif**	**09393984908**	**Masood@gmail.com**
Senior Technical Sponsor	**Hassan Habib**	**08768734838**	**Hassan@hotmail.com**
Contracts Contact	**Muhammad Osama / M. Hassaan**	**982818738743**	**-**

2. Project Charter

Business Problem.

All projects start with a business problem/issue to solve.

Library Management System is a term for computer-based system that manage the catalogue of a library. The main purpose of this system is to manage library daily operation efficiently..... It is also created to ensure that the library items are stored properly in order to maintain their security The library management system is a software to manage manual functions of a library. The software helps to manage the entire library operations from maintaining book records to issue a book.

Statement of Work (Goal).

The statement should be short and to the point. It should not contain language or terminology that might not be understood.

This product aims to replace the current manual system with the automated solution. The main system will comprise of 6 major sub-systems or Modules the integration of theses sub-system will form the main system. All the sub-systems will be tightly integrated so as to give unanimity to user. The current client setup does not have any automation. Therefore, every department and the section will be developed from scratch as all departments are currently working manually. In this document we are covering ***"Human resource and payroll System"*** *only.*

1. **Login**
2. **User Authorization**
3. **Book Transaction Module**
4. **Member Maintenance Module**
5. **Publisher Maintenance Module**
6. **Report Module**

2. Project Charter, continued

Project Objectives:

Provide a brief, concise list of what the project is to accomplish.

The primary function of our library is to implement, enrich and support the educational program School. The library provides a wide range of materials at various levels of sophistication with a diversity of appeal and different points of view.. The main divisions of the system are:

1. Authentication user to check Member authentication of l ibrary system
2. Library Management and Book stocks will be maintained (CRUD)
3. Book transaction module is to manage the receiver's data accordingly
4. Publisher maintenance Module to arrange the books sections
5. Member maintenance Module faculty/Students Record
6. Report Module to manage the payment report

This Project is specifically focused over Module 2 and 5

Success Factors:

List factors that will be used to determine the success of the project.

1. Complete deployment of all 4 modules
2. Smooth integration between all systems
3. effacingly error resolve
4. Everything is going according to the plan

Project Dependencies/Constraints:

Project completion is expected in less than 3.5 months duration
All requirements will be 100% available during requirement phase
Maximum team strength 5

3. Project Tradeoff Matrix & Status Summary

Schedule/Time	Scope/Modules	Resources/Effort/People
CONSTRAINED	CONSTRAINED / **ACCEPTED**	CONSTRAINED / Need to be **IMPROVED** (Cocomo effort = 10 not acceptable our constraint is max 5 members in 3.5 months)

Identify variable to be CONSTRAINED, IMPROVED, ACCEPTED

Comments:

Accepted

+/- Status (Review and Progress Meeting)

	Team	Tech	Schedule	Cost	Comment
RM 1	Requirement SRS and Modeling	-/+	-/+	-/+	SRS Submission
RM 2	PMP	Chap 7 and 18 not complete and chap 1/6 complete	Next week (29/3) meeting Ch 1 and 2 done - /+	-/+	PMP Submission
RM 3	Modeling	-/+	-/+	-/+	Done already in SRS
RM 4	Coding and Testing	-/+	-/+	-/+	Testing Report Submission
RM 4	Demo / Deployment	-/+	-/+	-/+	Final Project Report Submission

Discuss:

Legend
+ = Ahead of Schedule
- = Behind Schedule

/ = On Schedule

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

4. Project Organization

Provide an organization chart that defines the person responsible for at least the following functions: project manager, development manager, quality assurance, and configuration management

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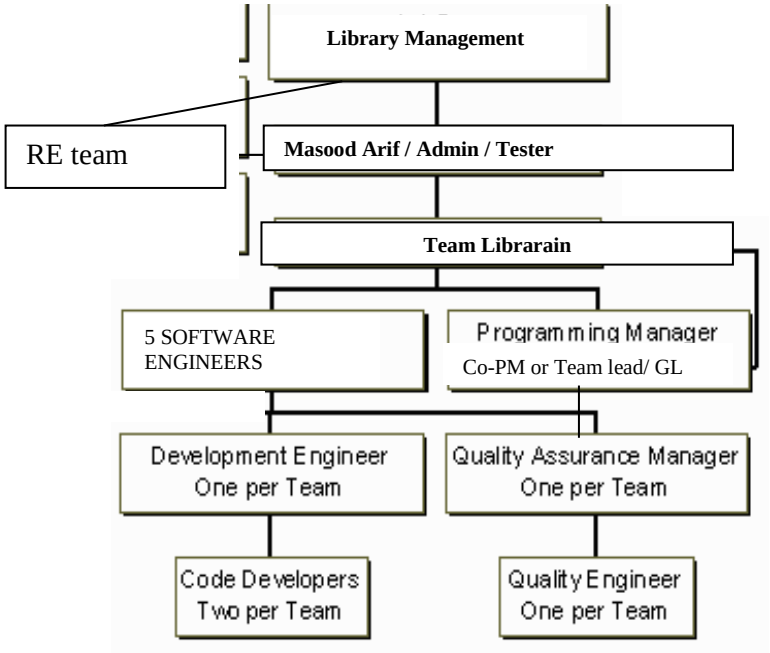
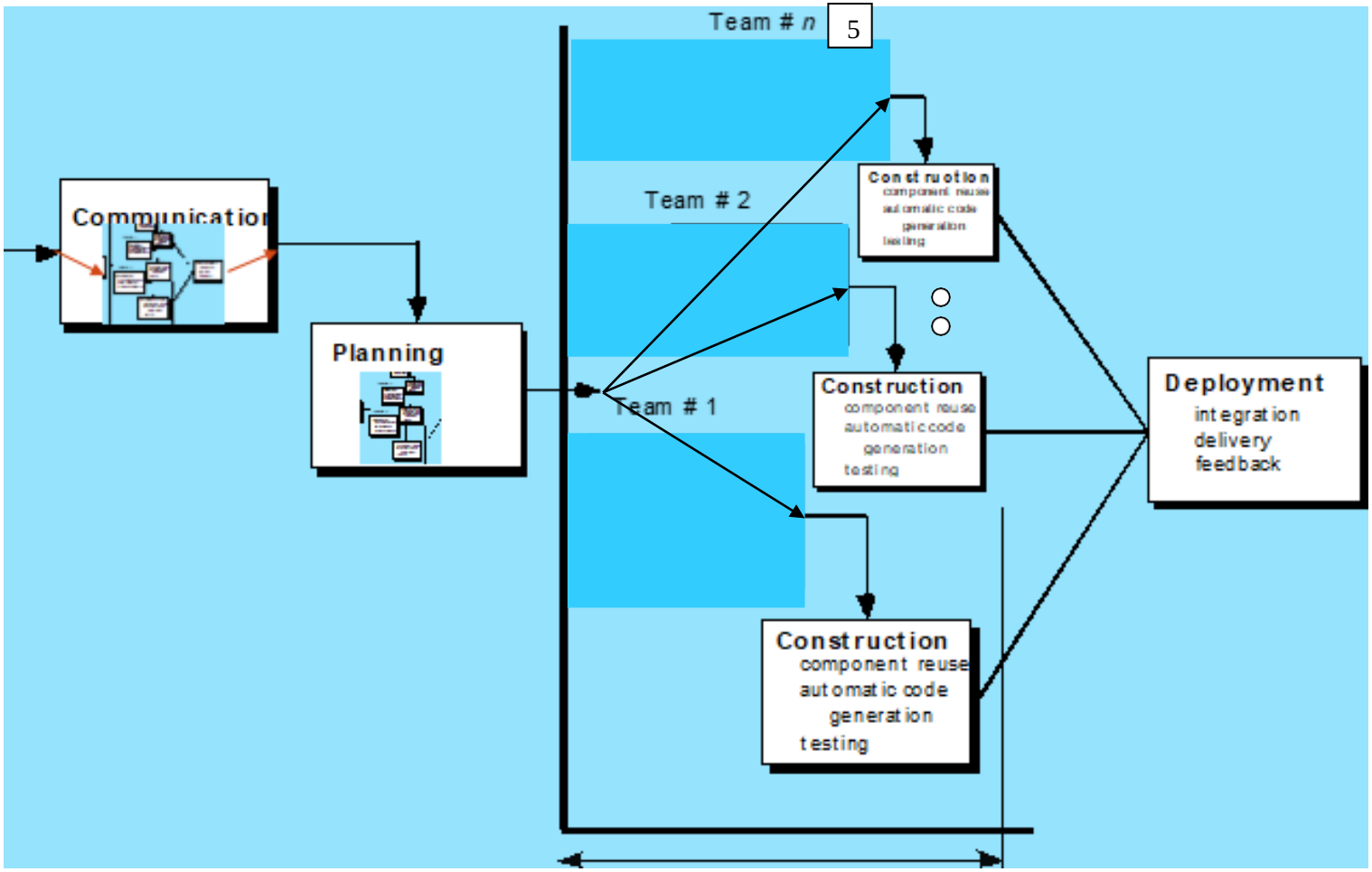


SDLC Process Model:



5. Activity List (Work Breakdown Structure)

Provide an activity list (*work breakdown structure*) *that describes each task required by the project, with a reference to the statement of work. For large projects, work packages might be included that describe in detail how specific tasks will be completed by specific project teams. These work packages describe required schedule, identify requirements to be completed and describe specific work to be performed*

1. First Estimating FP then from it E and S.

Software Size Estimation using Function Point Method

A) Detail of 5 Transaction Types, at most 5 under each category	
	Write down exact Screen or Forms names, or Tables, or Reports name for each count value.
EI	1. Login/User Authorization 2. Book transaction 3. Member Maintenance 4 Publisher Maintenance 5. Report
EO	1. Users table 2. Book Record table 3. Member table 4 publisher table 5. Report table
EQ	1. Search User 2. Book search 3. Member search 4 Search publisher 5. Search report
ILF	1. Login/User Authorization 2.Library Management 3. Member 4 publisher 5.Report
ELF	1. User Authorization Details - 2. Book transaction details - 3. Member Maintenance details - 4. Publisher Maintenance details - 5. Report details -

B) Unadjusted Function Point Value calculation
Definition of Complexities: Your Transactions which are derived from only from 1 Table are to be categorized as Low and if they are derive from 2 tables they can be categorized in Mid-level complexity, and

in case of >= 3 they will be placed under High level of complexity.

	Count for screens of Low level complexity (C)	Multiplier Low level complexity (M)	V1 = C * M	Count for screens of Mid-level complexity (C)	Multiplier Mid-level complexity (M)	V2 = C * M	Count for screens of High-level complexity (C)	Multiplier High-level complexity (M)	V3 = C * M	Category wise sum V1+V2+V3
EI	3	3	9	1	4	4	1	6	6	19
EO	3	4	12	1	5	5	1	7	7	24
EQ	3	3	9	1	7	7	1	6	6	22
ILF	3	7	21	1	0	0	1	15	15	36
ELF	0	5	0	0	7	7	0	10	10	17
								Unadjusted Function Point Value =		**118**

C) Value Adjustment Factor (VAF) calculation

Note: Calculate Value Adjustment Factor, where any 5 "General System Characteristics (GSC) must have a value above 2. Also show respect Quality Characteristic mapping of these 5 factors.

	Quality Characteristic	Weight (0-5)		Quality Characteristic	Weight (0-5)
1.		3	8.		3
2.		2	9.		2
3.		1	10.		4
4.		4	11.		1
5.		5	12.		3
6.		0	13.		2
7.		1	14.		0
Value Adjustment Factor (VAF) = 31					

D) Technology Complexity Factor calculation

TCF = 0.65 + (VAF * 0.01)
= 0.65 +(31*0.01)
= 0.96

E) Adjusted Function Point Value (AFPV) or Function Point Value (FP) Calculation

AFPV = _ Unadjusted Function Point * TCF
= 118 * 0.96
= 113.28

F) Conversion of AFPV in to LOC Size metric

the number of LOCs per FP for C# language 54 and check other languages from https://www.qsm.com/resources/function-point-languages-table, ASP 51 and VB.net 52

Project Size in LOC = AFPV * LOC/FP

Project Size in LOC = 113.28 * 54 = 6117.12 LOC

G) Software Size:
Software Size for COCOMO: 9.763
KLOC Software Type: Business
Model Mode: Cocomo I – Basic – ORGANIC (0 – 50 KLOC)

a) Effort Estimation:
Equation 2.4 * 9.494 ^ 1.05 = E
E = 26.25

b) Schedule Estimation: Equation
2.5 * E ^ 0.4 months
= S S= 2.5 *
26.25^0.4
S = 9.23

c) Productivity Estimation:
Equation Loc/E =
9763/26.25=371.92

d) Average Loading Estimation:
Equation E/S = 26.26/9.23
E/S = 2.84

e) Average Salary of Technical Staff (AS):
Equation Assume = 50,000 RS

f) Cost for Salary (Cs):
Equation E * Avg salary =
Cs
Cs = **26.25***
50000 Cs =

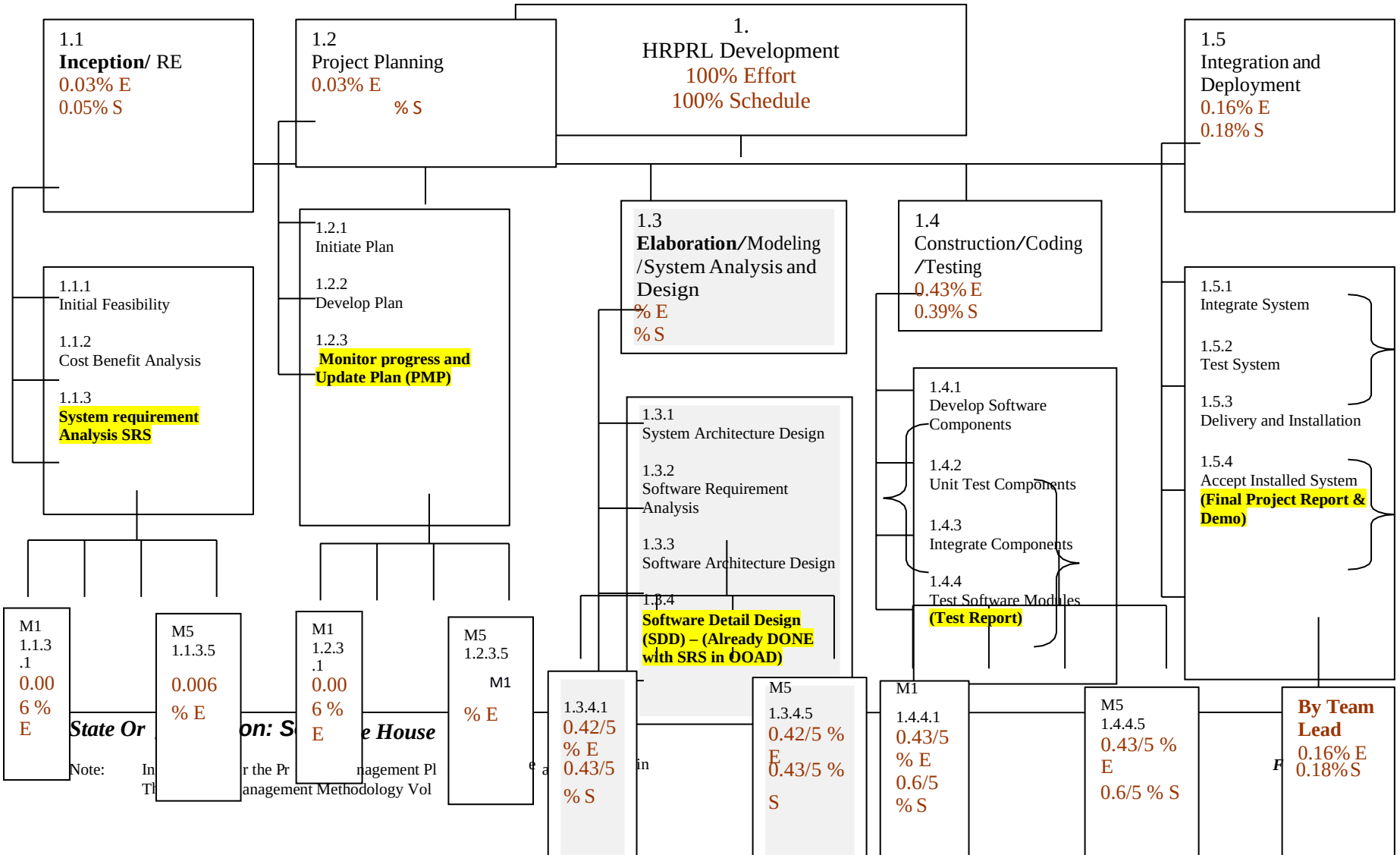
1312500

g) Budgeted Cost of Project (Cb): Equation Cs + Cs * X% = Cb Cb = 3510385 + (2% of 3510385) Cb =3510385 +70207.7 Cb = 3580692.7
G) Software Size: 6117.12 Software Size for COCOMO: 6.117 KLOC Software Type: Business/ Utility/Embedded Model Mode: Cocomo I – Basic – ORGANIC (0 – 50 KLOC) / Semi detached/Embedded
h) Effort Estimation: Equation 2.4 * 6.117 ^ 1.05 = E E = 16.0722

2. Calculate the phase-wise percentage distribution wise E and S values as given in detailed COCOMO detailed model.

H) Distribution of Effort and Schedule among Different phases of SDLC							
E = 70.2077 **S = 13.6928**							
Plan and Requirement		**Modeling / System Design & Detailed Design**		**Module Coding and Unit Testing**		**Integration & Deployment**	
0.06 * E =	0.10 * S =	(0.16+0.26) * E =	(0.19+0.24) S =	0.42 * E =	0.39 * S =	0.16 * E =	0.18 * S =
4.212	1.36928	29.487	5.8879	29.4872	5.3401	11.233	2.464

3. **Now adding percentage distribution as given in detailed COCOMO model in the WBS phase-wise.**



State Or on: S e House

Note: In r the Pr nagement Pl e a in *F*
Th anagement Methodology Vol

4. Now convert WBS contents in a Tabular format in order to make a GANTT CHART.

Activity #	Activity Name	Activity Name Description	# of Days	Start Date	Dependency on previous tasks	Milestone
1.1	**RE**	**Requirement Engineering**	**28**	**24/1/2021**	**none**	**21/2/2021**
1.1.1	**Initial Feasibility**		3	24/1/2021	None	27/1/2021
1.1.2	**Cost Benefit Analysis**	Analysis of cost	3	27/1/2021	None	30/1/2021
1.1.3	**System requirement Analysis SRS**	**Gather info (SRS)**	**6**	30/1/2021	None	5/2/2021
1.1.3.1	System requirement Analysis SRS **for Module 1**	Gather info for module 1	3	5/2/2021	None	8/2/2021
1.1.3.2	System requirement Analysis SRS **for Module 2**	Gather info for module 2	3	8/2/2021	None	11/2/2021
1.1.3.3	System requirement Analysis SRS **for Module 3**	Gather info for module 3	3	11/2/2021	None	14/2/2021
1.1.3.4	System requirement Analysis SRS **for Module 4**	Gather info for module 4	3	14/2/2021	None	17/2/2021
1.1.3.5	System requirement Analysis SRS **for Module 5**	Gather info for module 5	3	17/2/2021	None	21/2/2021
1.2	**Project Planning**	**Project Management Planning**	**16**	**15/3/2021**	**1.1**	**5/4/2021**
1.2.1	Develop plan	Development of project plane	1	**15/3/2021**	**RE**	**16/3/2021**
1.2.2	Implement plan	Implementation of project plane	1	**16/3/2021**	**RE**	**17/3/2021**

1.2.3	Monitor Progress	Take review on each phase	1	**17/3/2021**	**RE**	**18/3/2021**
1.2.3.1	Monitor Progress for module 1	Planning and monitor progress for module 1	1	**18/3/2021**	**RE**	**19/3/2021**
1.2.3.2	Monitor Progress for module 2	Planning and monitor progress for module 2	1	**19/3/2021**	**RE**	**20/3/2021**
1.2.3.3	Monitor Progress for module 3	Planning and monitor progress for module 3	1	**20/3/2021**	**RE**	**21/3/2021**
1.2.3.4	Monitor Progress for module 4	Planning and monitor progress for module 4	1	**21/3/2021**	**RE**	**22/3/2021**
1.2.3.5	Monitor Progress for module 5	Planning and monitor progress for module 5	1	**22/3/2021**	**RE**	**23/3/2021**
1.3	**System architecture design**	**Develop Architecture System Design**	1	**23/3/2021**	**planning**	**24/3/2021**
1.3.1	System requirement	Analysis	1	**24/3/2021**	**Planning**	**25/3/2021**
1.3.2	Software architecture design	Implement Design	1	**25/3/2021**	**Planning**	**26/3/2021**
1.3.3	System detail design	Develop System detail design	1	**26/3/2021**	**Planning**	**27/3/2021**
1.4	**Construct, Coding and Testing**	Implementation of software	1	**27/3/2021**	**1.2**	**28/3/2021**
1.4.1	Develop software Components	Implementation of software	1	**28/3/2021**	**Design**	**29/3/2021**
1.4.2	Unit test components	Implementation of software	1	**29/3/2021**	**Design**	**30/3/2021**
1.4.3	Integrate components	Test for every Module	1	**30/3/2021**	**Design**	**31/3/2021**
1.4.4	Test software Module	Test at end	1	**31/3/2021**	**Design**	**01/4/2021**

1.5	**Integrate and development**	Development of a project	1	**01/4/2021**	**Construction /coding/ testing**	**02/4/2021**
1.5.1	Integrate system	Combine module	1	**02/4/2021**	**Construction /coding/ testing**	**03/4/2021**
1.5.2	Test System	Test all project	1	**03/3/2021**	**Construction /coding/ testing**	**04/3/2021**
1.5.3	Delivery and installation	Installation / Final test after deploy a project	1	**4/4/2021**	**Construction/ coding/ testing**	**5/4/2021**

6. Work Product Identification

Provide a list of all deliverables required by the project, the date due and the person responsible for the deliverable. Pick Last activities from each phase they are deliverables.

Deliverable Name	***Due Date***	***Date Delivered***	***Point of Contact***
SRS by Member 1	21/2/2021	22/2/2021	9760
SRS by Member 2	21/2/2021	21/2/2021	9910
SRS by Member 3	21/2/2021	21/2/2021	9763
SRS by Member 4	21/2/2021	21/2/2021	9646
SRS by Member 5	21/2/2021	21/2/2021	9779
PMP by Member 1	5/4/2021	5/4/2021	9760
PMP by Member 2	5/4/2021	5/4/2021	9910
PMP by Member 3	5/4/2021	5/4/2021	9763
PMP by Member 4	5/4/2021	6/4/2021	9646
PMP by Member 5	5/4/2021	5/4/2021	9779

7. SCHEDULE

Provide the project schedule, using a Gantt chart. The schedule must include milestones, task dependencies, task duration, work product delivery dates, quality milestones (reviews/audits/inspections), configuration management milestones, and action items (with deadlines and responsibilities).

	Task Name	Work	Duration	Start	Finish	Details	S
18	**Design**	**120 hrs**	**14.5 days**	**Mon 1/26/04**	**Fri 2/13/04**	Work	
19	Review preliminary software specifications	16 hrs	2 days	Mon 1/26/04	Wed 1/28/04	Work	
	Analyst	*16 hrs*		*Mon 1/26/04*	*Wed 1/28/04*	Work	
20	Develop functional specifications	40 hrs	5 days	Wed 1/28/04	Wed 2/4/04	Work	
	Analyst	*40 hrs*		*Wed 1/28/04*	*Wed 2/4/04*	Work	
21	Develop prototype based on functional specifications	32 hrs	4 days	Wed 2/4/04	Tue 2/10/04	Work	
	Analyst	*32 hrs*		*Wed 2/4/04*	*Tue 2/10/04*	Work	
22	Review functional specifications	16 hrs	2 days	Tue 2/10/04	Thu 2/12/04	Work	
	Management	*16 hrs*		*Tue 2/10/04*	*Thu 2/12/04*	Work	
23	Incorporate feedback into functional specifications	8 hrs	1 day	Thu 2/12/04	Fri 2/13/04	Work	
	Management	*8 hrs*		*Thu 2/12/04*	*Fri 2/13/04*	Work	
24	Obtain approval to proceed	8 hrs	4 hrs	Fri 2/13/04	Fri 2/13/04	Work	
	Management	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
	Project manager	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
25	Design complete	0 hrs	0 days	Fri 2/13/04	Fri 2/13/04	Work	
26	**Development**	**264 hrs**	**21.75 days**	**Mon 2/16/04**	**Tue 3/16/04**	Work	
27	Review functional specifications	8 hrs	1 day	Mon 2/16/04	Mon 2/16/04	Work	
	Developer	*8 hrs*		*Mon 2/16/04*	*Mon 2/16/04*	Work	
28	Identify modular/tiered design parameters	8 hrs	1 day	Tue 2/17/04	Tue 2/17/04	Work	
	Developer	*8 hrs*		*Tue 2/17/04*	*Tue 2/17/04*	Work	
29	Assign development staff	8 hrs	1 day	Wed 2/18/04	Wed 2/18/04	Work	
	Developer	*8 hrs*		*Wed 2/18/04*	*Wed 2/18/04*	Work	
30	Develop code	120 hrs	15 days	Thu 2/19/04	Wed 3/10/04	Work	
	Developer	*120 hrs*		*Thu 2/19/04*	*Wed 3/10/04*	Work	
31	Developer testing (primary debugging)	120 hrs	15 days	Tue 2/24/04	Tue 3/16/04	Work	
	Developer	*120 hrs*		*Tue 2/24/04*	*Tue 3/16/04*	Work	
32	Development complete	0 hrs	0 days	Tue 3/16/04	Tue 3/16/04	Work	
33	**Testing**	**280 hrs**	**48.75 days**	**Mon 2/16/04**	**Thu 4/22/04**	Work	
34	Develop unit test plans using product specifications	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	
	Testers	*32 hrs*		*Mon 2/16/04*	*Thu 2/19/04*	Work	
35	Develop integration test plans using product specifica	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	

Work Packages, Tasks & Activities		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
Concept Exploration	Internal Case Study												
	Communicate with CRM												
Initial Project Plan	SPMP Pass #1												
	Review by CRM												
	SPMP Pass #2												
Travel & Orientation	Meeting with CRM Representatives												
	Meeting with 26 programmers												
	Recruiting into Organizational Chart												
	OOP Training												
Initial SRS	SRS Pass #1												
	Prototype 1 (Screens)												
	SRS Review by Team												
Final SPMP	Pass #3												
Final SRS	SRS Review as per SPMP												
	SRS Submission to CRM												
Design	High level Design												
	High Level Review												
	Prototype 2												

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

	Detail Level Design												
	Detail Level Review												
	Prototype 3												
System Construction	Source Code & Executable Program												
	Review by CRM												
System Verification & Validation	Testing Summary Report												
	Review by CRM												
	Customer Acceptance Feedback												
System Delivery	System Delivery & Maintenance												

8. Estimated Cost at Completion

Provide an estimated cost at completion, which is an assessment of the total effort at completion of the contract.

		Analysis in Hours					*Analysis in Dollars*				
WBS No.	***Activity Description***	***Budget Hours***	***Actual Hours***	***Est. to Complete remaining work***	***Est. @ Complete of project***	***Variance (+ = More)***	***Budget $***	***Actual $***	***Est. to Complete***	***Est. @ Complete***	***Variance (+ = More)***
				A+ @	***@ = B-A***	***a-b/a***					

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

9. Resource Loading Profiles - Staffing

Provide a staffing plan that shows the number of personnel, by type, that will be required on the project on a monthly basis.

Organization	**Liaison- interfaces**	**Contact Information**
Customer: APMM	Masood	872874287
Subcontractor: None	Hasssa Habib	87287427887
Software Quality Assurance: CRM	Sumair ul haq	873873879838
Software Configuration Management: Team 2	Muhammad Hassaan	8234874387837
Change Control: Team 2	M . Osama	7367439743889

Role	**Description**	**Person**
Project Leader	Leads project team; responsible for project deliverables	Masood Arif
Project Management Team/Analysts	Assisting in building SPMP, SRS and prototype, as well as doing the necessary requirement and risk analysis for the project	Hasssa Habib Sumair ul haq
Project Development Manager	Leads Chinese software developers; responsible for project deliverables	Muhammad Hassaan M .Osama
Programming Manager	Responsible for the communication between the Management Team and the rest of the software development team; the Programming Manager is also responsible for reallocating the human resources and equipment of the project.	Masood Arif

Software Managers	Responsible for managing the team of 7 people; does the design of the software; after reviewing reports from Test Engineer decides whether code needs to be sent back to Development Engineer for improvement or to be send to Quality Assurance Manager for quality assurance phase	Hassan Habib
Development Engineers	Responsible for designing of software and distributing work among Code Developers	Sumair ul haq
Code Developers	Responsible for writing programming code	Masood Arif
Test Engineer	Responsible for testing and validation process in his/her team; leads Test Technician in the testing process and reports the results of the testing process to the software manager	Masood Arif
Test Technician	Performs the testing and validation procedure; reports found errors to Test Engineer	Muhmmad Osama
Quality Assurance Manager	Responsible for quality assurance; reports to Software Manager and Project Development Manager	Sumair ul haq
Quality Engineer	Performs quality assurance procedure; reports the results to Quality Assurance Manager	Muhammad Hassaan

10. Project Requirements

Provide a detailed listing of project requirements, with references, to the statement of work, work breakdown structure, and specifications.

No.	Requirement	RFP Reference Not submitted by the client in Adv.	SOW Reference	WBS Task Reference	Specification Reference	Date Completed	Comments/Clarification
1.	**3.1.1 Login**	**N/A**	**1**	**1.1.3.1**	**3.1.1**	**5/4/2021**	**Good**
2.	**3.1.2 Module 1 CRUDS**	**N/A**	**2**	**1.1.3.2**	**3.1.2**	**5/4/2021**	**Improvement**
3.	**3.1.3 Module 2 CRUDS**	**N/A**	**3**	**1.1.3.3**	**3.1.3**	**5/4/2021**	**Nice**
4.	**3.1.4 Module 3 CRUDS**	**N/A**	**4**	**1.1.3.4**	**3.1.4**	**5/4/2021**	**Well performed**
5.	**3.1.5 Module 4 CRUDS**	**N/A**	**5**	**1.1.3.5**	**3.1.5**	**5/4/2021**	**Improvement**
6.	**3.1.6 Module 5 CRUDS**	**N/A**	**6**	**1.1.3.6**	**3.1.6**	**5/4/2021**	**Good**

SOW = Statement of Work

11. Risk Identification

Provide a description of all risks identified for the project. A risk is anything that might detrimentally affect the successful completion of the project if left unaddressed. The contractual, management, and technical risks associated should be identified and assessed as to the probability of the risk occurring, the cost to correct if the risk occurs, the impact of the risk on the project, and the suggested mitigation activities and cost of mitigation.

Risk Worksheet

Last Risk Assessment Date: Prepared by: Hassan Habib Khan

Risk Category/ Event	*Loss Hours*	*Probability*	*Risk Hours*	*Previous Risk Hours*	*Preventive Measures*	*Contingency Measures*	*Comments*
Governance Risk	**120**	**0.8**	**48**	**-**	**Our Lawyer will handle all the situation accordingly.**	**Consult the court or ministers to resolve the issues with government.**	**CRITICAL**
Schedule Risk	**24**	**0.2**	**12**	**-**	**We will have a tight schedule and will make a schedule. According to our schedule project will be completed and deployed before the time.**	**If our schedule is not as per planned we already made our schedule in a way that we will do the development before time, we will utilize that time as well but if we are too behind schedule our developers have to work overtime.**	**MEDIUM**
Operational Risk	**24-48**	**0.5**	**24**	**-**	**Avoid poor implementations and process problems.**	**Our managers will be restricted to overcome problems and start implementing new strategies.**	**LOW**
Software Risk	**24**	**0.3**	**24**	**-**	**Hire professionals. Select the**	**If we faced this type of emergency we will switch the software technology at**	

					appropriate software for development, stable servers and project management. We will use the best and most stable servers for every software to avoid future problems.	**once which is currently in use in our organization. We are already using the best servers so we don't have to worry about that but for the software performance and stability we will use the most talented team of ours to overcome the tie wasted and complete the project fully.**	**MEDIUM**
Staff experience and professionalism .	**24-72**	**0.3**	**48**	**-**	**Our organization hires the junior developers who are under the teams of professional and experienced team leaders. We also have a team of experienced developers which can handle every type of situations and can work under pressure.**	**If we faced some type problems form our staff we will right away send the project to our experienced developers team or in case they are already stuck in a project we will hire a professional which can team up with our junior developer's leader and can finish the work according to schedule.**	**CRITICAL**
Natural Hazard risk	**-**	**0.5**	**-**	**-**	**Natural Hazards are not something that can be predicted or controlled but**	**If the situation is under control there will be no off. If the situation is critical but will be under control in few days we can either work**	

					humans but we have to be prepared for any type of situation. According to our scheduling we want to complete the project before given time so in this case also we can utilize those leftover days. If the situation is like COVID-19's hazard our developers will remotely.	**remotely or take some rest, it all depends on the schedule. But if the situation is critical and we can't predict when it will be under control our teams will work remotely.**	**CAN BE CRITICAL**
Software Performance and Security Risk	**-**	**0.4**	**-**	**-**	**We are using latest and stable technologies but we will still prototype our modules and test the software with huge dummy data and our security team will try to catch the loop holes. Our maintenance team will be ready to handle the panicked situation**	**Software performance is not being compromised form our organization but if we faced this type of situation our maintenance team will right away check the software bugs and our security team will be ready if there something hacking activity detected.**	**MEDIUM**

					accordingly.		
Poor Management	**48-72**	**0.2**	**48**	**-**	**We will hire professionals for our organization who can face any type of situation and can handle the planning of difficult software. Proper strategies and project planning will be made before starting any project and everyone will act according to the plan.**	**Our project managers will be asked to revise the project planning and strategies. If they can't handle the situation we can compromise our management we will right away send project planning to another professional team manager who will work the previous manager to handle the situation with new and better strategies.**	**MEDIUM**
Budget Changes	**48-72**	**0.1**	**60**	**-**	**We will sign the proper legal contract in which every small detail will be mentioned to avoid future difficulties.**	**However, if the client wants to change the budget we will not leave our client but will act accordingly and we have to compromise on development. Old codes will be refactored, there will be no tough schedule and every situation will be handled by juniors.**	**LOW**

General Risk Analysis Comments:

Risk Items	Risk Management Techniques
Personnel Shortfalls	Staffing with top talent, job matching; team building; morale

	building; cross training; pre-scheduling key people
Unrealistic schedules and budgets	Detailed, multi source cost and schedule estimation; design to cost; incremental development; software reuse; requirement scrubbing
Developing the wrong software functions	Organizational analysis; mission analysis; ops-concept formulation; user surveys; prototyping; early users' manuals
Developing the wrong user interface	Task analysis; prototyping; scenarios; user characterization (functionality, style, workload)
Gold Plating	Requirement scrubbing; prototyping; cost-benefit analysis; design to cost
Continuing stream of requirement changes	High change threshold; information hiding; incremental development (defer changes to later increments)
Shortfalls in externally furnished components	Benchmarking; inspections; reference checking; compatibility analysis
Shortfalls in externally performed tasks	Reference checking; pre-award audits; award-fee contracts; competitive design or prototyping team building
Real-time performance shortfalls	Simulation; benchmarking; modeling; prototyping; instrumentation; tuning
Straining computer-science capabilities	Technical analysis; cost-benefit analysis; prototyping; reference checking

Risk Management:

1	Identify the project's top10 risk items
2	Present a plan for resolving each risk item
3	Update list of top risk items, plan, and results monthly
4	Highlight risk-item status in monthly project reviews. Compare with previous month's ranking status
5	Initiate appropriate corrective actions

12. Configuration Management Plan

Provide a configuration management plan that defines the person responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required to conduct CM.

CM Responsibility

Manager:

Additional Staff for CM:

Procedure Reference:

Configuration Items:. Ensure that CM is implemented throughout the project's life cycle.

No.	Item	Comments
1.	analysis	prototyping; early users' manuals
2.	risk item	Present a plan for resolving
3.	ranking status	Highlight risk-item status in monthly project reviews

Ensure that project has a repository for storing configuration items and associated CM records. Briefly describe.

responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required

13. Quality Plan

Provide a quality plan that defines the person responsible for project quality assurance, the procedures that will be used and resources required to conduct quality assurance.

QA Responsibility

Manager:

Additional Staff for QA:

Procedure Reference:

Planned Quality Event: Ensure that QA is implemented throughout the project's life cycle. Dates include QA audits and reviews, design walkthroughs and other project activities that QA staff will participate in.

No.	Item	Comments
1.	Gold Plating	Initiate appropriate corrective actions
2.	Stream	change threshold; information hiding
3.	Shortfalls	cost-benefit analysis; prototyping; reference

Ensure that project has a repository for storing configuration items and associated QA records. Briefly describe.

Ensure that QA audits the baselines and CM activities on a regular basis. Briefly describe

14. Top Five Issues

Provide a list of known issues associated with the project, with proposed or recommended solutions.

Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
Complete Requirement	*Masood Arif*			*Held by the complete RE procedure*
Development Life Cycle	*Hassan habib*			*The modeling procedure of defining sustainability*
Views	*Muhammad Osama*			*The user friendly view should be appropriate defining.*
Error On uploading	*Sumair ul haq*			*The hosting file size nor enough*
Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

15.Action Item Status

Maintain a list of action items, including a description of the item, a point of contact a date by which action should be taken and a description of the action taken to close items.

Action Item #	***Action Item Description***	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
	The Input model	*Sumair ul haq*			*Resolve*
	Contract	*Muhammad Hassan*			*Sustain*

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Project Management Plan:
GI's HRPRL

<Copy and Paste PMP document by Member 2 here>

Form PM - 01

Project Management Plan/Charter

By: Hassan habib khan 9760

State Organization: Software House

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

PROJECT MANAGEMENT PLAN TEMPLATE

Release #: 3rd

Project Manager: Masood Arif

Approvals:

Masood Arif_____ _____

Project Manager **Prime Contractor Manager - (if applicable)**

School Library_____ **hassan & team**

State Organization Management **User Management**

_____ _____

Oversight Manager - (if applicable)

Accounts_____ _____

Department of Finance ***Other:***

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

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3. Project Summary

Information in the project summary areas was started during the project concept phase and should be included here.

Project Name:	***Library Management System***	***Start Date:***	***25/3/2021***
State Organization::	***PAF-KIET***	***Submitted by:***	***hassanhabib***
Prime Contractor:	***Dr. Umema hani***	***Date Awarded:***	***2/March/2007***
Current Stage of Project:	***Software Development Life Cycle (SDLC) – SPIRAL Model***		

Project is On Schedule:	***Yes:*** ☝ ***No:*** ***Details: the project build was based on the schedule of completion of 4 months' duration in the 25% average on per month.***	***Project is within Budget:***	***Yes:*** ☝ ***No:*** ***Comments: The project has 6 lakhs budget.***

Please answer the following questions by marking "Yes" or "No" and provide a brief response as appropriate			***Yes***	***No***
Is this an updated Project Plan? If so, reason for Update: Yes_____				
Budget for project by fiscal year and is project funded? If so, for what amount(s) and period(s):				
Budget Amount:	Year:2021	Funded?	**yes**	____
Budget Amount:	Year: 2022	Funded?	____	**no**
Budget Amount:	Year: 2023	Funded?	____	**no**
Total Budget:				

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

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Project Summary - Continued

Points of Contact

This should be the list of individuals that will be involved with the project during the execution phase.

Position	Name/Organization	Phone	E-mail
Project Manager	**Masood arif**	**7898181480**	**Masoodarif1313@gmail.com**
Senior Management Sponsor	**Sumair ul haq**	**47348734**	**sumairk198@gamil.com**
Senior Technical Sponsor	**Hassan Habib Khan**	**938939389**	**Hassanhabib356@hotmail.com**
Procurement Contact	**Initial**		
Customers:	**Students, Member , Faculty**		
Other Stakeholders (Top 3):			

Prime Contractor Information

Company: School Library

Position	Name	Phone	E-mail
Project Manager	**Masood arif**	**09393984908**	**Masood@gmail.com**
Senior Technical Sponsor	**Hassan Habib**	**08768734838**	**Hassan@hotmail.com**
Contracts Contact	**Muhammad Osama / M. Hassaan**	**982818738743**	**-**

4. Project Charter

Business Problem.

All projects start with a business problem/issue to solve.

Library Management System is a term for computer-based system that manage the catalogue of a library. The main purpose of this system is to manage library daily operation efficiently..... It is also created to ensure that the library items are stored properly in order to maintain their security The library management system is a software to manage manual functions of a library. The software helps to manage the entire library operations from maintaining book records to issue a book.

Statement of Work (Goal).

The statement should be short and to the point. It should not contain language or terminology that might not be understood.

This product aims to replace the current manual system with the automated solution. The main system will comprise of 6 major sub-systems or Modules the integration of theses sub-system will form the main system. All the sub-systems will be tightly integrated so as to give unanimity to user. The current client setup does not have any automation. Therefore, every department and the section will be developed from scratch as all departments are currently working manually. In this document we are covering ***"Human resource and payroll System"*** *only.*

7. **Login**
8. **User Authorization**
9. **Book Transaction Module**
10. **Member Maintenance Module**
11. **Publisher Maintenance Module**
12. **Report Module**

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

6. Project Charter, continued

Project Objectives:

Provide a brief, concise list of what the project is to accomplish.

The primary function of our library is to implement, enrich and support the educational program School. The library provides a wide range of materials at various levels of sophistication with a diversity of appeal and different points of view.. The main divisions of the system are:

7. Authentication user to check Member authentication of l ibrary system
8. Library Management and Book stocks will be maintained (CRUD)
9. Book transaction module is to manage the receiver's data accordingly
10. Publisher maintenance Module to arrange the books sections
11. Member maintenance Module faculty/Students Record
12. Report Module to manage the payment report

This Project is specifically focused over Module 2 and 5

Success Factors:

List factors that will be used to determine the success of the project.

5. Complete deployment of all 4 modules
6. Smooth integration between all systems
7. effacingly error resolve
8. Everything is going according to the plan

Project Dependencies/Constraints:

Project completion is expected in less than 3.5 months duration
All requirements will be 100% available during requirement phase
Maximum team strength 5

7. Project Tradeoff Matrix & Status Summary

Schedule/Time	Scope/Modules	Resources/Effort/People
CONSTRAINED	CONSTRAINED / **ACCEPTED**	CONSTRAINED / Need to be **IMPROVED** (Cocomo effort = 10 not acceptable our constraint is max 5 members in 3.5 months)

Identify variable to be CONSTRAINED, IMPROVED, ACCEPTED

Comments:

Accepted

+/- Status (Review and Progress Meeting)

	Team	Tech	Schedule	Cost	Comment
RM 1	Requirement SRS and Modeling	-/+	-/+	-/+	SRS Submission
RM 2	PMP	Chap 7 and 18 not complete and chap 1/6 complete	Next week (29/3) meeting Ch 1 and 2 done - /+	-/+	PMP Submission
RM 3	Modeling	-/+	-/+	-/+	Done already in SRS
RM 4	Coding and Testing	-/+	-/+	-/+	Testing Report Submission
RM 4	Demo / Deployment	-/+	-/+	-/+	Final Project Report Submission

Discuss:

Legend
+ = Ahead of Schedule
- = Behind Schedule

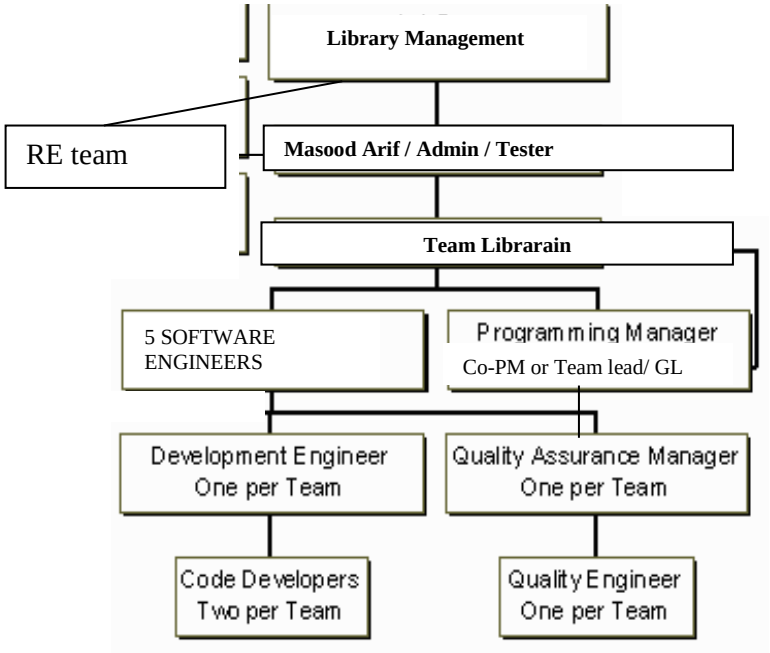
/ = On Schedule

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

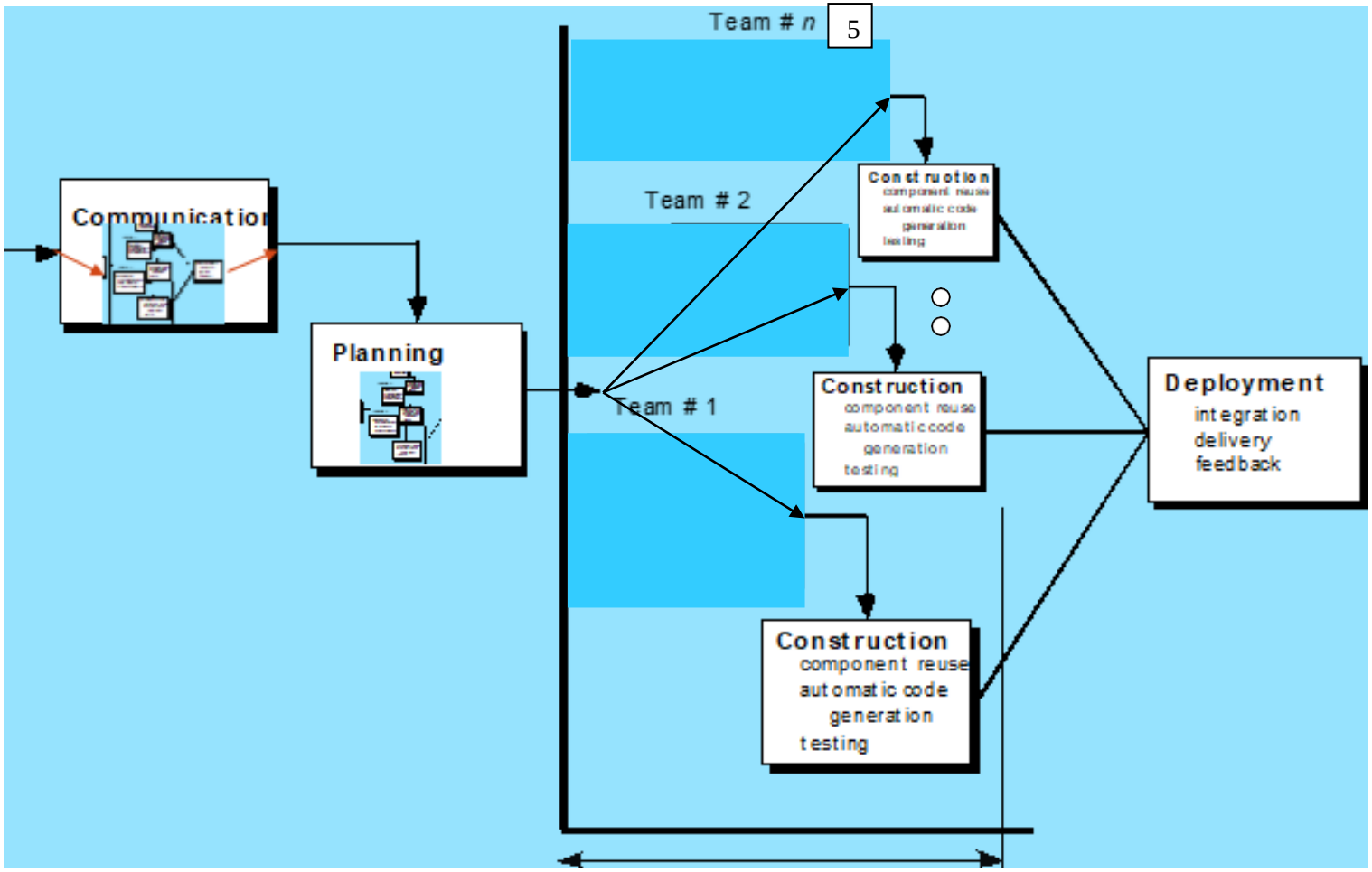
8. Project Organization

Provide an organization chart that defines the person responsible for at least the following functions: project manager, development manager, quality assurance, and configuration management

.



SDLC Process Model:



9. Activity List (Work Breakdown Structure)

Provide an activity list (*work breakdown structure*) *that describes each task required by the project, with a reference to the statement of work. For large projects, work packages might be included that describe in detail how specific tasks will be completed by specific project teams. These work packages describe required schedule, identify requirements to be completed and describe specific work to be performed*

5. First Estimating FP then from it E and S.

Software Size Estimation using Function Point Method

A) Detail of 5 Transaction Types, at most 5 under each category	
	Write down exact Screen or Forms names, or Tables, or Reports name for each count value.
EI	1. Login/User Authorization 2. Book transaction 3. Member Maintenance 4 Publisher Maintenance 5. Report
EO	1. Users table 2. Book Record table 3. Member table 4 publisher table 5. Report table
EQ	1. Search User 2. Book search 3. Member search 4 Search publisher 5. Search report
ILF	1. Login/User Authorization 2.Library Management 3. Member 4 publisher 5.Report
ELF	1. __User Authorization Details___-_____ 2. __Book transaction details ____-_____ 3. Member Maintenance details ___-_____ 4. __Publisher Maintenance details ____- 5. __ Report __ details _-_____

B) Unadjusted Function Point Value calculation
Definition of Complexities: Your Transactions which are derived from only from 1 Table are to be

categorized as Low and if they are derive from 2 tables they can be categorized in Mid-level complexity, and in case of >= 3 they will be placed under High level of complexity.

	Count for screens of Low level complexity (C)	Multiplier Low level complexity (M)	V1 = C * M	Count for screens of Mid-level complexity (C)	Multiplier Mid-level complexity (M)	V2 = C * M	Count for screens of High-level complexity (C)	Multiplier High-level complexity (M)	V3 = C * M	Category wise sum V1+V2+V3
EI	3	3	9	1	4	4	1	6	6	19
EO	3	4	12	1	5	5	1	7	7	24
EQ	3	3	9	1	7	7	1	6	6	22
ILF	3	7	21	1	0	0	1	15	15	36
ELF	0	5	0	0	7	7	0	10	10	17
								Unadjusted Function Point Value =		**118**

C) Value Adjustment Factor (VAF) calculation

Note: Calculate Value Adjustment Factor, where any 5 "General System Characteristics (GSC) must have a value above 2. Also show respect Quality Characteristic mapping of these 5 factors.

	Quality Characteristic	Weight (0-5)		Quality Characteristic	Weight (0-5)
1.		3	8.		3
2.		2	9.		2
3.		1	10.		4
4.		4	11.		1
5.		5	12.		3
6.		0	13.		2
7.		1	14.		0

Value Adjustment Factor (VAF) = 31

D) Technology Complexity Factor calculation

TCF = 0.65 + (VAF * 0.01)
= 0.65 +(31*0.01)
= 0.96

E) Adjusted Function Point Value (AFPV) or Function Point Value (FP) Calculation

AFPV = _ Unadjusted Function Point * TCF
= 118 * 0.96
= 113.28

F) Conversion of AFPV in to LOC Size metric

the number of LOCs per FP for C# language 54 and check other languages from https://www.qsm.com/resources/function-point-languages-table, ASP 51 and VB.net 52

Project Size in LOC = AFPV * LOC/FP

Project Size in LOC = 113.28 * 54 = 6117.12 LOC

G) Software Size: **6117.12**

Software Size for COCOMO: 9.760 KLOC

Software Type: **Business**/ Utility/Embedded

Model Mode: Cocomo I – Basic – **ORGANIC (0 – 50 KLOC)** / Semi detached/Embedded

a) **Effort Estimation:** Equation
2.4 * 9.760 ^ 1.05 **= 26.25025643**

b) **Schedule Estimation:** Equation
2.5 * E ^ 0.4 months = S
S= 2.5 * **26.25025643**^0.4
S = 9.238328

c) **Productivity Estimation:** Equation
Loc/E = 9760/**26.25025643 =** 371.8058

d) **Average Loading Estimation:** Equation
E/S = **26.25025643 / 9.238328**
2.841450

e) **Average Salary of Technical Staff (AS):** Equation
Assume = 50,000 RS

f) **Cost for Salary (Cs):** Equation
E * Avg salary = **26.25025643 *** 50,000

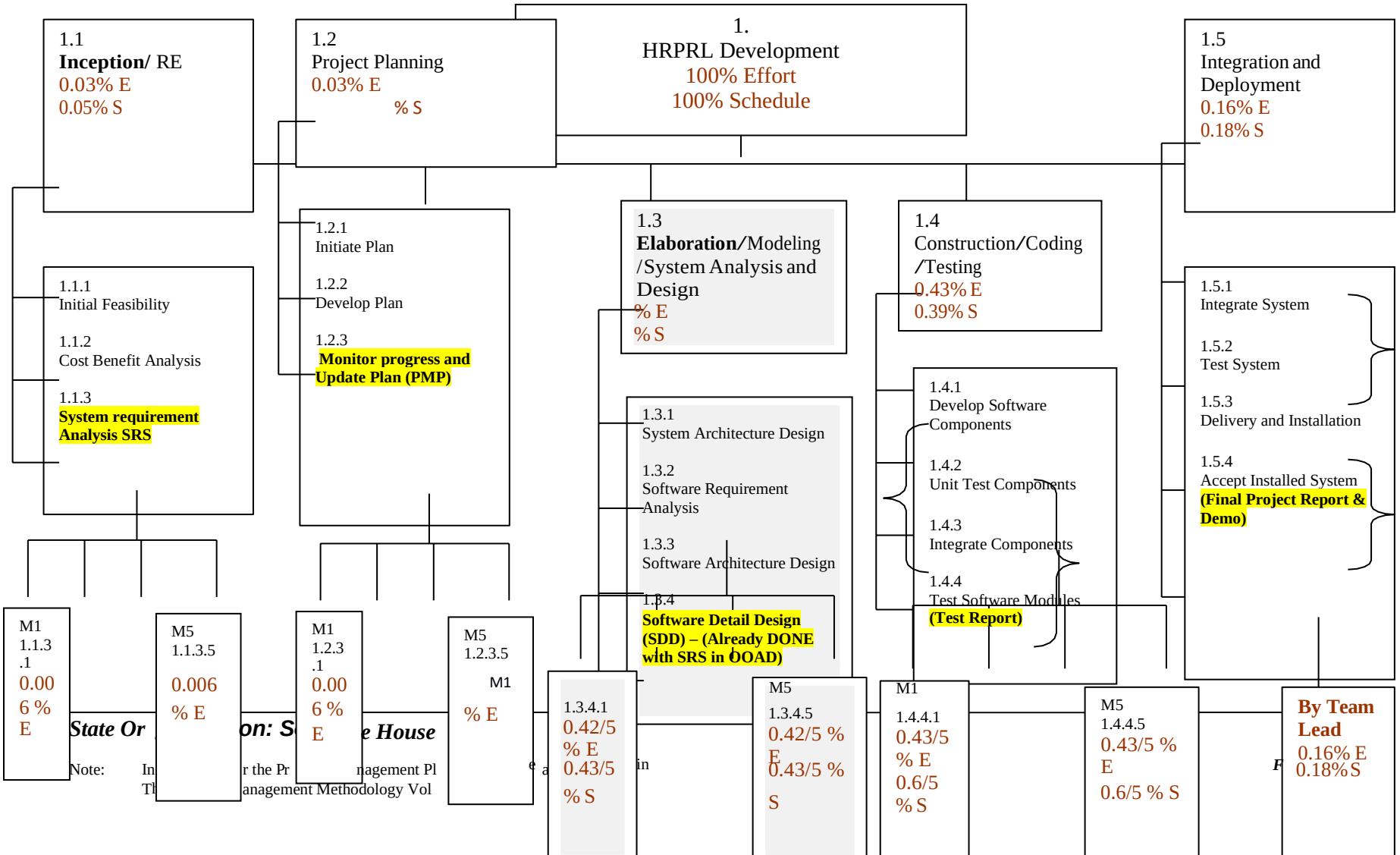
1312512.8

g) **Budgeted Cost of Project (Cb):** Equation
Cs + Cs * X% = Cb
Cb = 1312512.8 + (2% of1312512.8)
Cb =1312512.8 +26250.256
Cb = 1338763.056

2. Calculate the phase-wise percentage distribution wise E and S values as given in detailed COCOMO detailed model.

H) Distribution of Effort and Schedule among Different phases of SDLC							
E = ___26.25025643_____ **S = _____9.238328_____**							
Plan and Requirement		**Modeling / System Design & Detailed Design**		**Module Coding and Unit Testing**		**Integration & Deployment**	
0.06 * E =	0.10 * S =	(0.16+0.26) * E =	(0.19+0.24) S =	0.42 * E =	0.39 * S =	0.16 * E =	0.18 * S =
1.5750153	0.9238328	11.02510752	3.97248104	11.02510752	3.60294792	4.20004096	1.66289904

6. Now adding percentage distribution as given in detailed COCOMO model in the WBS phase-wise.



State Or on: S e House

Note: In r the Pr nagement Pl e a in *F*
Th anagement Methodology Vol

7. Now convert WBS contents in a Tabular format in order to make a GANTT CHART.

Activity #	Activity Name	Activity Name Description	# of Days	Start Date	Dependency on previous tasks	Milestone
1.1	**RE**	**Requirement Engineering**	**28**	**24/1/2021**	**none**	**21/2/2021**
1.1.1	**Initial Feasibility**		3	24/1/2021	None	27/1/2021
1.1.2	**Cost Benefit Analysis**	Analysis of cost	3	27/1/2021	None	30/1/2021
1.1.3	**System requirement Analysis SRS**	**Gather info (SRS)**	**6**	30/1/2021	None	5/2/2021
1.1.3.1	System requirement Analysis SRS **for Module 1**	Gather info for module 1	3	5/2/2021	None	8/2/2021
1.1.3.2	System requirement Analysis SRS **for Module 2**	Gather info for module 2	3	8/2/2021	None	11/2/2021
1.1.3.3	System requirement Analysis SRS **for Module 3**	Gather info for module 3	3	11/2/2021	None	14/2/2021
1.1.3.4	System requirement Analysis SRS **for Module 4**	Gather info for module 4	3	14/2/2021	None	17/2/2021
1.1.3.5	System requirement Analysis SRS **for Module 5**	Gather info for module 5	3	17/2/2021	None	21/2/2021
1.2	**Project Planning**	**Project Management Planning**	**16**	**15/3/2021**	**1.1**	**5/4/2021**
1.2.1	Develop plan	Development of project plane	1	**15/3/2021**	**RE**	**16/3/2021**
1.2.2	Implement plan	Implementation of project plane	1	**16/3/2021**	**RE**	**17/3/2021**

1.2.3	Monitor Progress	Take review on each phase	1	**17/3/2021**	**RE**	**18/3/2021**
1.2.3.1	Monitor Progress for module 1	Planning and monitor progress for module 1	1	**18/3/2021**	**RE**	**19/3/2021**
1.2.3.2	Monitor Progress for module 2	Planning and monitor progress for module 2	1	**19/3/2021**	**RE**	**20/3/2021**
1.2.3.3	Monitor Progress for module 3	Planning and monitor progress for module 3	1	**20/3/2021**	**RE**	**21/3/2021**
1.2.3.4	Monitor Progress for module 4	Planning and monitor progress for module 4	1	**21/3/2021**	**RE**	**22/3/2021**
1.2.3.5	Monitor Progress for module 5	Planning and monitor progress for module 5	1	**22/3/2021**	**RE**	**23/3/2021**
1.3	**System architecture design**	**Develop Architecture System Design**	1	**23/3/2021**	**planning**	**24/3/2021**
1.3.1	System requirement	Analysis	1	**24/3/2021**	**Planning**	**25/3/2021**
1.3.2	Software architecture design	Implement Design	1	**25/3/2021**	**Planning**	**26/3/2021**
1.3.3	System detail design	Develop System detail design	1	**26/3/2021**	**Planning**	**27/3/2021**
1.4	**Construct, Coding and Testing**	Implementation of software	1	**27/3/2021**	**1.2**	**28/3/2021**
1.4.1	Develop software Components	Implementation of software	1	**28/3/2021**	**Design**	**29/3/2021**
1.4.2	Unit test components	Implementation of software	1	**29/3/2021**	**Design**	**30/3/2021**
1.4.3	Integrate components	Test for every Module	1	**30/3/2021**	**Design**	**31/3/2021**
1.4.4	Test software Module	Test at end	1	**31/3/2021**	**Design**	**01/4/2021**

1.5	**Integrate and development**	Development of a project	1	**01/4/2021**	**Construction /coding/ testing**	**02/4/2021**
1.5.1	Integrate system	Combine module	1	**02/4/2021**	**Construction /coding/ testing**	**03/4/2021**
1.5.2	Test System	Test all project	1	**03/3/2021**	**Construction /coding/ testing**	**04/3/2021**
1.5.3	Delivery and installation	Installation / Final test after deploy a project	1	**4/4/2021**	**Construction/ coding/ testing**	**5/4/2021**

6. Work Product Identification

Provide a list of all deliverables required by the project, the date due and the person responsible for the deliverable. Pick Last activities from each phase they are deliverables.

Deliverable Name	***Due Date***	***Date Delivered***	***Point of Contact***
SRS by Member 1	21/2/2021	22/2/2021	9760
SRS by Member 2	21/2/2021	21/2/2021	9910
SRS by Member 3	21/2/2021	21/2/2021	9763
SRS by Member 4	21/2/2021	21/2/2021	9646
SRS by Member 5	21/2/2021	21/2/2021	9779
PMP by Member 1	5/4/2021	5/4/2021	9760
PMP by Member 2	5/4/2021	5/4/2021	9910
PMP by Member 3	5/4/2021	5/4/2021	9763
PMP by Member 4	5/4/2021	6/4/2021	9646
PMP by Member 5	5/4/2021	5/4/2021	9779

7. SCHEDULE

Provide the project schedule, using a Gantt chart. The schedule must include milestones, task dependencies, task duration, work product delivery dates, quality milestones (reviews/audits/inspections), configuration management milestones, and action items (with deadlines and responsibilities).

	Task Name	Work	Duration	Start	Finish	Details	S
18	**Design**	**120 hrs**	**14.5 days**	**Mon 1/26/04**	**Fri 2/13/04**	Work	
19	Review preliminary software specifications	16 hrs	2 days	Mon 1/26/04	Wed 1/28/04	Work	
	Analyst	*16 hrs*		*Mon 1/26/04*	*Wed 1/28/04*	Work	
20	Develop functional specifications	40 hrs	5 days	Wed 1/28/04	Wed 2/4/04	Work	
	Analyst	*40 hrs*		*Wed 1/28/04*	*Wed 2/4/04*	Work	
21	Develop prototype based on functional specifications	32 hrs	4 days	Wed 2/4/04	Tue 2/10/04	Work	
	Analyst	*32 hrs*		*Wed 2/4/04*	*Tue 2/10/04*	Work	
22	Review functional specifications	16 hrs	2 days	Tue 2/10/04	Thu 2/12/04	Work	
	Management	*16 hrs*		*Tue 2/10/04*	*Thu 2/12/04*	Work	
23	Incorporate feedback into functional specifications	8 hrs	1 day	Thu 2/12/04	Fri 2/13/04	Work	
	Management	*8 hrs*		*Thu 2/12/04*	*Fri 2/13/04*	Work	
24	Obtain approval to proceed	8 hrs	4 hrs	Fri 2/13/04	Fri 2/13/04	Work	
	Management	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
	Project manager	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
25	Design complete	0 hrs	0 days	Fri 2/13/04	Fri 2/13/04	Work	
26	**Development**	**264 hrs**	**21.75 days**	**Mon 2/16/04**	**Tue 3/16/04**	Work	
27	Review functional specifications	8 hrs	1 day	Mon 2/16/04	Mon 2/16/04	Work	
	Developer	*8 hrs*		*Mon 2/16/04*	*Mon 2/16/04*	Work	
28	Identify modular/tiered design parameters	8 hrs	1 day	Tue 2/17/04	Tue 2/17/04	Work	
	Developer	*8 hrs*		*Tue 2/17/04*	*Tue 2/17/04*	Work	
29	Assign development staff	8 hrs	1 day	Wed 2/18/04	Wed 2/18/04	Work	
	Developer	*8 hrs*		*Wed 2/18/04*	*Wed 2/18/04*	Work	
30	Develop code	120 hrs	15 days	Thu 2/19/04	Wed 3/10/04	Work	
	Developer	*120 hrs*		*Thu 2/19/04*	*Wed 3/10/04*	Work	
31	Developer testing (primary debugging)	120 hrs	15 days	Tue 2/24/04	Tue 3/16/04	Work	
	Developer	*120 hrs*		*Tue 2/24/04*	*Tue 3/16/04*	Work	
32	Development complete	0 hrs	0 days	Tue 3/16/04	Tue 3/16/04	Work	
33	**Testing**	**280 hrs**	**48.75 days**	**Mon 2/16/04**	**Thu 4/22/04**	Work	
34	Develop unit test plans using product specifications	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	
	Testers	*32 hrs*		*Mon 2/16/04*	*Thu 2/19/04*	Work	
35	Develop integration test plans using product specifica	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	

Work Packages, Tasks & Activities		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
Concept Exploration	Internal Case Study												
	Communicate with CRM												
Initial Project Plan	SPMP Pass #1												
	Review by CRM												
	SPMP Pass #2												
Travel & Orientation	Meeting with CRM Representatives												
	Meeting with 26 programmers												
	Recruiting into Organizational Chart												
	OOP Training												
Initial SRS	SRS Pass #1												
	Prototype 1 (Screens)												
	SRS Review by Team												
Final SPMP	Pass #3												
Final SRS	SRS Review as per SPMP												
	SRS Submission to CRM												
Design	High level Design												
	High Level Review												
	Prototype 2												

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

	Detail Level Design												
	Detail Level Review												
	Prototype 3												
System Construction	Source Code & Executable Program												
	Review by CRM												
System Verification & Validation	Testing Summary Report												
	Review by CRM												
	Customer Acceptance Feedback												
System Delivery	System Delivery & Maintenance												

8. Estimated Cost at Completion

Provide an estimated cost at completion, which is an assessment of the total effort at completion of the contract.

		Analysis in Hours					*Analysis in Dollars*				
WBS No.	***Activity Description***	***Budget Hours***	***Actual Hours***	***Est. to Complete remaining work***	***Est. @ Complete of project***	***Variance (+ = More)***	***Budget $***	***Actual $***	***Est. to Complete***	***Est. @ Complete***	***Variance (+ = More)***
				A+ @	***@ = B-A***	***a-b/a***					

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

9. Resource Loading Profiles - Staffing

Provide a staffing plan that shows the number of personnel, by type, that will be required on the project on a monthly basis.

Organization	**Liaison- interfaces**	**Contact Information**
Customer: APMM	Masood	872874287
Subcontractor: None	Hasssa Habib	87287427887
Software Quality Assurance: CRM	Sumair ul haq	873873879838
Software Configuration Management: Team 2	Muhammad Hassaan	8234874387837
Change Control: Team 2	M . Osama	7367439743889

Role	**Description**	**Person**
Project Leader	Leads project team; responsible for project deliverables	Masood Arif
Project Management Team/Analysts	Assisting in building SPMP, SRS and prototype, as well as doing the necessary requirement and risk analysis for the project	Hasssa Habib Sumair ul haq
Project Development Manager	Leads Chinese software developers; responsible for project deliverables	Muhammad Hassaan M .Osama
Programming Manager	Responsible for the communication between the Management Team and the rest of the software development team; the Programming Manager is also responsible for reallocating the human resources and equipment of the project.	Masood Arif

Software Managers	Responsible for managing the team of 7 people; does the design of the software; after reviewing reports from Test Engineer decides whether code needs to be sent back to Development Engineer for improvement or to be send to Quality Assurance Manager for quality assurance phase	Hassan Habib
Development Engineers	Responsible for designing of software and distributing work among Code Developers	Sumair ul haq
Code Developers	Responsible for writing programming code	Masood Arif
Test Engineer	Responsible for testing and validation process in his/her team; leads Test Technician in the testing process and reports the results of the testing process to the software manager	Masood Arif
Test Technician	Performs the testing and validation procedure; reports found errors to Test Engineer	Muhmmad Osama
Quality Assurance Manager	Responsible for quality assurance; reports to Software Manager and Project Development Manager	Sumair ul haq
Quality Engineer	Performs quality assurance procedure; reports the results to Quality Assurance Manager	Muhammad Hassaan

10. Project Requirements

Provide a detailed listing of project requirements, with references, to the statement of work, work breakdown structure, and specifications.

No.	Requirement	RFP Reference Not submitted by the client in Adv.	SOW Reference	WBS Task Reference	Specification Reference	Date Completed	Comments/Clarification
1.	**3.1.1 Login**	**N/A**	**1**	**1.1.3.1**	**3.1.1**	**5/4/2021**	**Good**
2.	**3.1.2 Module 1 CRUDS**	**N/A**	**2**	**1.1.3.2**	**3.1.2**	**5/4/2021**	**Improvement**
3.	**3.1.3 Module 2 CRUDS**	**N/A**	**3**	**1.1.3.3**	**3.1.3**	**5/4/2021**	**Nice**
4.	**3.1.4 Module 3 CRUDS**	**N/A**	**4**	**1.1.3.4**	**3.1.4**	**5/4/2021**	**Well performed**
5.	**3.1.5 Module 4 CRUDS**	**N/A**	**5**	**1.1.3.5**	**3.1.5**	**5/4/2021**	**Improvement**
6.	**3.1.6 Module 5 CRUDS**	**N/A**	**6**	**1.1.3.6**	**3.1.6**	**5/4/2021**	**Good**

SOW = Statement of Work

11. Risk Identification

Provide a description of all risks identified for the project. A risk is anything that might detrimentally affect the successful completion of the project if left unaddressed. The contractual, management, and technical risks associated should be identified and assessed as to the probability of the risk occurring, the cost to correct if the risk occurs, the impact of the risk on the project, and the suggested mitigation activities and cost of mitigation.

Risk Worksheet

Last Risk Assessment Date: Prepared by: Hassan Habib Khan

Risk Category/ Event	*Loss Hours*	*Probability*	*Risk Hours*	*Previous Risk Hours*	*Preventive Measures*	*Contingency Measures*	*Comments*
Governance Risk	**120**	**0.8**	**48**	**-**	**Our Lawyer will handle all the situation accordingly.**	**Consult the court or ministers to resolve the issues with government.**	**CRITICAL**
Schedule Risk	**24**	**0.2**	**12**	**-**	**We will have a tight schedule and will make a schedule. According to our schedule project will be completed and deployed before the time.**	**If our schedule is not as per planned we already made our schedule in a way that we will do the development before time, we will utilize that time as well but if we are too behind schedule our developers have to work overtime.**	**MEDIUM**
Operational Risk	**24-48**	**0.5**	**24**	**-**	**Avoid poor implementations and process problems.**	**Our managers will be restricted to overcome problems and start implementing new strategies.**	**LOW**
Software Risk	**24**	**0.3**	**24**	**-**	**Hire professionals. Select the**	**If we faced this type of emergency we will switch the software technology at**	

					appropriate software for development, stable servers and project management. We will use the best and most stable servers for every software to avoid future problems.	**once which is currently in use in our organization. We are already using the best servers so we don't have to worry about that but for the software performance and stability we will use the most talented team of ours to overcome the tie wasted and complete the project fully.**	**MEDIUM**
Staff experience and professionalism .	**24-72**	**0.3**	**48**	**-**	**Our organization hires the junior developers who are under the teams of professional and experienced team leaders. We also have a team of experienced developers which can handle every type of situations and can work under pressure.**	**If we faced some type problems form our staff we will right away send the project to our experienced developers team or in case they are already stuck in a project we will hire a professional which can team up with our junior developer's leader and can finish the work according to schedule.**	**CRITICAL**
Natural Hazard risk	**-**	**0.5**	**-**	**-**	**Natural Hazards are not something that can be predicted or controlled but**	**If the situation is under control there will be no off. If the situation is critical but will be under control in few days we can either work**	

					humans but we have to be prepared for any type of situation. According to our scheduling we want to complete the project before given time so in this case also we can utilize those leftover days. If the situation is like COVID-19's hazard our developers will remotely.	**remotely or take some rest, it all depends on the schedule. But if the situation is critical and we can't predict when it will be under control our teams will work remotely.**	**CAN BE CRITICAL**
Software Performance and Security Risk	**-**	**0.4**	**-**	**-**	**We are using latest and stable technologies but we will still prototype our modules and test the software with huge dummy data and our security team will try to catch the loop holes. Our maintenance team will be ready to handle the panicked situation**	**Software performance is not being compromised form our organization but if we faced this type of situation our maintenance team will right away check the software bugs and our security team will be ready if there something hacking activity detected.**	**MEDIUM**

					accordingly.		
Poor Management	**48-72**	**0.2**	**48**	**-**	**We will hire professionals for our organization who can face any type of situation and can handle the planning of difficult software. Proper strategies and project planning will be made before starting any project and everyone will act according to the plan.**	**Our project managers will be asked to revise the project planning and strategies. If they can't handle the situation we can compromise our management we will right away send project planning to another professional team manager who will work the previous manager to handle the situation with new and better strategies.**	**MEDIUM**
Budget Changes	**48-72**	**0.1**	**60**	**-**	**We will sign the proper legal contract in which every small detail will be mentioned to avoid future difficulties.**	**However, if the client wants to change the budget we will not leave our client but will act accordingly and we have to compromise on development. Old codes will be refactored, there will be no tough schedule and every situation will be handled by juniors.**	**LOW**

General Risk Analysis Comments:

Risk Items	Risk Management Techniques
Personnel Shortfalls	Staffing with top talent, job matching; team building; morale

	building; cross training; pre-scheduling key people
Unrealistic schedules and budgets	Detailed, multi source cost and schedule estimation; design to cost; incremental development; software reuse; requirement scrubbing
Developing the wrong software functions	Organizational analysis; mission analysis; ops-concept formulation; user surveys; prototyping; early users' manuals
Developing the wrong user interface	Task analysis; prototyping; scenarios; user characterization (functionality, style, workload)
Gold Plating	Requirement scrubbing; prototyping; cost-benefit analysis; design to cost
Continuing stream of requirement changes	High change threshold; information hiding; incremental development (defer changes to later increments)
Shortfalls in externally furnished components	Benchmarking; inspections; reference checking; compatibility analysis
Shortfalls in externally performed tasks	Reference checking; pre-award audits; award-fee contracts; competitive design or prototyping team building
Real-time performance shortfalls	Simulation; benchmarking; modeling; prototyping; instrumentation; tuning
Straining computer-science capabilities	Technical analysis; cost-benefit analysis; prototyping; reference checking

Risk Management:

1	Identify the project's top10 risk items
2	Present a plan for resolving each risk item
3	Update list of top risk items, plan, and results monthly
4	Highlight risk-item status in monthly project reviews. Compare with previous month's ranking status
5	Initiate appropriate corrective actions

12. Configuration Management Plan

Provide a configuration management plan that defines the person responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required to conduct CM.

CM Responsibility

Manager:

Additional Staff for CM:

Procedure Reference:

Configuration Items:. Ensure that CM is implemented throughout the project's life cycle.

No.	Item	Comments
1.	analysis	prototyping; early users' manuals
2.	risk item	Present a plan for resolving
3.	ranking status	Highlight risk-item status in monthly project reviews

Ensure that project has a repository for storing configuration items and associated CM records. Briefly describe.

responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required

13. Quality Plan

Provide a quality plan that defines the person responsible for project quality assurance, the procedures that will be used and resources required to conduct quality assurance.

QA Responsibility

Manager:

Additional Staff for QA:

Procedure Reference:

Planned Quality Event: Ensure that QA is implemented throughout the project's life cycle. Dates include QA audits and reviews, design walkthroughs and other project activities that QA staff will participate in.

No.	Item	Comments
1.	Gold Plating	Initiate appropriate corrective actions
2.	Stream	change threshold; information hiding
3.	Shortfalls	cost-benefit analysis; prototyping; reference

Ensure that project has a repository for storing configuration items and associated QA records. Briefly describe.

Ensure that QA audits the baselines and CM activities on a regular basis. Briefly describe

14. Top Five Issues

Provide a list of known issues associated with the project, with proposed or recommended solutions.

Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
Complete Requirement	*Masood Arif*			*Held by the complete RE procedure*
Development Life Cycle	*Hassan habib*			*The modeling procedure of defining sustainability*
Views	*Muhammad Osama*			*The user friendly view should be appropriate defining.*
Error On uploading	*Sumair ul haq*			*The hosting file size nor enough*
Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

15.Action Item Status

Maintain a list of action items, including a description of the item, a point of contact a date by which action should be taken and a description of the action taken to close items.

Action Item #	***Action Item Description***	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
	The Input model	*Sumair ul haq*			*Resolve*
	Contract	*Muhammad Hassan*			*Sustain*

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Project Management Plan:
GI's HRPRL

<Copy and Paste PMP document by Member 3 here>

Form PM - 01

Project Management Plan/Charter

By: Muhammad Hassaan

State Organization: Software House

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

PROJECT MANAGEMENT PLAN TEMPLATE

Release #: 3rd

Project Manager: Masood Arif

Approvals:

Masood Arif_____
Project Manager

_____
Prime Contractor Manager - (if applicable)

School Library_____
State Organization Management

Sumair & team
User Management

_____
Oversight Manager - (if applicable)

_____

Accounts_____
Department of Finance

_____
Other:

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

5. Project Summary

Information in the project summary areas was started during the project concept phase and should be included here.

Project Name:	***Library Management System***	***Start Date:***	***25/3/2021***
State Organization::	***PAF-KIET***	***Submitted by:***	***hassaan***
Prime Contractor:	***Dr. Umema hani***	***Date Awarded:***	***2/March/2007***
Current Stage of Project:	***Software Development Life Cycle (SDLC) – SPIRAL Model***		

Project is On Schedule:	***Yes:*** ☝ ***No:*** ***Details: the project build was based on the schedule of completion of 4 months' duration in the 25% average on per month.***	***Project is within Budget:***	***Yes:*** ☝ ***No:*** ***Comments: The project has 6 lakhs budget.***

Please answer the following questions by marking "Yes" or "No" and provide a brief response as appropriate			***Yes***	***No***
Is this an updated Project Plan? If so, reason for Update: Yes_____				
Budget for project by fiscal year and is project funded? If so, for what amount(s) and period(s):				
Budget Amount:	Year:2021	Funded?	**yes**	____
Budget Amount:	Year: 2022	Funded?	____	**no**
Budget Amount:	Year: 2023	Funded?	____	**no**
Total Budget:				

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

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Project Summary - Continued

Points of Contact

This should be the list of individuals that will be involved with the project during the execution phase.

Position	Name/Organization	Phone	E-mail
Project Manager	**Masood arif**	**7898181480**	**Masoodarif1313@gmail.com**
Senior Management Sponsor	**Sumair ul haq**	**47348734**	**sumairk198@gamil.com**
Senior Technical Sponsor	**Hassan Habib Khan**	**938939389**	**Hassanhabib356@hotmail.com**
Procurement Contact	**Initial**		
Customers:	**Students, Member , Faculty**		
Other Stakeholders (Top 3):			

Prime Contractor Information

Company: School Library

Position	Name	Phone	E-mail
Project Manager	**Masood arif**	**09393984908**	**Masood@gmail.com**
Senior Technical Sponsor	**Hassan Habib**	**08768734838**	**Hassan@hotmail.com**
Contracts Contact	**Muhammad Osama / M. Hassaan**	**982818738743**	**-**

6. Project Charter

Business Problem.

All projects start with a business problem/issue to solve.

Library Management System is a term for computer-based system that manage the catalogue of a library. The main purpose of this system is to manage library daily operation efficiently..... It is also created to ensure that the library items are stored properly in order to maintain their security The library management system is a software to manage manual functions of a library. The software helps to manage the entire library operations from maintaining book records to issue a book.

Statement of Work (Goal).

The statement should be short and to the point. It should not contain language or terminology that might not be understood.

This product aims to replace the current manual system with the automated solution. The main system will comprise of 6 major sub-systems or Modules the integration of theses sub-system will form the main system. All the sub-systems will be tightly integrated so as to give unanimity to user. The current client setup does not have any automation. Therefore, every department and the section will be developed from scratch as all departments are currently working manually. In this document we are covering ***"Human resource and payroll System"*** *only.*

13. **Login**
14. **User Authorization**
15. **Book Transaction Module**
16. **Member Maintenance Module**
17. **Publisher Maintenance Module**
18. **Report Module**

10. Project Charter, continued

Project Objectives:

Provide a brief, concise list of what the project is to accomplish.

The primary function of our library is to implement, enrich and support the educational program School. The library provides a wide range of materials at various levels of sophistication with a diversity of appeal and different points of view.. The main divisions of the system are:

13. Authentication user to check Member authentication of l ibrary system
14. Library Management and Book stocks will be maintained (CRUD)
15. Book transaction module is to manage the receiver's data accordingly
16. Publisher maintenance Module to arrange the books sections
17. Member maintenance Module faculty/Students Record
18. Report Module to manage the payment report

This Project is specifically focused over Module 2 and 5

Success Factors:

List factors that will be used to determine the success of the project.

9. Complete deployment of all 4 modules
10. Smooth integration between all systems
11. effacingly error resolve
12. Everything is going according to the plan

Project Dependencies/Constraints:

Project completion is expected in less than 3.5 months duration
All requirements will be 100% available during requirement phase
Maximum team strength 5

11. Project Tradeoff Matrix & Status Summary

Schedule/Time	Scope/Modules	Resources/Effort/People
CONSTRAINED	CONSTRAINED / **ACCEPTED**	CONSTRAINED / Need to be **IMPROVED** (Cocomo effort = 10 not acceptable our constraint is max 5 members in 3.5 months)

Identify variable to be CONSTRAINED, IMPROVED, ACCEPTED

Comments:

Accepted

+/- Status (Review and Progress Meeting)

	Team	Tech	Schedule	Cost	Comment
RM 1	Requirement SRS and Modeling	-/+	-/+	-/+	SRS Submission
RM 2	PMP	Chap 7 and 18 not complete and chap 1/6 complete	Next week (29/3) meeting Ch 1 and 2 done - /+	-/+	PMP Submission
RM 3	Modeling	-/+	-/+	-/+	Done already in SRS
RM 4	Coding and Testing	-/+	-/+	-/+	Testing Report Submission
RM 4	Demo / Deployment	-/+	-/+	-/+	Final Project Report Submission

Discuss:

Legend
+ = Ahead of Schedule
- = Behind Schedule

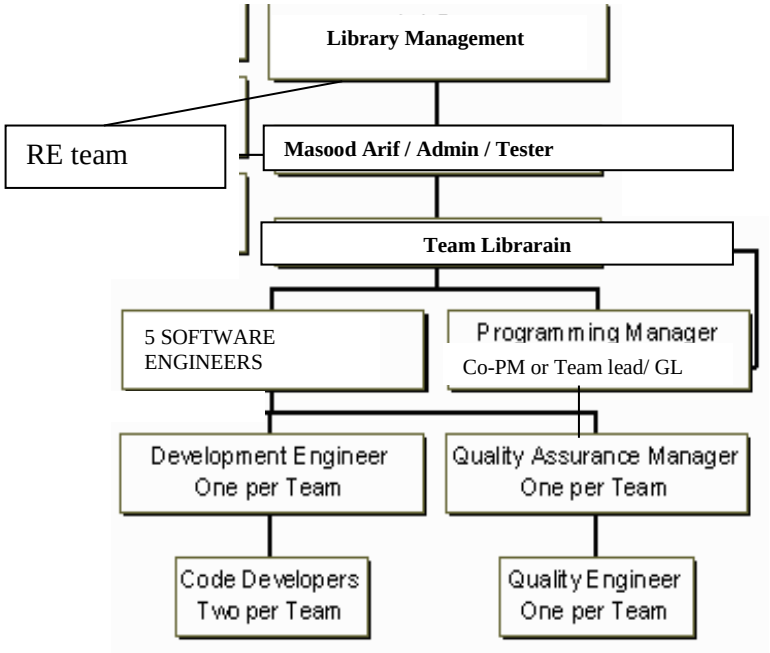
/ = On Schedule

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

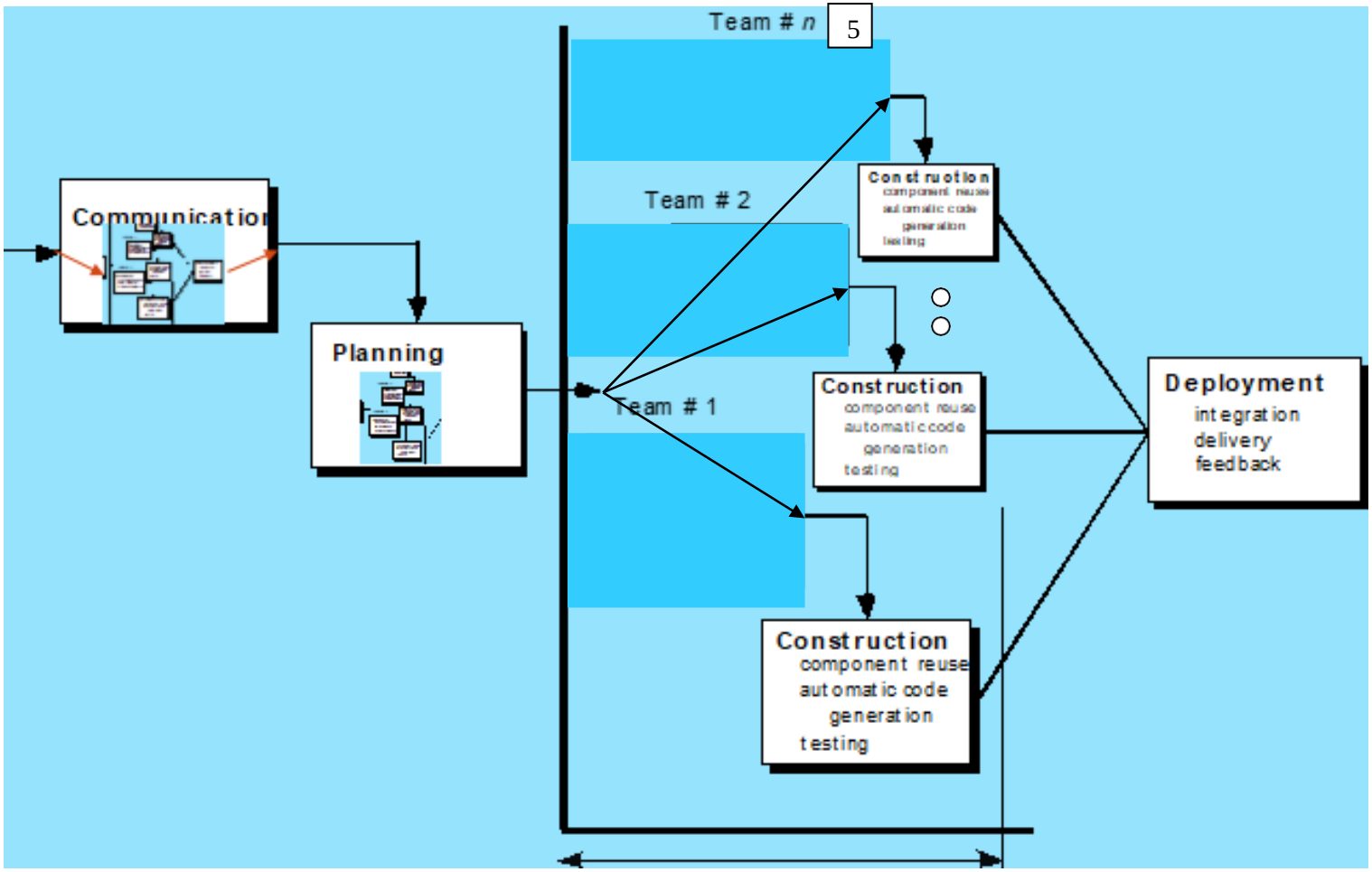
12. Project Organization

Provide an organization chart that defines the person responsible for at least the following functions: project manager, development manager, quality assurance, and configuration management

.



SDLC Process Model:



13. Activity List (Work Breakdown Structure)

Provide an activity list (*work breakdown structure*) *that describes each task required by the project, with a reference to the statement of work. For large projects, work packages might be included that describe in detail how specific tasks will be completed by specific project teams. These work packages describe required schedule, identify requirements to be completed and describe specific work to be performed*

8. **First Estimating FP then from it E and S.**

-

Software Size Estimation using Function Point Method

A) **Detail of 5 Transaction Types, at most 5 under each category**

	Write down exact Screen or Forms names, or Tables, or Reports name for each count value.
EI	1. Login/User Authorization 2. Book transaction 3. Member Maintenance 4 Publisher Maintenance 5. Report
EO	1. Users table 2. Book Record table 3. Member table 4 publisher table 5. Report table
EQ	1. Search User 2. Book search 3. Member search 4 Search publisher 5. Search report
ILF	1. Login/User Authorization 2.Library Management 3. Member 4 publisher 5.Report
ELF	1. __User Authorization Details___-_____ 2. __Book transaction details ____-_____ 3. Member Maintenance details ___-_____ 4. __Publisher Maintenance details ____- 5. __ Report __ details _-_____

B) **Unadjusted Function Point Value calculation**

Definition of Complexities: Your Transactions which are derived from only from 1 Table are to be categorized as Low and if they are derive from 2 tables they can be categorized in Mid-level complexity, and in case of >= 3 they will be placed under High level of complexity.

	Count for screens of Low level complexity (C)	Multiplier Low level complexity (M)	V1 = C * M	Count for screens of Mid-level complexity (C)	Multiplier Mid-level complexity (M)	V2 = C * M	Count for screens of High-level complexity (C)	Multiplier High-level complexity (M)	V3 = C * M	Category wise sum V1+V2+V3
EI	3	3	9	1	4	4	1	6	6	19
EO	3	4	12	1	5	5	1	7	7	24

EQ	3	3	9	1	7	7	1	6	6	22
ILF	3	7	21	1	0	0	1	15	15	36
ELF	0	5	0	0	7	7	0	10	10	17
									Unadjusted Function Point Value =	**118**

C) Value Adjustment Factor (VAF) calculation

Note: Calculate Value Adjustment Factor, where any 5 "General System Characteristics (GSC) must have a value above 2. Also show respect Quality Characteristic mapping of these 5 factors.

	Quality Characteristic	Weight (0-5)		Quality Characteristic	Weight (0-5)
1.		3	8.		3
2.		2	9.		2
3.		1	10.		4
4.		4	11.		1
5.		5	12.		3
6.		0	13.		2
7.		1	14.		0

Value Adjustment Factor (VAF) = 31

D) Technology Complexity Factor calculation

TCF = 0.65 + (VAF * 0.01)
= 0.65 +(31*0.01)
= 0.96

E) Adjusted Function Point Value (AFPV) or Function Point Value (FP) Calculation

AFPV = _ Unadjusted Function Point * TCF
= 118 * 0.96
= 113.28

F) Conversion of AFPV in to LOC Size metric

the number of LOCs per FP for C# language 54 and check other languages from https://www.qsm.com/resources/function-point-languages-table, ASP 51 and VB.net 52

Project Size in LOC = AFPV * LOC/FP

Project Size in LOC = 113.28 * 54 = 6117.12 LOC

G) Software Size:
Software Size for COCOMO: 9.646 KLOC

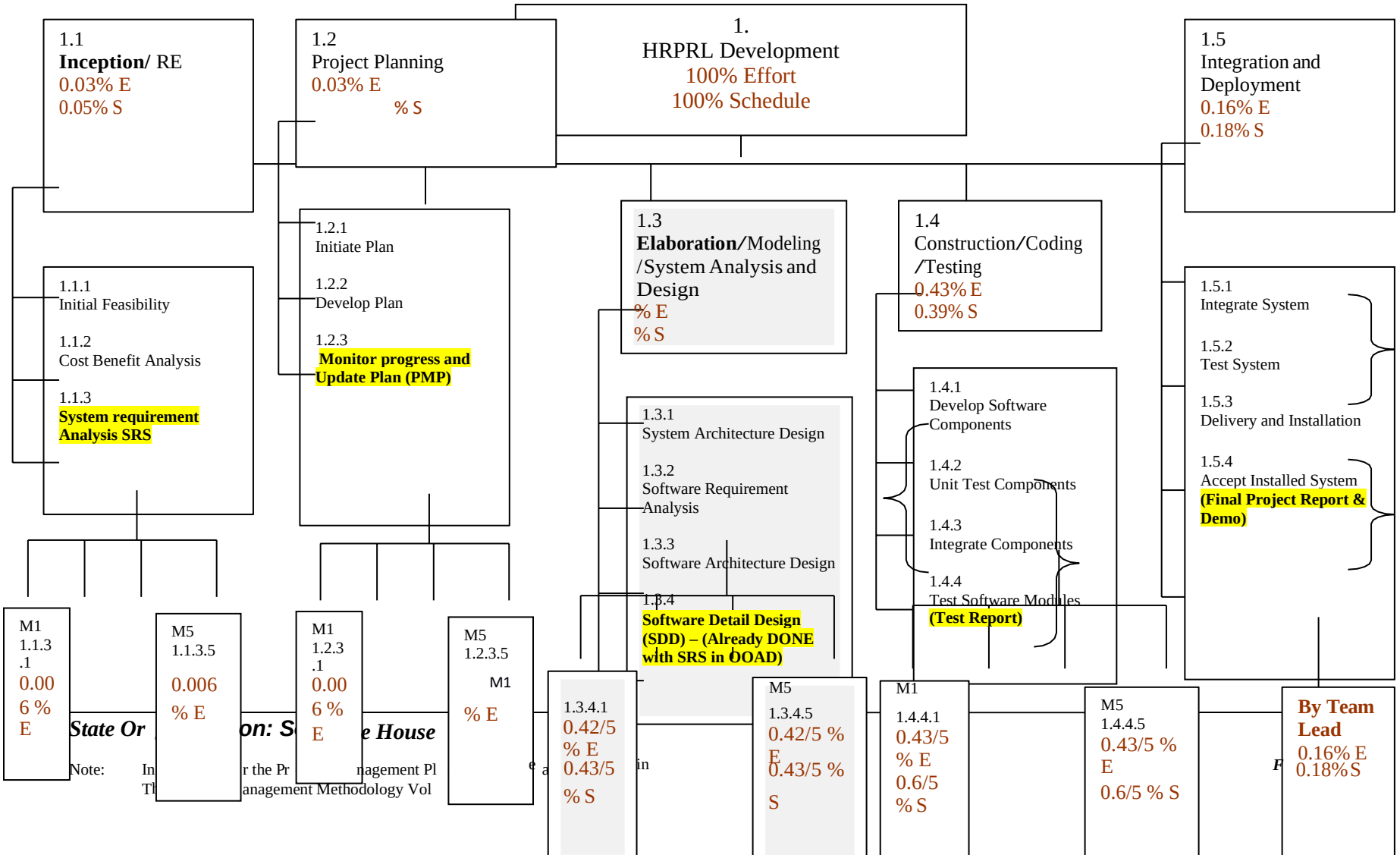
2.

Software Type: Business Model Mode: Cocomo I – Basic – ORGANIC (0 – 50 KLOC)
a) Effort Estimation: Equation 2.4 * 9.646 ^ 1.05 = E **E = 25.9284**
b) Schedule Estimation: Equation 2.5 * E ^ 0.4 months = S S= 2.5 ***25.9284** ^0.4 **S = 9.1928**
c) Productivity Estimation: Equation Loc/E = 9646/**25.9284** =372.0244
d) Average Loading Estimation: Equation E/S = **25.9284/9.1928** E/S = 2.8205
e) Average Salary of Technical Staff (AS): Equation Assume = 50,000 RS
f) Cost for Salary (Cs): Equation E * Avg salary = Cs Cs = **25.9284*** 50000 Cs = 1296420
g) Budgeted Cost of Project (Cb): Equation Cs + Cs * X% = Cb Cb = 1296420 + (2% of 1296420) Cb = 1296420 +25928.4 Cb = 1322348.4
G) Software Size: 6117.12 Software Size for COCOMO: 6.117 KLOC Software Type: Business/ Utility/Embedded Model Mode: Cocomo I – Basic – ORGANIC (0 – 50 KLOC) / Semi detached/Embedded

Calculate the phase-wise percentage distribution wise E and S values as given in detailed COCOMO detailed model.

H) Distribution of Effort and Schedule among Different phases of SDLC							
E = _25.9284_____ **S = _ 9.1928_____**							
Plan and Requirement		**Modeling / System Design & Detailed Design**		**Module Coding and Unit Testing**		**Integration & Deployment**	
0.06 * E =	0.10 * S =	(0.16+0.26) * E =	(0.19+0.24) S =	0.42 * E =	0.39 * S =	0.16 * E =	0.18 * S =
1.5557	0.9192	10.8899	3.9529	10.8899	3.5851	4.1485	1.6547

9. Now adding percentage distribution as given in detailed COCOMO model in the WBS phase-wise.



State Or on: S e House

Note: In r the Pr nagement Pl e a in *F*
Th anagement Methodology Vol

10. Now convert WBS contents in a Tabular format in order to make a GANTT CHART.

Activity #	Activity Name	Activity Name Description	# of Days	Start Date	Dependency on previous tasks	Milestone
1.1	**RE**	**Requirement Engineering**	**28**	**24/1/2021**	**none**	**21/2/2021**
1.1.1	**Initial Feasibility**		3	24/1/2021	None	27/1/2021
1.1.2	**Cost Benefit Analysis**	Analysis of cost	3	27/1/2021	None	30/1/2021
1.1.3	**System requirement Analysis SRS**	**Gather info (SRS)**	**6**	30/1/2021	None	5/2/2021
1.1.3.1	System requirement Analysis SRS **for Module 1**	Gather info for module 1	3	5/2/2021	None	8/2/2021
1.1.3.2	System requirement Analysis SRS **for Module 2**	Gather info for module 2	3	8/2/2021	None	11/2/2021
1.1.3.3	System requirement Analysis SRS **for Module 3**	Gather info for module 3	3	11/2/2021	None	14/2/2021
1.1.3.4	System requirement Analysis SRS **for Module 4**	Gather info for module 4	3	14/2/2021	None	17/2/2021
1.1.3.5	System requirement Analysis SRS **for Module 5**	Gather info for module 5	3	17/2/2021	None	21/2/2021
1.2	**Project Planning**	**Project Management Planning**	**16**	**15/3/2021**	**1.1**	**5/4/2021**
1.2.1	Develop plan	Development of project plane	1	**15/3/2021**	**RE**	**16/3/2021**
1.2.2	Implement plan	Implementation of project plane	1	**16/3/2021**	**RE**	**17/3/2021**

1.2.3	Monitor Progress	Take review on each phase	1	**17/3/2021**	**RE**	**18/3/2021**
1.2.3.1	Monitor Progress for module 1	Planning and monitor progress for module 1	1	**18/3/2021**	**RE**	**19/3/2021**
1.2.3.2	Monitor Progress for module 2	Planning and monitor progress for module 2	1	**19/3/2021**	**RE**	**20/3/2021**
1.2.3.3	Monitor Progress for module 3	Planning and monitor progress for module 3	1	**20/3/2021**	**RE**	**21/3/2021**
1.2.3.4	Monitor Progress for module 4	Planning and monitor progress for module 4	1	**21/3/2021**	**RE**	**22/3/2021**
1.2.3.5	Monitor Progress for module 5	Planning and monitor progress for module 5	1	**22/3/2021**	**RE**	**23/3/2021**
1.3	**System architecture design**	**Develop Architecture System Design**	1	**23/3/2021**	**planning**	**24/3/2021**
1.3.1	System requirement	Analysis	1	**24/3/2021**	**Planning**	**25/3/2021**
1.3.2	Software architecture design	Implement Design	1	**25/3/2021**	**Planning**	**26/3/2021**
1.3.3	System detail design	Develop System detail design	1	**26/3/2021**	**Planning**	**27/3/2021**
1.4	**Construct, Coding and Testing**	Implementation of software	1	**27/3/2021**	**1.2**	**28/3/2021**
1.4.1	Develop software Components	Implementation of software	1	**28/3/2021**	**Design**	**29/3/2021**
1.4.2	Unit test components	Implementation of software	1	**29/3/2021**	**Design**	**30/3/2021**
1.4.3	Integrate components	Test for every Module	1	**30/3/2021**	**Design**	**31/3/2021**
1.4.4	Test software Module	Test at end	1	**31/3/2021**	**Design**	**01/4/2021**

1.5	**Integrate and development**	Development of a project	1	**01/4/2021**	**Construction /coding/ testing**	**02/4/2021**
1.5.1	Integrate system	Combine module	1	**02/4/2021**	**Construction /coding/ testing**	**03/4/2021**
1.5.2	Test System	Test all project	1	**03/3/2021**	**Construction /coding/ testing**	**04/3/2021**
1.5.3	Delivery and installation	Installation / Final test after deploy a project	1	**4/4/2021**	**Construction/ coding/ testing**	**5/4/2021**

6. Work Product Identification

Provide a list of all deliverables required by the project, the date due and the person responsible for the deliverable. Pick Last activities from each phase they are deliverables.

Deliverable Name	***Due Date***	***Date Delivered***	***Point of Contact***
SRS by Member 1	21/2/2021	22/2/2021	9760
SRS by Member 2	21/2/2021	21/2/2021	9910
SRS by Member 3	21/2/2021	21/2/2021	9763
SRS by Member 4	21/2/2021	21/2/2021	9646
SRS by Member 5	21/2/2021	21/2/2021	9779
PMP by Member 1	5/4/2021	5/4/2021	9760
PMP by Member 2	5/4/2021	5/4/2021	9910
PMP by Member 3	5/4/2021	5/4/2021	9763
PMP by Member 4	5/4/2021	6/4/2021	9646
PMP by Member 5	5/4/2021	5/4/2021	9779

7. SCHEDULE

Provide the project schedule, using a Gantt chart. The schedule must include milestones, task dependencies, task duration, work product delivery dates, quality milestones (reviews/audits/inspections), configuration management milestones, and action items (with deadlines and responsibilities).

	Task Name	Work	Duration	Start	Finish	Details	S
18	**Design**	**120 hrs**	**14.5 days**	**Mon 1/26/04**	**Fri 2/13/04**	Work	
19	Review preliminary software specifications	16 hrs	2 days	Mon 1/26/04	Wed 1/28/04	Work	
	Analyst	*16 hrs*		*Mon 1/26/04*	*Wed 1/28/04*	Work	
20	Develop functional specifications	40 hrs	5 days	Wed 1/28/04	Wed 2/4/04	Work	
	Analyst	*40 hrs*		*Wed 1/28/04*	*Wed 2/4/04*	Work	
21	Develop prototype based on functional specifications	32 hrs	4 days	Wed 2/4/04	Tue 2/10/04	Work	
	Analyst	*32 hrs*		*Wed 2/4/04*	*Tue 2/10/04*	Work	
22	Review functional specifications	16 hrs	2 days	Tue 2/10/04	Thu 2/12/04	Work	
	Management	*16 hrs*		*Tue 2/10/04*	*Thu 2/12/04*	Work	
23	Incorporate feedback into functional specifications	8 hrs	1 day	Thu 2/12/04	Fri 2/13/04	Work	
	Management	*8 hrs*		*Thu 2/12/04*	*Fri 2/13/04*	Work	
24	Obtain approval to proceed	8 hrs	4 hrs	Fri 2/13/04	Fri 2/13/04	Work	
	Management	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
	Project manager	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
25	Design complete	0 hrs	0 days	Fri 2/13/04	Fri 2/13/04	Work	
26	**Development**	**264 hrs**	**21.75 days**	**Mon 2/16/04**	**Tue 3/16/04**	Work	
27	Review functional specifications	8 hrs	1 day	Mon 2/16/04	Mon 2/16/04	Work	
	Developer	*8 hrs*		*Mon 2/16/04*	*Mon 2/16/04*	Work	
28	Identify modular/tiered design parameters	8 hrs	1 day	Tue 2/17/04	Tue 2/17/04	Work	
	Developer	*8 hrs*		*Tue 2/17/04*	*Tue 2/17/04*	Work	
29	Assign development staff	8 hrs	1 day	Wed 2/18/04	Wed 2/18/04	Work	
	Developer	*8 hrs*		*Wed 2/18/04*	*Wed 2/18/04*	Work	
30	Develop code	120 hrs	15 days	Thu 2/19/04	Wed 3/10/04	Work	
	Developer	*120 hrs*		*Thu 2/19/04*	*Wed 3/10/04*	Work	
31	Developer testing (primary debugging)	120 hrs	15 days	Tue 2/24/04	Tue 3/16/04	Work	
	Developer	*120 hrs*		*Tue 2/24/04*	*Tue 3/16/04*	Work	
32	Development complete	0 hrs	0 days	Tue 3/16/04	Tue 3/16/04	Work	
33	**Testing**	**280 hrs**	**48.75 days**	**Mon 2/16/04**	**Thu 4/22/04**	Work	
34	Develop unit test plans using product specifications	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	
	Testers	*32 hrs*		*Mon 2/16/04*	*Thu 2/19/04*	Work	
35	Develop integration test plans using product specifica	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	

Work Packages, Tasks & Activities		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
Concept Exploration	Internal Case Study												
	Communicate with CRM												
Initial Project Plan	SPMP Pass #1												
	Review by CRM												
	SPMP Pass #2												
Travel & Orientation	Meeting with CRM Representatives												
	Meeting with 26 programmers												
	Recruiting into Organizational Chart												
	OOP Training												
Initial SRS	SRS Pass #1												
	Prototype 1 (Screens)												
	SRS Review by Team												
Final SPMP	Pass #3												
Final SRS	SRS Review as per SPMP												
	SRS Submission to CRM												
Design	High level Design												
	High Level Review												
	Prototype 2												

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

	Detail Level Design												
	Detail Level Review												
	Prototype 3												
System Construction	Source Code & Executable Program												
	Review by CRM												
System Verification & Validation	Testing Summary Report												
	Review by CRM												
	Customer Acceptance Feedback												
System Delivery	System Delivery & Maintenance												

8. Estimated Cost at Completion

Provide an estimated cost at completion, which is an assessment of the total effort at completion of the contract.

		Analysis in Hours					*Analysis in Dollars*				
WBS No.	***Activity Description***	***Budget Hours***	***Actual Hours***	***Est. to Complete remaining work***	***Est. @ Complete of project***	***Variance (+ = More)***	***Budget $***	***Actual $***	***Est. to Complete***	***Est. @ Complete***	***Variance (+ = More)***
				A+ @	***@ = B-A***	***a-b/a***					

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

9. Resource Loading Profiles - Staffing

Provide a staffing plan that shows the number of personnel, by type, that will be required on the project on a monthly basis.

Organization	**Liaison- interfaces**	**Contact Information**
Customer: APMM	Masood	872874287
Subcontractor: None	Hasssa Habib	87287427887
Software Quality Assurance: CRM	Sumair ul haq	873873879838
Software Configuration Management: Team 2	Muhammad Hassaan	8234874387837
Change Control: Team 2	M . Osama	7367439743889

Role	**Description**	**Person**
Project Leader	Leads project team; responsible for project deliverables	Masood Arif
Project Management Team/Analysts	Assisting in building SPMP, SRS and prototype, as well as doing the necessary requirement and risk analysis for the project	Hasssa Habib Sumair ul haq
Project Development Manager	Leads Chinese software developers; responsible for project deliverables	Muhammad Hassaan M .Osama
Programming Manager	Responsible for the communication between the Management Team and the rest of the software development team; the Programming Manager is also responsible for reallocating the human resources and equipment of the project.	Masood Arif

Software Managers	Responsible for managing the team of 7 people; does the design of the software; after reviewing reports from Test Engineer decides whether code needs to be sent back to Development Engineer for improvement or to be send to Quality Assurance Manager for quality assurance phase	Hassan Habib
Development Engineers	Responsible for designing of software and distributing work among Code Developers	Sumair ul haq
Code Developers	Responsible for writing programming code	Masood Arif
Test Engineer	Responsible for testing and validation process in his/her team; leads Test Technician in the testing process and reports the results of the testing process to the software manager	Masood Arif
Test Technician	Performs the testing and validation procedure; reports found errors to Test Engineer	Muhmmad Osama
Quality Assurance Manager	Responsible for quality assurance; reports to Software Manager and Project Development Manager	Sumair ul haq
Quality Engineer	Performs quality assurance procedure; reports the results to Quality Assurance Manager	Muhammad Hassaan

10. Project Requirements

Provide a detailed listing of project requirements, with references, to the statement of work, work breakdown structure, and specifications.

No.	Requirement	RFP Reference Not submitted by the client in Adv.	SOW Reference	WBS Task Reference	Specification Reference	Date Completed	Comments/Clarification
1.	**3.1.1 Login**	**N/A**	**1**	**1.1.3.1**	**3.1.1**	**5/4/2021**	**Good**
2.	**3.1.2 Module 1 CRUDS**	**N/A**	**2**	**1.1.3.2**	**3.1.2**	**5/4/2021**	**Improvement**
3.	**3.1.3 Module 2 CRUDS**	**N/A**	**3**	**1.1.3.3**	**3.1.3**	**5/4/2021**	**Nice**
4.	**3.1.4 Module 3 CRUDS**	**N/A**	**4**	**1.1.3.4**	**3.1.4**	**5/4/2021**	**Well performed**
5.	**3.1.5 Module 4 CRUDS**	**N/A**	**5**	**1.1.3.5**	**3.1.5**	**5/4/2021**	**Improvement**
6.	**3.1.6 Module 5 CRUDS**	**N/A**	**6**	**1.1.3.6**	**3.1.6**	**5/4/2021**	**Good**

SOW = Statement of Work

11. Risk Identification

Provide a description of all risks identified for the project. A risk is anything that might detrimentally affect the successful completion of the project if left unaddressed. The contractual, management, and technical risks associated should be identified and assessed as to the probability of the risk occurring, the cost to correct if the risk occurs, the impact of the risk on the project, and the suggested mitigation activities and cost of mitigation.

Risk Worksheet

Last Risk Assessment Date: Prepared by: Hassan Habib Khan

Risk Category/ Event	*Loss Hours*	*Probability*	*Risk Hours*	*Previous Risk Hours*	*Preventive Measures*	*Contingency Measures*	*Comments*
Governance Risk	**120**	**0.8**	**48**	**-**	**Our Lawyer will handle all the situation accordingly.**	**Consult the court or ministers to resolve the issues with government.**	**CRITICAL**
Schedule Risk	**24**	**0.2**	**12**	**-**	**We will have a tight schedule and will make a schedule. According to our schedule project will be completed and deployed before the time.**	**If our schedule is not as per planned we already made our schedule in a way that we will do the development before time, we will utilize that time as well but if we are too behind schedule our developers have to work overtime.**	**MEDIUM**
Operational Risk	**24-48**	**0.5**	**24**	**-**	**Avoid poor implementations and process problems.**	**Our managers will be restricted to overcome problems and start implementing new strategies.**	**LOW**
Software Risk	**24**	**0.3**	**24**	**-**	**Hire professionals. Select the**	**If we faced this type of emergency we will switch the software technology at**	

					appropriate software for development, stable servers and project management. We will use the best and most stable servers for every software to avoid future problems.	**once which is currently in use in our organization. We are already using the best servers so we don't have to worry about that but for the software performance and stability we will use the most talented team of ours to overcome the tie wasted and complete the project fully.**	**MEDIUM**
Staff experience and professionalism .	**24-72**	**0.3**	**48**	**-**	**Our organization hires the junior developers who are under the teams of professional and experienced team leaders. We also have a team of experienced developers which can handle every type of situations and can work under pressure.**	**If we faced some type problems form our staff we will right away send the project to our experienced developers team or in case they are already stuck in a project we will hire a professional which can team up with our junior developer's leader and can finish the work according to schedule.**	**CRITICAL**
Natural Hazard risk	**-**	**0.5**	**-**	**-**	**Natural Hazards are not something that can be predicted or controlled but**	**If the situation is under control there will be no off. If the situation is critical but will be under control in few days we can either work**	

					humans but we have to be prepared for any type of situation. According to our scheduling we want to complete the project before given time so in this case also we can utilize those leftover days. If the situation is like COVID-19's hazard our developers will remotely.	**remotely or take some rest, it all depends on the schedule. But if the situation is critical and we can't predict when it will be under control our teams will work remotely.**	**CAN BE CRITICAL**
Software Performance and Security Risk	**-**	**0.4**	**-**	**-**	**We are using latest and stable technologies but we will still prototype our modules and test the software with huge dummy data and our security team will try to catch the loop holes. Our maintenance team will be ready to handle the panicked situation**	**Software performance is not being compromised form our organization but if we faced this type of situation our maintenance team will right away check the software bugs and our security team will be ready if there something hacking activity detected.**	**MEDIUM**

					accordingly.		
Poor Management	**48-72**	**0.2**	**48**	**-**	**We will hire professionals for our organization who can face any type of situation and can handle the planning of difficult software. Proper strategies and project planning will be made before starting any project and everyone will act according to the plan.**	**Our project managers will be asked to revise the project planning and strategies. If they can't handle the situation we can compromise our management we will right away send project planning to another professional team manager who will work the previous manager to handle the situation with new and better strategies.**	**MEDIUM**
Budget Changes	**48-72**	**0.1**	**60**	**-**	**We will sign the proper legal contract in which every small detail will be mentioned to avoid future difficulties.**	**However, if the client wants to change the budget we will not leave our client but will act accordingly and we have to compromise on development. Old codes will be refactored, there will be no tough schedule and every situation will be handled by juniors.**	**LOW**

General Risk Analysis Comments:

Risk Items	Risk Management Techniques
Personnel Shortfalls	Staffing with top talent, job matching; team building; morale

	building; cross training; pre-scheduling key people
Unrealistic schedules and budgets	Detailed, multi source cost and schedule estimation; design to cost; incremental development; software reuse; requirement scrubbing
Developing the wrong software functions	Organizational analysis; mission analysis; ops-concept formulation; user surveys; prototyping; early users' manuals
Developing the wrong user interface	Task analysis; prototyping; scenarios; user characterization (functionality, style, workload)
Gold Plating	Requirement scrubbing; prototyping; cost-benefit analysis; design to cost
Continuing stream of requirement changes	High change threshold; information hiding; incremental development (defer changes to later increments)
Shortfalls in externally furnished components	Benchmarking; inspections; reference checking; compatibility analysis
Shortfalls in externally performed tasks	Reference checking; pre-award audits; award-fee contracts; competitive design or prototyping team building
Real-time performance shortfalls	Simulation; benchmarking; modeling; prototyping; instrumentation; tuning
Straining computer-science capabilities	Technical analysis; cost-benefit analysis; prototyping; reference checking

Risk Management:

1	Identify the project's top10 risk items
2	Present a plan for resolving each risk item
3	Update list of top risk items, plan, and results monthly
4	Highlight risk-item status in monthly project reviews. Compare with previous month's ranking status
5	Initiate appropriate corrective actions

12. Configuration Management Plan

Provide a configuration management plan that defines the person responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required to conduct CM.

CM Responsibility

Manager:

Additional Staff for CM:

Procedure Reference:

Configuration Items:. Ensure that CM is implemented throughout the project's life cycle.

No.	Item	Comments
1.	analysis	prototyping; early users' manuals
2.	risk item	Present a plan for resolving
3.	ranking status	Highlight risk-item status in monthly project reviews

Ensure that project has a repository for storing configuration items and associated CM records. Briefly describe.

responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required

13. Quality Plan

Provide a quality plan that defines the person responsible for project quality assurance, the procedures that will be used and resources required to conduct quality assurance.

QA Responsibility

Manager:

Additional Staff for QA:

Procedure Reference:

Planned Quality Event: Ensure that QA is implemented throughout the project's life cycle. Dates include QA audits and reviews, design walkthroughs and other project activities that QA staff will participate in.

No.	Item	Comments
1.	Gold Plating	Initiate appropriate corrective actions
2.	Stream	change threshold; information hiding
3.	Shortfalls	cost-benefit analysis; prototyping; reference

Ensure that project has a repository for storing configuration items and associated QA records. Briefly describe.

Ensure that QA audits the baselines and CM activities on a regular basis. Briefly describe

14. Top Five Issues

Provide a list of known issues associated with the project, with proposed or recommended solutions.

Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
Complete Requirement	*Masood Arif*			*Held by the complete RE procedure*
Development Life Cycle	*Hassan habib*			*The modeling procedure of defining sustainability*
Views	*Muhammad Osama*			*The user friendly view should be appropriate defining.*
Error On uploading	*Sumair ul haq*			*The hosting file size nor enough*
Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

15.Action Item Status

Maintain a list of action items, including a description of the item, a point of contact a date by which action should be taken and a description of the action taken to close items.

Action Item #	***Action Item Description***	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
	The Input model	*Sumair ul haq*			*Resolve*
	Contract	*Muhammad Hassan*			*Sustain*

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Project Management Plan:
GI's HRPRL

<Copy and Paste PMP document by Member 4 here>

Form PM - 01

Project Management Plan/Charter

By: sumair ul haq

State Organization: Software House

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

PROJECT MANAGEMENT PLAN TEMPLATE

Release #: 3rd

Project Manager: Masood Arif

Approvals:

Masood Arif_____
Project Manager

_____
Prime Contractor Manager - (if applicable)

School Library_____
State Organization Management

Sumair & team
User Management

_____
Oversight Manager - (if applicable)

_____

Accounts_____
Department of Finance

_____
Other:

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

7. Project Summary

Information in the project summary areas was started during the project concept phase and should be included here.

Project Name:	***Library Management System***	***Start Date:***	***25/3/2021***
State Organization::	***PAF-KIET***	***Submitted by:***	***Sumair ul haq***
Prime Contractor:	***Dr. Umema hani***	***Date Awarded:***	***2/March/2007***
Current Stage of Project:	***Software Development Life Cycle (SDLC) – SPIRAL Model***		

Project is On Schedule:	***Yes:*** ☝ ***No:*** ***Details: the project build was based on the schedule of completion of 4 months' duration in the 25% average on per month.***	***Project is within Budget:***	***Yes:*** ☝ ***No:*** ***Comments: The project has 6 lakhs budget.***

Please answer the following questions by marking "Yes" or "No" and provide a brief response as appropriate			***Yes***	***No***
Is this an updated Project Plan? If so, reason for Update: Yes_____				
Budget for project by fiscal year and is project funded? If so, for what amount(s) and period(s):				
Budget Amount:	Year:2021	Funded?	**yes**	____
Budget Amount:	Year: 2022	Funded?	____	**no**
Budget Amount:	Year: 2023	Funded?	____	**no**
Total Budget:				

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

Project Summary - Continued

Points of Contact

This should be the list of individuals that will be involved with the project during the execution phase.

Position	Name/Organization	Phone	E-mail
Project Manager	**Masood arif**	**7898181480**	**Masoodarif1313@gmail.com**
Senior Management Sponsor	**Sumair ul haq**	**47348734**	**sumairk198@gamil.com**
Senior Technical Sponsor	**Hassan Habib Khan**	**938939389**	**Hassanhabib356@hotmail.com**
Procurement Contact	**Initial**		
Customers:	**Students, Member , Faculty**		
Other Stakeholders (Top 3):			

Prime Contractor Information

Company: School Library

Position	Name	Phone	E-mail
Project Manager	**Masood arif**	**09393984908**	**Masood@gmail.com**
Senior Technical Sponsor	**Hassan Habib**	**08768734838**	**Hassan@hotmail.com**
Contracts Contact	**Muhammad Osama / M. Hassaan**	**982818738743**	**-**

8. Project Charter

Business Problem.

All projects start with a business problem/issue to solve.

Library Management System is a term for computer-based system that manage the catalogue of a library. The main purpose of this system is to manage library daily operation efficiently..... It is also created to ensure that the library items are stored properly in order to maintain their security The library management system is a software to manage manual functions of a library. The software helps to manage the entire library operations from maintaining book records to issue a book.

Statement of Work (Goal).

The statement should be short and to the point. It should not contain language or terminology that might not be understood.

This product aims to replace the current manual system with the automated solution. The main system will comprise of 6 major sub-systems or Modules the integration of theses sub-system will form the main system. All the sub-systems will be tightly integrated so as to give unanimity to user. The current client setup does not have any automation. Therefore, every department and the section will be developed from scratch as all departments are currently working manually. In this document we are covering ***"Human resource and payroll System"*** *only.*

19. **Login**
20. **User Authorization**
21. **Book Transaction Module**
22. **Member Maintenance Module**
23. **Publisher Maintenance Module**
24. **Report Module**

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

14. Project Charter, continued

Project Objectives:

Provide a brief, concise list of what the project is to accomplish.

The primary function of our library is to implement, enrich and support the educational program School. The library provides a wide range of materials at various levels of sophistication with a diversity of appeal and different points of view.. The main divisions of the system are:

19. Authentication user to check Member authentication of l ibrary system
20. Library Management and Book stocks will be maintained (CRUD)
21. Book transaction module is to manage the receiver's data accordingly
22. Publisher maintenance Module to arrange the books sections
23. Member maintenance Module faculty/Students Record
24. Report Module to manage the payment report

This Project is specifically focused over Module 2 and 5

Success Factors:

List factors that will be used to determine the success of the project.

13. Complete deployment of all 4 modules
14. Smooth integration between all systems
15. effacingly error resolve
16. Everything is going according to the plan

Project Dependencies/Constraints:

Project completion is expected in less than 3.5 months duration
All requirements will be 100% available during requirement phase
Maximum team strength 5

15. Project Tradeoff Matrix & Status Summary

Schedule/Time	Scope/Modules	Resources/Effort/People
CONSTRAINED	CONSTRAINED / **ACCEPTED**	CONSTRAINED / Need to be **IMPROVED** (Cocomo effort = 10 not acceptable our constraint is max 5 members in 3.5 months)

Identify variable to be CONSTRAINED, IMPROVED, ACCEPTED

Comments:

Accepted

+/- Status (Review and Progress Meeting)

	Team	Tech	Schedule	Cost	Comment
RM 1	Requirement SRS and Modeling	-/+	-/+	-/+	SRS Submission
RM 2	PMP	Chap 7 and 18 not complete and chap 1/6 complete	Next week (29/3) meeting Ch 1 and 2 done - /+	-/+	PMP Submission
RM 3	Modeling	-/+	-/+	-/+	Done already in SRS
RM 4	Coding and Testing	-/+	-/+	-/+	Testing Report Submission
RM 4	Demo / Deployment	-/+	-/+	-/+	Final Project Report Submission

Discuss:

Legend
+ = Ahead of Schedule
- = Behind Schedule

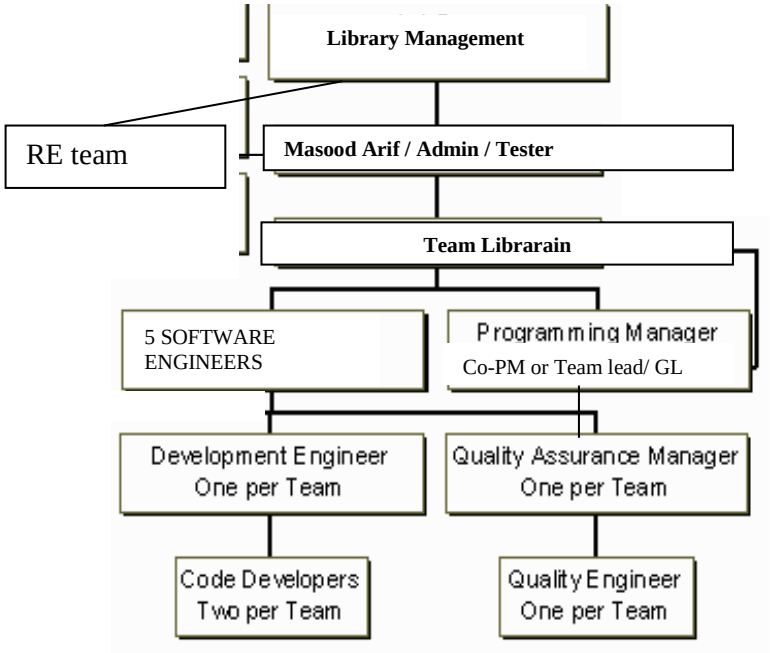
/ = On Schedule

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

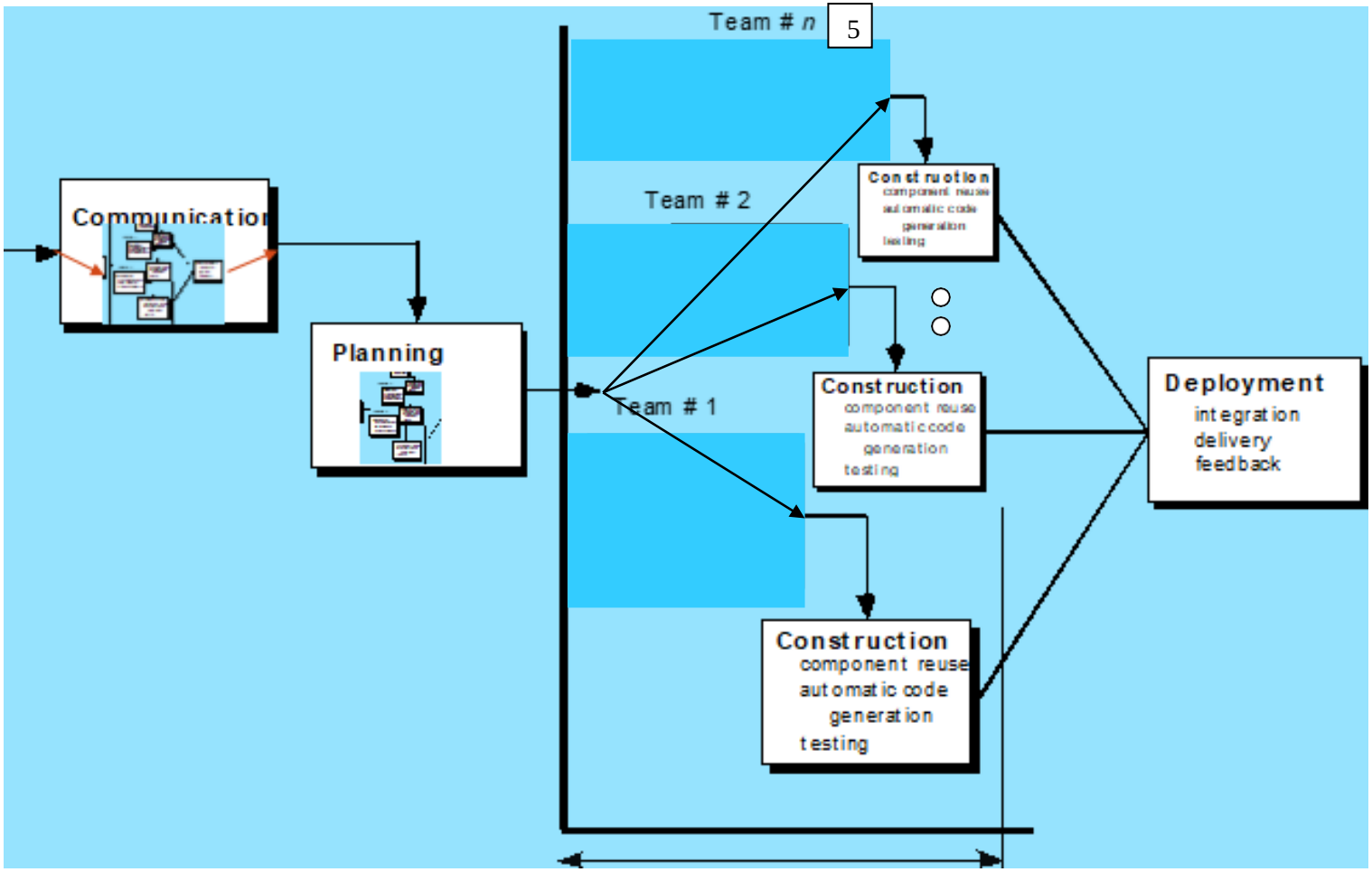
16. Project Organization

Provide an organization chart that defines the person responsible for at least the following functions: project manager, development manager, quality assurance, and configuration management

.



SDLC Process Model:



17. Activity List (Work Breakdown Structure)

Provide an activity list (*work breakdown structure*) *that describes each task required by the project, with a reference to the statement of work. For large projects, work packages might be included that describe in detail how specific tasks will be completed by specific project teams. These work packages describe required schedule, identify requirements to be completed and describe specific work to be performed*

11. First Estimating FP then from it E and S.

Software Size Estimation using Function Point Method

C) Detail of 5 Transaction Types, at most 5 under each category	
	Write down exact Screen or Forms names, or Tables, or Reports name for each count value.
EI	1. Login/User Authorization 2. Book transaction 3. Member Maintenance 4 Publisher Maintenance 5. Report
EO	1. Users table 2. Book Record table 3. Member table 4 publisher table 5. Report table
EQ	1. Search User 2. Book search 3. Member search 4 Search publisher 5. Search report
ILF	1. Login/User Authorization 2.Library Management 3. Member 4 publisher 5.Report
ELF	1. __User Authorization Details___-_____ 2. __Book transaction details ____-_____ 3. Member Maintenance details ___-_____ 4. __Publisher Maintenance details ____- 5. __ Report __ details _-_____

D) Unadjusted Function Point Value calculation
Definition of Complexities: Your Transactions which are derived from only from 1 Table are to be

categorized as Low and if they are derive from 2 tables they can be categorized in Mid-level complexity, and in case of >= 3 they will be placed under High level of complexity.

	Count for screens of Low level complexity (C)	Multiplier Low level complexity (M)	V1 = C * M	Count for screens of Mid-level complexity (C)	Multiplier Mid-level complexity (M)	V2 = C * M	Count for screens of High-level complexity (C)	Multiplier High-level complexity (M)	V3 = C * M	Category wise sum V1+V2+V3
EI	3	3	9	1	4	4	1	6	6	19
EO	3	4	12	1	5	5	1	7	7	24
EQ	3	3	9	1	7	7	1	6	6	22
ILF	3	7	21	1	0	0	1	15	15	36
ELF	0	5	0	0	7	7	0	10	10	17
								Unadjusted Function Point Value =		**118**

C) Value Adjustment Factor (VAF) calculation

Note: Calculate Value Adjustment Factor, where any 5 "General System Characteristics (GSC) must have a value above 2. Also show respect Quality Characteristic mapping of these 5 factors.

	Quality Characteristic	Weight (0-5)		Quality Characteristic	Weight (0-5)
8.		3	15.		3
9.		2	16.		2
10.		1	17.		4
11.		4	18.		1
12.		5	19.		3
13.		0	20.		2
14.		1	21.		0

Value Adjustment Factor (VAF) = 31

D) Technology Complexity Factor calculation

TCF = 0.65 + (VAF * 0.01)
= 0.65 +(31*0.01)
= 0.96

E) Adjusted Function Point Value (AFPV) or Function Point Value (FP) Calculation

AFPV = _ Unadjusted Function Point * TCF
= 118 * 0.96
= 113.28

F) Conversion of AFPV in to LOC Size metric

the number of LOCs per FP for C# language 54 and check other languages from https://www.qsm.com/resources/function-point-languages-table, ASP 51 and VB.net 52

Project Size in LOC = AFPV * LOC/FP

Project Size in LOC = 113.28 * 54 = 6117.12 LOC

G) Software Size: **6117.12**

Software Size for COCOMO: 9.910 KLOC

Software Type: **Business**/ Utility/Embedded

Model Mode: Cocomo I – Basic – **ORGANIC (0 – 50 KLOC)** / Semi detached/Embedded

h) **Effort Estimation:** Equation
2.4 * 9.910 ^ 1.05
E = **26.6740**

i) **Schedule Estimation:** Equation
2.5 * E ^ 0.4 months = S
S= 2.5 ***26.6740** ^0.4
S = 9.2976

j) **Productivity Estimation:** Equation
Loc/E = 9910/**26.6740 =** 371.5228

k) **Average Loading Estimation:** Equation
E/S = **26.6740 / 9.2976**
2.8689

l) **Average Salary of Technical Staff (AS):** Equation
Assume = 50,000 RS

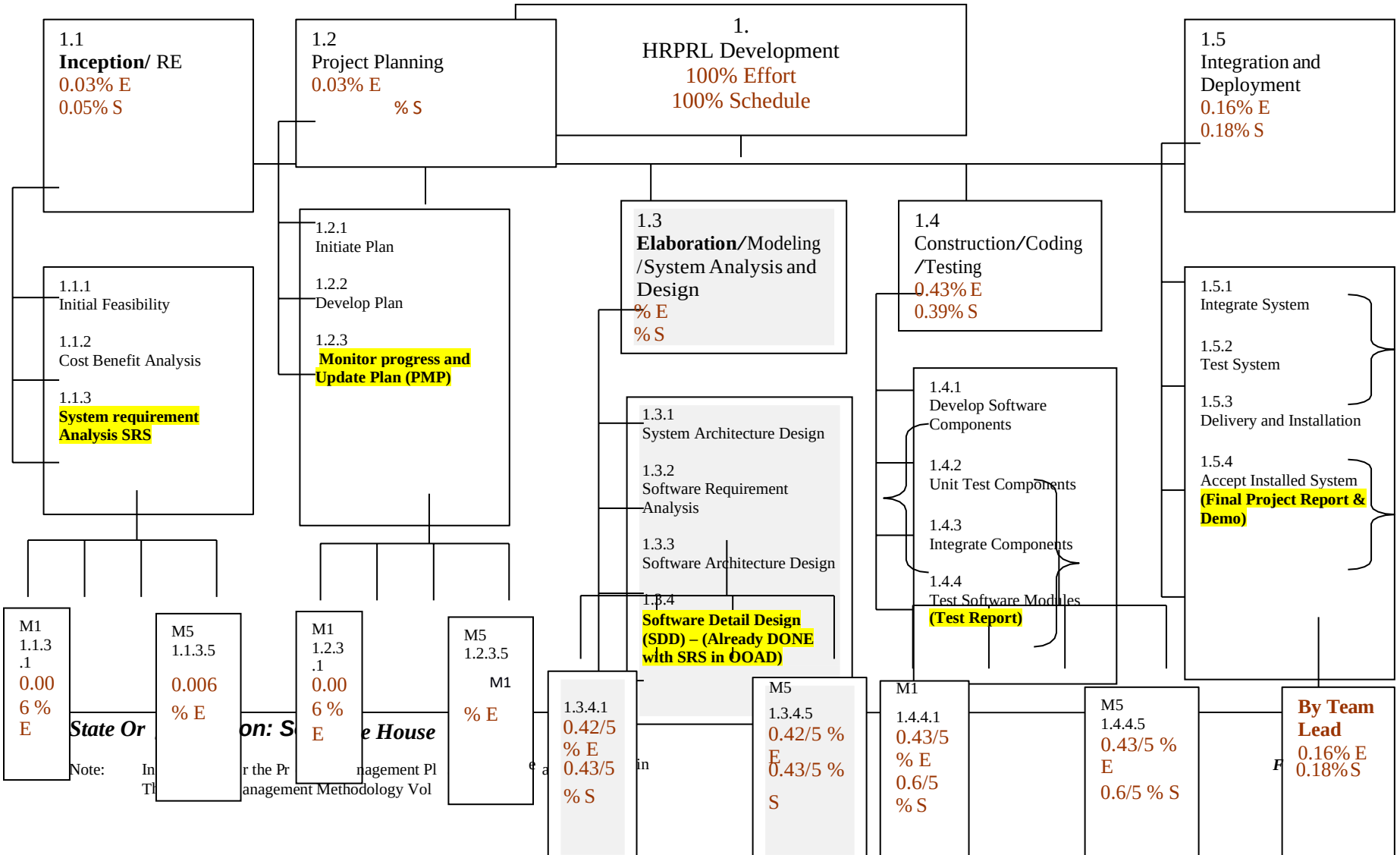
m) **Cost for Salary (Cs):** Equation
E * Avg salary = **26.6740 *** 50,000

1333700
n) **Budgeted Cost of Project (Cb):** Equation Cs + Cs * X% = Cb Cb = 1333700 + (2% of1333700) Cb =1333700 +26674 Cb = 1360374

3. Calculate the phase-wise percentage distribution wise E and S values as given in detailed COCOMO detailed model.

H) Distribution of Effort and Schedule among Different phases of SDLC							
E = _____26.6740 _____ **S = _____9.2976_____**							
Plan and Requirement		**Modeling / System Design & Detailed Design**		**Module Coding and Unit Testing**		**Integration & Deployment**	
0.06 * E =	0.10 * S =	(0.16+0.26) * E =	(0.19+0.24) S =	0.42 * E =	0.39 * S =	0.16 * E =	0.18 * S =
1.60044	0.92976	11.20308	3.9979	11.20308	3.62606	4.26784	1.673568

12. Now adding percentage distribution as given in detailed COCOMO model in the WBS phase-wise.



State Or on: S e House

Note: In r the Pr nagement Pl e a in
Th anagement Methodology Vol

13. Now convert WBS contents in a Tabular format in order to make a GANTT CHART.

Activity #	Activity Name	Activity Name Description	# of Days	Start Date	Dependency on previous tasks	Milestone
1.1	**RE**	**Requirement Engineering**	**28**	**24/1/2021**	**none**	**21/2/2021**
1.1.1	**Initial Feasibility**		3	24/1/2021	None	27/1/2021
1.1.2	**Cost Benefit Analysis**	Analysis of cost	3	27/1/2021	None	30/1/2021
1.1.3	**System requirement Analysis SRS**	**Gather info (SRS)**	**6**	30/1/2021	None	5/2/2021
1.1.3.1	System requirement Analysis SRS **for Module 1**	Gather info for module 1	3	5/2/2021	None	8/2/2021
1.1.3.2	System requirement Analysis SRS **for Module 2**	Gather info for module 2	3	8/2/2021	None	11/2/2021
1.1.3.3	System requirement Analysis SRS **for Module 3**	Gather info for module 3	3	11/2/2021	None	14/2/2021
1.1.3.4	System requirement Analysis SRS **for Module 4**	Gather info for module 4	3	14/2/2021	None	17/2/2021
1.1.3.5	System requirement Analysis SRS **for Module 5**	Gather info for module 5	3	17/2/2021	None	21/2/2021
1.2	**Project Planning**	**Project Management Planning**	**16**	**15/3/2021**	**1.1**	**5/4/2021**
1.2.1	Develop plan	Development of project plane	1	**15/3/2021**	**RE**	**16/3/2021**
1.2.2	Implement plan	Implementation of project plane	1	**16/3/2021**	**RE**	**17/3/2021**

1.2.3	Monitor Progress	Take review on each phase	1	**17/3/2021**	**RE**	**18/3/2021**
1.2.3.1	Monitor Progress for module 1	Planning and monitor progress for module 1	1	**18/3/2021**	**RE**	**19/3/2021**
1.2.3.2	Monitor Progress for module 2	Planning and monitor progress for module 2	1	**19/3/2021**	**RE**	**20/3/2021**
1.2.3.3	Monitor Progress for module 3	Planning and monitor progress for module 3	1	**20/3/2021**	**RE**	**21/3/2021**
1.2.3.4	Monitor Progress for module 4	Planning and monitor progress for module 4	1	**21/3/2021**	**RE**	**22/3/2021**
1.2.3.5	Monitor Progress for module 5	Planning and monitor progress for module 5	1	**22/3/2021**	**RE**	**23/3/2021**
1.3	**System architecture design**	**Develop Architecture System Design**	1	**23/3/2021**	**planning**	**24/3/2021**
1.3.1	System requirement	Analysis	1	**24/3/2021**	**Planning**	**25/3/2021**
1.3.2	Software architecture design	Implement Design	1	**25/3/2021**	**Planning**	**26/3/2021**
1.3.3	System detail design	Develop System detail design	1	**26/3/2021**	**Planning**	**27/3/2021**
1.4	**Construct, Coding and Testing**	Implementation of software	1	**27/3/2021**	**1.2**	**28/3/2021**
1.4.1	Develop software Components	Implementation of software	1	**28/3/2021**	**Design**	**29/3/2021**
1.4.2	Unit test components	Implementation of software	1	**29/3/2021**	**Design**	**30/3/2021**
1.4.3	Integrate components	Test for every Module	1	**30/3/2021**	**Design**	**31/3/2021**
1.4.4	Test software Module	Test at end	1	**31/3/2021**	**Design**	**01/4/2021**

1.5	**Integrate and development**	Development of a project	1	**01/4/2021**	**Construction /coding/ testing**	**02/4/2021**
1.5.1	Integrate system	Combine module	1	**02/4/2021**	**Construction /coding/ testing**	**03/4/2021**
1.5.2	Test System	Test all project	1	**03/3/2021**	**Construction /coding/ testing**	**04/3/2021**
1.5.3	Delivery and installation	Installation / Final test after deploy a project	1	**4/4/2021**	**Construction/ coding/ testing**	**5/4/2021**

6. Work Product Identification

Provide a list of all deliverables required by the project, the date due and the person responsible for the deliverable. Pick Last activities from each phase they are deliverables.

Deliverable Name	***Due Date***	***Date Delivered***	***Point of Contact***
SRS by Member 1	21/2/2021	22/2/2021	9760
SRS by Member 2	21/2/2021	21/2/2021	9910
SRS by Member 3	21/2/2021	21/2/2021	9763
SRS by Member 4	21/2/2021	21/2/2021	9646
SRS by Member 5	21/2/2021	21/2/2021	9779
PMP by Member 1	5/4/2021	5/4/2021	9760
PMP by Member 2	5/4/2021	5/4/2021	9910
PMP by Member 3	5/4/2021	5/4/2021	9763
PMP by Member 4	5/4/2021	6/4/2021	9646
PMP by Member 5	5/4/2021	5/4/2021	9779

7. SCHEDULE

Provide the project schedule, using a Gantt chart. The schedule must include milestones, task dependencies, task duration, work product delivery dates, quality milestones (reviews/audits/inspections), configuration management milestones, and action items (with deadlines and responsibilities).

	Task Name	Work	Duration	Start	Finish	Details	S
18	**Design**	**120 hrs**	**14.5 days**	**Mon 1/26/04**	**Fri 2/13/04**	Work	
19	Review preliminary software specifications	16 hrs	2 days	Mon 1/26/04	Wed 1/28/04	Work	
	Analyst	*16 hrs*		*Mon 1/26/04*	*Wed 1/28/04*	Work	
20	Develop functional specifications	40 hrs	5 days	Wed 1/28/04	Wed 2/4/04	Work	
	Analyst	*40 hrs*		*Wed 1/28/04*	*Wed 2/4/04*	Work	
21	Develop prototype based on functional specifications	32 hrs	4 days	Wed 2/4/04	Tue 2/10/04	Work	
	Analyst	*32 hrs*		*Wed 2/4/04*	*Tue 2/10/04*	Work	
22	Review functional specifications	16 hrs	2 days	Tue 2/10/04	Thu 2/12/04	Work	
	Management	*16 hrs*		*Tue 2/10/04*	*Thu 2/12/04*	Work	
23	Incorporate feedback into functional specifications	8 hrs	1 day	Thu 2/12/04	Fri 2/13/04	Work	
	Management	*8 hrs*		*Thu 2/12/04*	*Fri 2/13/04*	Work	
24	Obtain approval to proceed	8 hrs	4 hrs	Fri 2/13/04	Fri 2/13/04	Work	
	Management	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
	Project manager	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
25	Design complete	0 hrs	0 days	Fri 2/13/04	Fri 2/13/04	Work	
26	**Development**	**264 hrs**	**21.75 days**	**Mon 2/16/04**	**Tue 3/16/04**	Work	
27	Review functional specifications	8 hrs	1 day	Mon 2/16/04	Mon 2/16/04	Work	
	Developer	*8 hrs*		*Mon 2/16/04*	*Mon 2/16/04*	Work	
28	Identify modular/tiered design parameters	8 hrs	1 day	Tue 2/17/04	Tue 2/17/04	Work	
	Developer	*8 hrs*		*Tue 2/17/04*	*Tue 2/17/04*	Work	
29	Assign development staff	8 hrs	1 day	Wed 2/18/04	Wed 2/18/04	Work	
	Developer	*8 hrs*		*Wed 2/18/04*	*Wed 2/18/04*	Work	
30	Develop code	120 hrs	15 days	Thu 2/19/04	Wed 3/10/04	Work	
	Developer	*120 hrs*		*Thu 2/19/04*	*Wed 3/10/04*	Work	
31	Developer testing (primary debugging)	120 hrs	15 days	Tue 2/24/04	Tue 3/16/04	Work	
	Developer	*120 hrs*		*Tue 2/24/04*	*Tue 3/16/04*	Work	
32	Development complete	0 hrs	0 days	Tue 3/16/04	Tue 3/16/04	Work	
33	**Testing**	**280 hrs**	**48.75 days**	**Mon 2/16/04**	**Thu 4/22/04**	Work	
34	Develop unit test plans using product specifications	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	
	Testers	*32 hrs*		*Mon 2/16/04*	*Thu 2/19/04*	Work	
35	Develop integration test plans using product specifica	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	

Work Packages, Tasks & Activities		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
Concept Exploration	Internal Case Study												
	Communicate with CRM												
Initial Project Plan	SPMP Pass #1												
	Review by CRM												
	SPMP Pass #2												
Travel & Orientation	Meeting with CRM Representatives												
	Meeting with 26 programmers												
	Recruiting into Organizational Chart												
	OOP Training												
Initial SRS	SRS Pass #1												
	Prototype 1 (Screens)												
	SRS Review by Team												
Final SPMP	Pass #3												
Final SRS	SRS Review as per SPMP												
	SRS Submission to CRM												
Design	High level Design												
	High Level Review												
	Prototype 2												

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

	Detail Level Design												
	Detail Level Review												
	Prototype 3												
System Construction	Source Code & Executable Program												
	Review by CRM												
System Verification & Validation	Testing Summary Report												
	Review by CRM												
	Customer Acceptance Feedback												
System Delivery	System Delivery & Maintenance												

8. Estimated Cost at Completion

Provide an estimated cost at completion, which is an assessment of the total effort at completion of the contract.

		Analysis in Hours					*Analysis in Dollars*				
WBS No.	***Activity Description***	***Budget Hours***	***Actual Hours***	***Est. to Complete remaining work***	***Est. @ Complete of project***	***Variance (+ = More)***	***Budget $***	***Actual $***	***Est. to Complete***	***Est. @ Complete***	***Variance (+ = More)***
				A+ @	***@ = B-A***	***a-b/a***					

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

9. Resource Loading Profiles - Staffing

Provide a staffing plan that shows the number of personnel, by type, that will be required on the project on a monthly basis.

Organization	**Liaison- interfaces**	**Contact Information**
Customer: APMM	Masood	872874287
Subcontractor: None	Hasssa Habib	87287427887
Software Quality Assurance: CRM	Sumair ul haq	873873879838
Software Configuration Management: Team 2	Muhammad Hassaan	8234874387837
Change Control: Team 2	M . Osama	7367439743889

Role	**Description**	**Person**
Project Leader	Leads project team; responsible for project deliverables	Masood Arif
Project Management Team/Analysts	Assisting in building SPMP, SRS and prototype, as well as doing the necessary requirement and risk analysis for the project	Hasssa Habib Sumair ul haq
Project Development Manager	Leads Chinese software developers; responsible for project deliverables	Muhammad Hassaan M .Osama
Programming Manager	Responsible for the communication between the Management Team and the rest of the software development team; the Programming Manager is also responsible for reallocating the human resources and equipment of the project.	Masood Arif

Software Managers	Responsible for managing the team of 7 people; does the design of the software; after reviewing reports from Test Engineer decides whether code needs to be sent back to Development Engineer for improvement or to be send to Quality Assurance Manager for quality assurance phase	Hassan Habib
Development Engineers	Responsible for designing of software and distributing work among Code Developers	Sumair ul haq
Code Developers	Responsible for writing programming code	Masood Arif
Test Engineer	Responsible for testing and validation process in his/her team; leads Test Technician in the testing process and reports the results of the testing process to the software manager	Masood Arif
Test Technician	Performs the testing and validation procedure; reports found errors to Test Engineer	Muhmmad Osama
Quality Assurance Manager	Responsible for quality assurance; reports to Software Manager and Project Development Manager	Sumair ul haq
Quality Engineer	Performs quality assurance procedure; reports the results to Quality Assurance Manager	Muhammad Hassaan

10. Project Requirements

Provide a detailed listing of project requirements, with references, to the statement of work, work breakdown structure, and specifications.

No.	Requirement	RFP Reference Not submitted by the client in Adv.	SOW Reference	WBS Task Reference	Specification Reference	Date Completed	Comments/Clarification
1.	**3.1.1 Login**	**N/A**	**1**	**1.1.3.1**	**3.1.1**	**5/4/2021**	**Good**
2.	**3.1.2 Module 1 CRUDS**	**N/A**	**2**	**1.1.3.2**	**3.1.2**	**5/4/2021**	**Improvement**
3.	**3.1.3 Module 2 CRUDS**	**N/A**	**3**	**1.1.3.3**	**3.1.3**	**5/4/2021**	**Nice**
4.	**3.1.4 Module 3 CRUDS**	**N/A**	**4**	**1.1.3.4**	**3.1.4**	**5/4/2021**	**Well performed**
5.	**3.1.5 Module 4 CRUDS**	**N/A**	**5**	**1.1.3.5**	**3.1.5**	**5/4/2021**	**Improvement**
6.	**3.1.6 Module 5 CRUDS**	**N/A**	**6**	**1.1.3.6**	**3.1.6**	**5/4/2021**	**Good**

SOW = Statement of Work

11. Risk Identification

Provide a description of all risks identified for the project. A risk is anything that might detrimentally affect the successful completion of the project if left unaddressed. The contractual, management, and technical risks associated should be identified and assessed as to the probability of the risk occurring, the cost to correct if the risk occurs, the impact of the risk on the project, and the suggested mitigation activities and cost of mitigation.

Risk Worksheet

Last Risk Assessment Date: Prepared by: Hassan Habib Khan

Risk Category/ Event	*Loss Hours*	*Probability*	*Risk Hours*	*Previous Risk Hours*	*Preventive Measures*	*Contingency Measures*	*Comments*
Governance Risk	**120**	**0.8**	**48**	**-**	**Our Lawyer will handle all the situation accordingly.**	**Consult the court or ministers to resolve the issues with government.**	**CRITICAL**
Schedule Risk	**24**	**0.2**	**12**	**-**	**We will have a tight schedule and will make a schedule. According to our schedule project will be completed and deployed before the time.**	**If our schedule is not as per planned we already made our schedule in a way that we will do the development before time, we will utilize that time as well but if we are too behind schedule our developers have to work overtime.**	**MEDIUM**
Operational Risk	**24-48**	**0.5**	**24**	**-**	**Avoid poor implementations and process problems.**	**Our managers will be restricted to overcome problems and start implementing new strategies.**	**LOW**
Software Risk	**24**	**0.3**	**24**	**-**	**Hire professionals. Select the**	**If we faced this type of emergency we will switch the software technology at**	

					appropriate software for development, stable servers and project management. We will use the best and most stable servers for every software to avoid future problems.	**once which is currently in use in our organization. We are already using the best servers so we don't have to worry about that but for the software performance and stability we will use the most talented team of ours to overcome the tie wasted and complete the project fully.**	**MEDIUM**
Staff experience and professionalism .	**24-72**	**0.3**	**48**	**-**	**Our organization hires the junior developers who are under the teams of professional and experienced team leaders. We also have a team of experienced developers which can handle every type of situations and can work under pressure.**	**If we faced some type problems form our staff we will right away send the project to our experienced developers team or in case they are already stuck in a project we will hire a professional which can team up with our junior developer's leader and can finish the work according to schedule.**	**CRITICAL**
Natural Hazard risk	**-**	**0.5**	**-**	**-**	**Natural Hazards are not something that can be predicted or controlled but**	**If the situation is under control there will be no off. If the situation is critical but will be under control in few days we can either work**	

					humans but we have to be prepared for any type of situation. According to our scheduling we want to complete the project before given time so in this case also we can utilize those leftover days. If the situation is like COVID-19's hazard our developers will remotely.	**remotely or take some rest, it all depends on the schedule. But if the situation is critical and we can't predict when it will be under control our teams will work remotely.**	**CAN BE CRITICAL**
Software Performance and Security Risk	**-**	**0.4**	**-**	**-**	**We are using latest and stable technologies but we will still prototype our modules and test the software with huge dummy data and our security team will try to catch the loop holes. Our maintenance team will be ready to handle the panicked situation**	**Software performance is not being compromised form our organization but if we faced this type of situation our maintenance team will right away check the software bugs and our security team will be ready if there something hacking activity detected.**	**MEDIUM**

					accordingly.		
Poor Management	**48-72**	**0.2**	**48**	**-**	**We will hire professionals for our organization who can face any type of situation and can handle the planning of difficult software. Proper strategies and project planning will be made before starting any project and everyone will act according to the plan.**	**Our project managers will be asked to revise the project planning and strategies. If they can't handle the situation we can compromise our management we will right away send project planning to another professional team manager who will work the previous manager to handle the situation with new and better strategies.**	**MEDIUM**
Budget Changes	**48-72**	**0.1**	**60**	**-**	**We will sign the proper legal contract in which every small detail will be mentioned to avoid future difficulties.**	**However, if the client wants to change the budget we will not leave our client but will act accordingly and we have to compromise on development. Old codes will be refactored, there will be no tough schedule and every situation will be handled by juniors.**	**LOW**

General Risk Analysis Comments:

Risk Items	Risk Management Techniques
Personnel Shortfalls	Staffing with top talent, job matching; team building; morale

	building; cross training; pre-scheduling key people
Unrealistic schedules and budgets	Detailed, multi source cost and schedule estimation; design to cost; incremental development; software reuse; requirement scrubbing
Developing the wrong software functions	Organizational analysis; mission analysis; ops-concept formulation; user surveys; prototyping; early users' manuals
Developing the wrong user interface	Task analysis; prototyping; scenarios; user characterization (functionality, style, workload)
Gold Plating	Requirement scrubbing; prototyping; cost-benefit analysis; design to cost
Continuing stream of requirement changes	High change threshold; information hiding; incremental development (defer changes to later increments)
Shortfalls in externally furnished components	Benchmarking; inspections; reference checking; compatibility analysis
Shortfalls in externally performed tasks	Reference checking; pre-award audits; award-fee contracts; competitive design or prototyping team building
Real-time performance shortfalls	Simulation; benchmarking; modeling; prototyping; instrumentation; tuning
Straining computer-science capabilities	Technical analysis; cost-benefit analysis; prototyping; reference checking

Risk Management:

1	Identify the project's top10 risk items
2	Present a plan for resolving each risk item
3	Update list of top risk items, plan, and results monthly
4	Highlight risk-item status in monthly project reviews. Compare with previous month's ranking status
5	Initiate appropriate corrective actions

12. Configuration Management Plan

Provide a configuration management plan that defines the person responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required to conduct CM.

CM Responsibility

Manager:

Additional Staff for CM:

Procedure Reference:

Configuration Items:. Ensure that CM is implemented throughout the project's life cycle.

No.	Item	Comments
1.	analysis	prototyping; early users' manuals
2.	risk item	Present a plan for resolving
3.	ranking status	Highlight risk-item status in monthly project reviews

Ensure that project has a repository for storing configuration items and associated CM records. Briefly describe.

responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required

13. Quality Plan

Provide a quality plan that defines the person responsible for project quality assurance, the procedures that will be used and resources required to conduct quality assurance.

QA Responsibility

Manager:

Additional Staff for QA:

Procedure Reference:

Planned Quality Event: Ensure that QA is implemented throughout the project's life cycle. Dates include QA audits and reviews, design walkthroughs and other project activities that QA staff will participate in.

No.	Item	Comments
1.	Gold Plating	Initiate appropriate corrective actions
2.	Stream	change threshold; information hiding
3.	Shortfalls	cost-benefit analysis; prototyping; reference

Ensure that project has a repository for storing configuration items and associated QA records. Briefly describe.

Ensure that QA audits the baselines and CM activities on a regular basis. Briefly describe

14. Top Five Issues

Provide a list of known issues associated with the project, with proposed or recommended solutions.

Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
Complete Requirement	*Masood Arif*			*Held by the complete RE procedure*
Development Life Cycle	*Hassan habib*			*The modeling procedure of defining sustainability*
Views	*Muhammad Osama*			*The user friendly view should be appropriate defining.*
Error On uploading	*Sumair ul haq*			*The hosting file size nor enough*
Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

15.Action Item Status

Maintain a list of action items, including a description of the item, a point of contact a date by which action should be taken and a description of the action taken to close items.

Action Item #	***Action Item Description***	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
	The Input model	*Sumair ul haq*			*Resolve*
	Contract	*Muhammad Hassan*			*Sustain*

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Project Management Plan:
GI's HRPRL

<Copy and Paste PMP document by Member 5 here>

Form PM - 01

Project Management Plan/Charter

By: Muhammad osama

State Organization: Software House

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

PROJECT MANAGEMENT PLAN TEMPLATE

Release #: 3rd

Project Manager: Masood Arif

Approvals:

Masood Arif_____
Project Manager

_____
Prime Contractor Manager - (if applicable)

School Library_____
State Organization Management

Sumair & team
User Management

_____
Oversight Manager - (if applicable)

_____

Accounts_____
Department of Finance

_____
Other:

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

9. Project Summary

Information in the project summary areas was started during the project concept phase and should be included here.

Project Name:	***Library Management System***	***Start Date:***	***25/3/2021***
State Organization::	***PAF-KIET***	***Submitted by:***	***osama***
Prime Contractor:	***Dr. Umema hani***	***Date Awarded:***	***2/March/2007***
Current Stage of Project:	***Software Development Life Cycle (SDLC) – SPIRAL Model***		

Project is On Schedule:	***Yes:*** ☝ ***No:*** ***Details: the project build was based on the schedule of completion of 4 months' duration in the 25% average on per month.***	***Project is within Budget:***	***Yes:*** ☝ ***No:*** ***Comments: The project has 6 lakhs budget.***

Please answer the following questions by marking "Yes" or "No" and provide a brief response as appropriate			***Yes***	***No***
Is this an updated Project Plan? If so, reason for Update: Yes_____				
Budget for project by fiscal year and is project funded? If so, for what amount(s) and period(s):				
Budget Amount:	Year:2021	Funded?	**yes**	____
Budget Amount:	Year: 2022	Funded?	____	**no**
Budget Amount:	Year: 2023	Funded?	____	**no**
Total Budget:				

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

Project Summary - Continued

Points of Contact

This should be the list of individuals that will be involved with the project during the execution phase.

Position	Name/Organization	Phone	E-mail
Project Manager	**Masood arif**	**7898181480**	**Masoodarif1313@gmail.com**
Senior Management Sponsor	**Sumair ul haq**	**47348734**	**sumairk198@gamil.com**
Senior Technical Sponsor	**Hassan Habib Khan**	**938939389**	**Hassanhabib356@hotmail.com**
Procurement Contact	**Initial**		
Customers:	**Students, Member , Faculty**		
Other Stakeholders (Top 3):			

Prime Contractor Information

Company: School Library

Position	Name	Phone	E-mail
Project Manager	**Masood arif**	**09393984908**	**Masood@gmail.com**
Senior Technical Sponsor	**Hassan Habib**	**08768734838**	**Hassan@hotmail.com**
Contracts Contact	**Muhammad Osama / M. Hassaan**	**982818738743**	**-**

10. Project Charter

Business Problem.

All projects start with a business problem/issue to solve.

Library Management System is a term for computer-based system that manage the catalogue of a library. The main purpose of this system is to manage library daily operation efficiently..... It is also created to ensure that the library items are stored properly in order to maintain their security The library management system is a software to manage manual functions of a library. The software helps to manage the entire library operations from maintaining book records to issue a book.

Statement of Work (Goal).

The statement should be short and to the point. It should not contain language or terminology that might not be understood.

This product aims to replace the current manual system with the automated solution. The main system will comprise of 6 major sub-systems or Modules the integration of theses sub-system will form the main system. All the sub-systems will be tightly integrated so as to give unanimity to user. The current client setup does not have any automation. Therefore, every department and the section will be developed from scratch as all departments are currently working manually. In this document we are covering ***"Human resource and payroll System"*** *only.*

25. **Login**
26. **User Authorization**
27. **Book Transaction Module**
28. **Member Maintenance Module**
29. **Publisher Maintenance Module**
30. **Report Module**

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

18. Project Charter, continued

Project Objectives:

Provide a brief, concise list of what the project is to accomplish.

The primary function of our library is to implement, enrich and support the educational program School. The library provides a wide range of materials at various levels of sophistication with a diversity of appeal and different points of view.. The main divisions of the system are:

25. Authentication user to check Member authentication of l ibrary system
26. Library Management and Book stocks will be maintained (CRUD)
27. Book transaction module is to manage the receiver's data accordingly
28. Publisher maintenance Module to arrange the books sections
29. Member maintenance Module faculty/Students Record
30. Report Module to manage the payment report

This Project is specifically focused over Module 2 and 5

Success Factors:

List factors that will be used to determine the success of the project.

17. Complete deployment of all 4 modules
18. Smooth integration between all systems
19. effacingly error resolve
20. Everything is going according to the plan

Project Dependencies/Constraints:

Project completion is expected in less than 3.5 months duration
All requirements will be 100% available during requirement phase
Maximum team strength 5

19. Project Tradeoff Matrix & Status Summary

Schedule/Time	Scope/Modules	Resources/Effort/People
CONSTRAINED	CONSTRAINED / **ACCEPTED**	CONSTRAINED / Need to be **IMPROVED** (Cocomo effort = 10 not acceptable our constraint is max 5 members in 3.5 months)

Identify variable to be CONSTRAINED, IMPROVED, ACCEPTED

Comments:

Accepted

+/- Status (Review and Progress Meeting)

	Team	Tech	Schedule	Cost	Comment
RM 1	Requirement SRS and Modeling	-/+	-/+	-/+	SRS Submission
RM 2	PMP	Chap 7 and 18 not complete and chap 1/6 complete	Next week (29/3) meeting Ch 1 and 2 done - /+	-/+	PMP Submission
RM 3	Modeling	-/+	-/+	-/+	Done already in SRS
RM 4	Coding and Testing	-/+	-/+	-/+	Testing Report Submission
RM 4	Demo / Deployment	-/+	-/+	-/+	Final Project Report Submission

Discuss:

Legend
+ = Ahead of Schedule
- = Behind Schedule

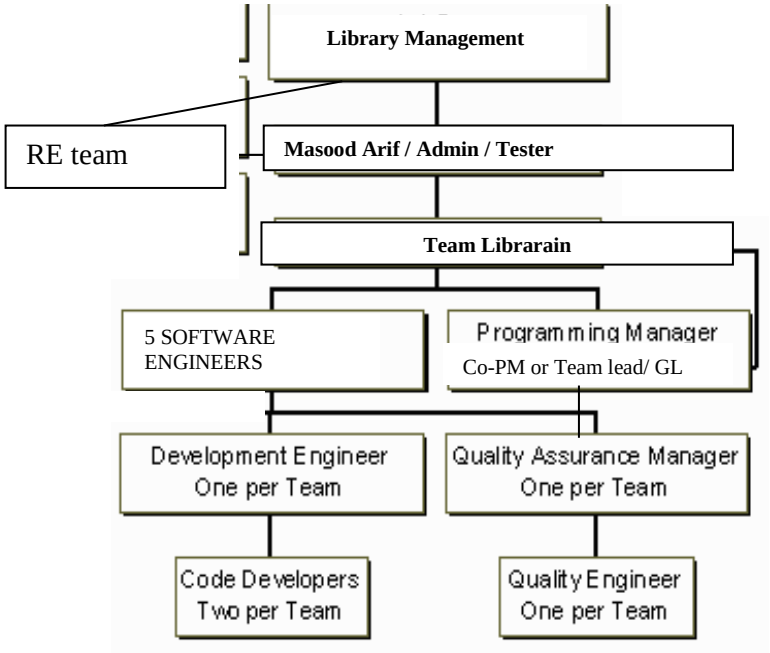
/ = On Schedule

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

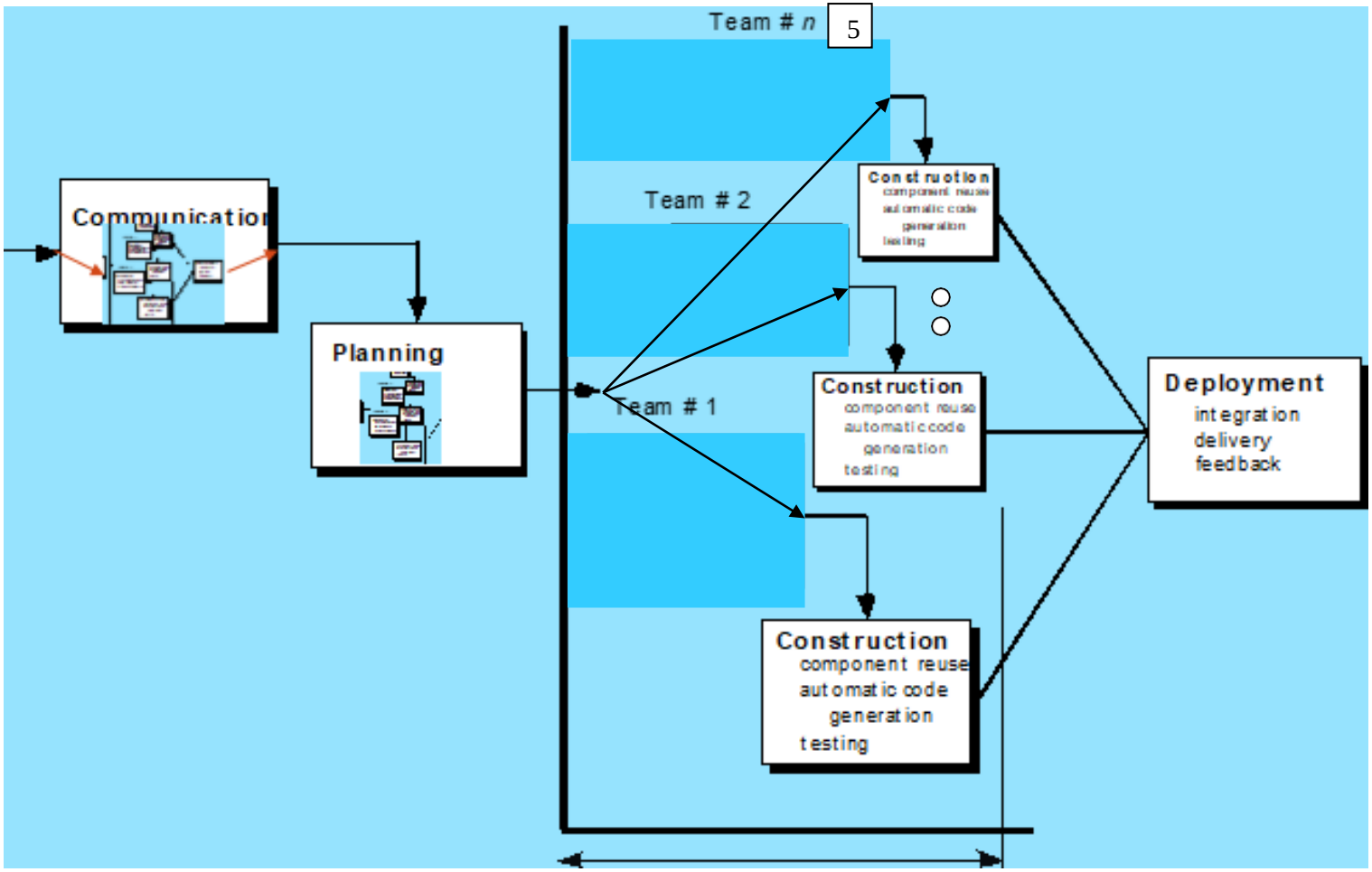
20. Project Organization

Provide an organization chart that defines the person responsible for at least the following functions: project manager, development manager, quality assurance, and configuration management

.



SDLC Process Model:



21. Activity List (Work Breakdown Structure)

Provide an activity list (*work breakdown structure*) *that describes each task required by the project, with a reference to the statement of work. For large projects, work packages might be included that describe in detail how specific tasks will be completed by specific project teams. These work packages describe required schedule, identify requirements to be completed and describe specific work to be performed*

14. First Estimating FP then from it E and S.

Software Size Estimation using Function Point Method

E) Detail of 5 Transaction Types, at most 5 under each category	
	Write down exact Screen or Forms names, or Tables, or Reports name for each count value.
EI	1. Login/User Authorization 2. Book transaction 3. Member Maintenance 4 Publisher Maintenance 5. Report
EO	1. Users table 2. Book Record table 3. Member table 4 publisher table 5. Report table
EQ	1. Search User 2. Book search 3. Member search 4 Search publisher 5. Search report
ILF	1. Login/User Authorization 2.Library Management 3. Member 4 publisher 5.Report
ELF	1. __User Authorization Details___-_____ 2. __Book transaction details ____-_____ 3. Member Maintenance details ___-_____ 4. __Publisher Maintenance details ____- 5. __ Report __ details _-_____

F) Unadjusted Function Point Value calculation
Definition of Complexities: Your Transactions which are derived from only from 1 Table are to be

categorized as Low and if they are derive from 2 tables they can be categorized in Mid-level complexity, and in case of >= 3 they will be placed under High level of complexity.

	Count for screens of Low level complexity (C)	Multiplier Low level complexity (M)	V1 = C * M	Count for screens of Mid-level complexity (C)	Multiplier Mid-level complexity (M)	V2 = C * M	Count for screens of High-level complexity (C)	Multiplier High-level complexity (M)	V3 = C * M	Category wise sum V1+V2+V3
EI	3	3	9	1	4	4	1	6	6	19
EO	3	4	12	1	5	5	1	7	7	24
EQ	3	3	9	1	7	7	1	6	6	22
ILF	3	7	21	1	0	0	1	15	15	36
ELF	0	5	0	0	7	7	0	10	10	17
								Unadjusted Function Point Value =		**118**

C) Value Adjustment Factor (VAF) calculation

Note: Calculate Value Adjustment Factor, where any 5 "General System Characteristics (GSC) must have a value above 2. Also show respect Quality Characteristic mapping of these 5 factors.

	Quality Characteristic	Weight (0-5)		Quality Characteristic	Weight (0-5)
15.		3	22.		3
16.		2	23.		2
17.		1	24.		4
18.		4	25.		1
19.		5	26.		3
20.		0	27.		2
21.		1	28.		0

Value Adjustment Factor (VAF) = 31

D) Technology Complexity Factor calculation

TCF = 0.65 + (VAF * 0.01)
= 0.65 +(31*0.01)
= 0.96

E) Adjusted Function Point Value (AFPV) or Function Point Value (FP) Calculation

AFPV = _ Unadjusted Function Point * TCF
= 118 * 0.96
= 113.28

F) Conversion of AFPV in to LOC Size metric

the number of LOCs per FP for C# language 54 and check other languages from https://www.qsm.com/resources/function-point-languages-table, ASP 51 and VB.net 52

Project Size in LOC = AFPV * LOC/FP

Project Size in LOC = 113.28 * 54 = 6117.12 LOC

G) Software Size: **6117.12**

Software Size for COCOMO: 9.779 KLOC

Software Type: **Business**/ Utility/Embedded

Model Mode: Cocomo I – Basic – **ORGANIC (0 – 50 KLOC)** / Semi detached/Embedded

o) **Effort Estimation:** Equation
2.4 * 9.779 ^ 1.05 **= 26.3039**

p) **Schedule Estimation:** Equation
2.5 * E ^ 0.4 months = S
S= 2.5 * **26.3039**^0.4
S = 9.2458

q) **Productivity Estimation:** Equation
Loc/E = 9779/**26.3039 =** 371.7699

r) **Average Loading Estimation:** Equation
E/S = **26.3039 / 9.2458**
2.8449

s) **Average Salary of Technical Staff (AS):** Equation
Assume = 50,000 RS

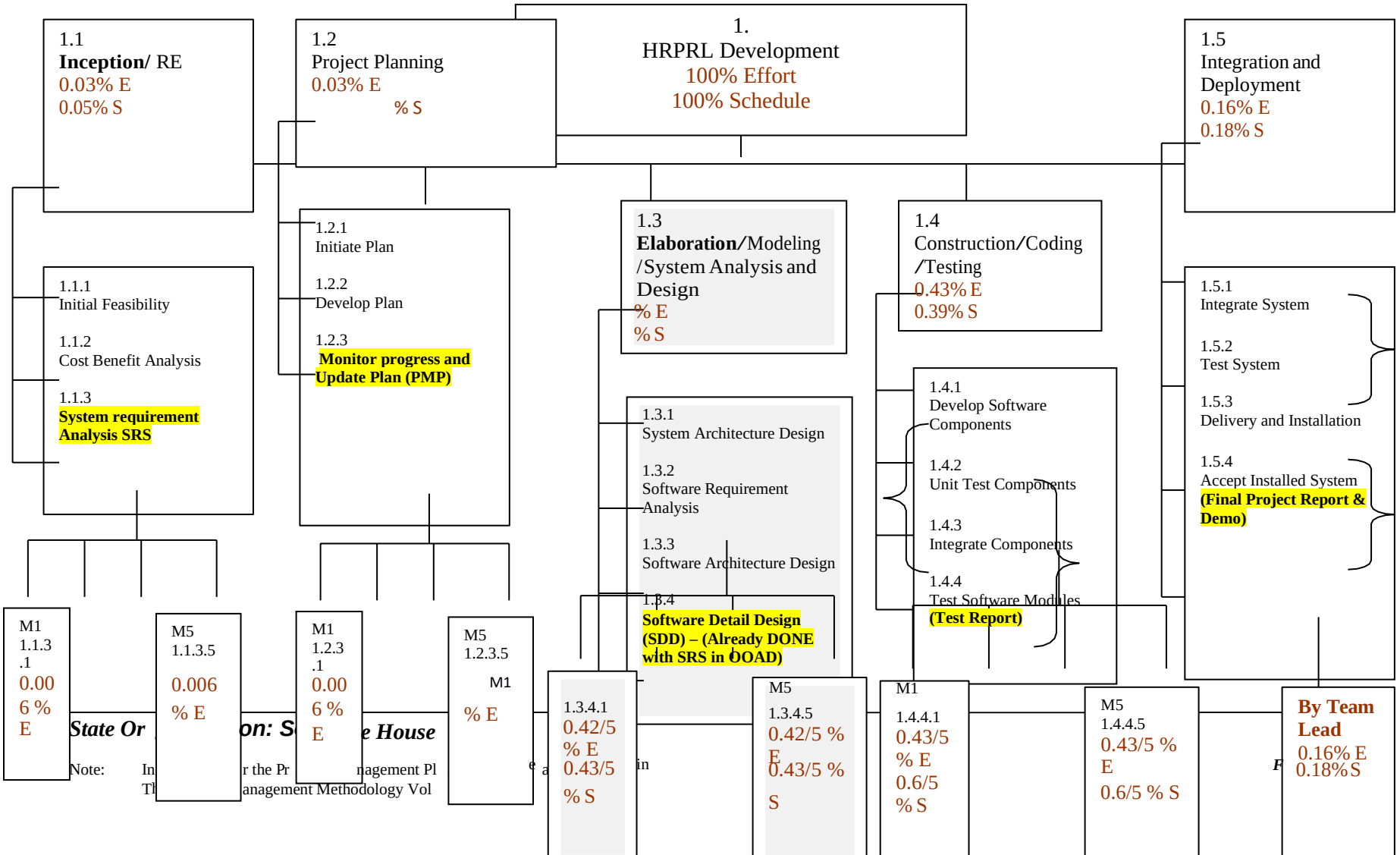
t) **Cost for Salary (Cs):** Equation
E * Avg salary = **26.3039 *** 50,000

1315195
u) **Budgeted Cost of Project (Cb):** Equation Cs + Cs * X% = Cb Cb = 1315195+ (2% of11315195) Cb =1315195+26303.9 Cb = 1341498.9

4. Calculate the phase-wise percentage distribution wise E and S values as given in detailed COCOMO detailed model.

H) Distribution of Effort and Schedule among Different phases of SDLC							
E = ___26.3039_____ **S = _____9.458_____**							
Plan and Requirement		**Modeling / System Design & Detailed Design**		**Module Coding and Unit Testing**		**Integration & Deployment**	
0.06 * E =	0.10 * S =	(0.16+0.26) * E =	(0.19+0.24) S =	0.42 * E =	0.39 * S =	0.16 * E =	0.18 * S =
1.5782	0.9245	11.0476	1.9967	11.0476	3.6058	4.2086	1.6642

15. Now adding percentage distribution as given in detailed COCOMO model in the WBS phase-wise.



State Or on: S e House

Note: In r the Pr nagement Pl e a in
Th anagement Methodology Vol

16. Now convert WBS contents in a Tabular format in order to make a GANTT CHART.

Activity #	Activity Name	Activity Name Description	# of Days	Start Date	Dependency on previous tasks	Milestone
1.1	**RE**	**Requirement Engineering**	**28**	**24/1/2021**	**none**	**21/2/2021**
1.1.1	**Initial Feasibility**		3	24/1/2021	None	27/1/2021
1.1.2	**Cost Benefit Analysis**	Analysis of cost	3	27/1/2021	None	30/1/2021
1.1.3	**System requirement Analysis SRS**	**Gather info (SRS)**	**6**	30/1/2021	None	5/2/2021
1.1.3.1	System requirement Analysis SRS **for Module 1**	Gather info for module 1	3	5/2/2021	None	8/2/2021
1.1.3.2	System requirement Analysis SRS **for Module 2**	Gather info for module 2	3	8/2/2021	None	11/2/2021
1.1.3.3	System requirement Analysis SRS **for Module 3**	Gather info for module 3	3	11/2/2021	None	14/2/2021
1.1.3.4	System requirement Analysis SRS **for Module 4**	Gather info for module 4	3	14/2/2021	None	17/2/2021
1.1.3.5	System requirement Analysis SRS **for Module 5**	Gather info for module 5	3	17/2/2021	None	21/2/2021
1.2	**Project Planning**	**Project Management Planning**	**16**	**15/3/2021**	**1.1**	**5/4/2021**
1.2.1	Develop plan	Development of project plane	1	**15/3/2021**	**RE**	**16/3/2021**
1.2.2	Implement plan	Implementation of project plane	1	**16/3/2021**	**RE**	**17/3/2021**

1.2.3	Monitor Progress	Take review on each phase	1	**17/3/2021**	**RE**	**18/3/2021**
1.2.3.1	Monitor Progress for module 1	Planning and monitor progress for module 1	1	**18/3/2021**	**RE**	**19/3/2021**
1.2.3.2	Monitor Progress for module 2	Planning and monitor progress for module 2	1	**19/3/2021**	**RE**	**20/3/2021**
1.2.3.3	Monitor Progress for module 3	Planning and monitor progress for module 3	1	**20/3/2021**	**RE**	**21/3/2021**
1.2.3.4	Monitor Progress for module 4	Planning and monitor progress for module 4	1	**21/3/2021**	**RE**	**22/3/2021**
1.2.3.5	Monitor Progress for module 5	Planning and monitor progress for module 5	1	**22/3/2021**	**RE**	**23/3/2021**
1.3	**System architecture design**	**Develop Architecture System Design**	1	**23/3/2021**	**planning**	**24/3/2021**
1.3.1	System requirement	Analysis	1	**24/3/2021**	**Planning**	**25/3/2021**
1.3.2	Software architecture design	Implement Design	1	**25/3/2021**	**Planning**	**26/3/2021**
1.3.3	System detail design	Develop System detail design	1	**26/3/2021**	**Planning**	**27/3/2021**
1.4	**Construct, Coding and Testing**	Implementation of software	1	**27/3/2021**	**1.2**	**28/3/2021**
1.4.1	Develop software Components	Implementation of software	1	**28/3/2021**	**Design**	**29/3/2021**
1.4.2	Unit test components	Implementation of software	1	**29/3/2021**	**Design**	**30/3/2021**
1.4.3	Integrate components	Test for every Module	1	**30/3/2021**	**Design**	**31/3/2021**
1.4.4	Test software Module	Test at end	1	**31/3/2021**	**Design**	**01/4/2021**

1.5	**Integrate and development**	Development of a project	1	**01/4/2021**	**Construction /coding/ testing**	**02/4/2021**
1.5.1	Integrate system	Combine module	1	**02/4/2021**	**Construction /coding/ testing**	**03/4/2021**
1.5.2	Test System	Test all project	1	**03/3/2021**	**Construction /coding/ testing**	**04/3/2021**
1.5.3	Delivery and installation	Installation / Final test after deploy a project	1	**4/4/2021**	**Construction/ coding/ testing**	**5/4/2021**

6. Work Product Identification

Provide a list of all deliverables required by the project, the date due and the person responsible for the deliverable. Pick Last activities from each phase they are deliverables.

Deliverable Name	***Due Date***	***Date Delivered***	***Point of Contact***
SRS by Member 1	21/2/2021	22/2/2021	9760
SRS by Member 2	21/2/2021	21/2/2021	9910
SRS by Member 3	21/2/2021	21/2/2021	9763
SRS by Member 4	21/2/2021	21/2/2021	9646
SRS by Member 5	21/2/2021	21/2/2021	9779
PMP by Member 1	5/4/2021	5/4/2021	9760
PMP by Member 2	5/4/2021	5/4/2021	9910
PMP by Member 3	5/4/2021	5/4/2021	9763
PMP by Member 4	5/4/2021	6/4/2021	9646
PMP by Member 5	5/4/2021	5/4/2021	9779

7. SCHEDULE

Provide the project schedule, using a Gantt chart. The schedule must include milestones, task dependencies, task duration, work product delivery dates, quality milestones (reviews/audits/inspections), configuration management milestones, and action items (with deadlines and responsibilities).

	Task Name	Work	Duration	Start	Finish	Details	S
18	**Design**	**120 hrs**	**14.5 days**	**Mon 1/26/04**	**Fri 2/13/04**	Work	
19	Review preliminary software specifications	16 hrs	2 days	Mon 1/26/04	Wed 1/28/04	Work	
	Analyst	*16 hrs*		*Mon 1/26/04*	*Wed 1/28/04*	Work	
20	Develop functional specifications	40 hrs	5 days	Wed 1/28/04	Wed 2/4/04	Work	
	Analyst	*40 hrs*		*Wed 1/28/04*	*Wed 2/4/04*	Work	
21	Develop prototype based on functional specifications	32 hrs	4 days	Wed 2/4/04	Tue 2/10/04	Work	
	Analyst	*32 hrs*		*Wed 2/4/04*	*Tue 2/10/04*	Work	
22	Review functional specifications	16 hrs	2 days	Tue 2/10/04	Thu 2/12/04	Work	
	Management	*16 hrs*		*Tue 2/10/04*	*Thu 2/12/04*	Work	
23	Incorporate feedback into functional specifications	8 hrs	1 day	Thu 2/12/04	Fri 2/13/04	Work	
	Management	*8 hrs*		*Thu 2/12/04*	*Fri 2/13/04*	Work	
24	Obtain approval to proceed	8 hrs	4 hrs	Fri 2/13/04	Fri 2/13/04	Work	
	Management	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
	Project manager	*4 hrs*		*Fri 2/13/04*	*Fri 2/13/04*	Work	
25	Design complete	0 hrs	0 days	Fri 2/13/04	Fri 2/13/04	Work	
26	**Development**	**264 hrs**	**21.75 days**	**Mon 2/16/04**	**Tue 3/16/04**	Work	
27	Review functional specifications	8 hrs	1 day	Mon 2/16/04	Mon 2/16/04	Work	
	Developer	*8 hrs*		*Mon 2/16/04*	*Mon 2/16/04*	Work	
28	Identify modular/tiered design parameters	8 hrs	1 day	Tue 2/17/04	Tue 2/17/04	Work	
	Developer	*8 hrs*		*Tue 2/17/04*	*Tue 2/17/04*	Work	
29	Assign development staff	8 hrs	1 day	Wed 2/18/04	Wed 2/18/04	Work	
	Developer	*8 hrs*		*Wed 2/18/04*	*Wed 2/18/04*	Work	
30	Develop code	120 hrs	15 days	Thu 2/19/04	Wed 3/10/04	Work	
	Developer	*120 hrs*		*Thu 2/19/04*	*Wed 3/10/04*	Work	
31	Developer testing (primary debugging)	120 hrs	15 days	Tue 2/24/04	Tue 3/16/04	Work	
	Developer	*120 hrs*		*Tue 2/24/04*	*Tue 3/16/04*	Work	
32	Development complete	0 hrs	0 days	Tue 3/16/04	Tue 3/16/04	Work	
33	**Testing**	**280 hrs**	**48.75 days**	**Mon 2/16/04**	**Thu 4/22/04**	Work	
34	Develop unit test plans using product specifications	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	
	Testers	*32 hrs*		*Mon 2/16/04*	*Thu 2/19/04*	Work	
35	Develop integration test plans using product specifica	32 hrs	4 days	Mon 2/16/04	Thu 2/19/04	Work	

Work Packages, Tasks & Activities		Week											
		1	2	3	4	5	6	7	8	9	10	11	12
Concept Exploration	Internal Case Study												
	Communicate with CRM												
Initial Project Plan	SPMP Pass #1												
	Review by CRM												
	SPMP Pass #2												
Travel & Orientation	Meeting with CRM Representatives												
	Meeting with 26 programmers												
	Recruiting into Organizational Chart												
	OOP Training												
Initial SRS	SRS Pass #1												
	Prototype 1 (Screens)												
	SRS Review by Team												
Final SPMP	Pass #3												
Final SRS	SRS Review as per SPMP												
	SRS Submission to CRM												
Design	High level Design												
	High Level Review												
	Prototype 2												

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

	Detail Level Design												
	Detail Level Review												
	Prototype 3												
System Construction	Source Code & Executable Program												
	Review by CRM												
System Verification & Validation	Testing Summary Report												
	Review by CRM												
	Customer Acceptance Feedback												
System Delivery	System Delivery & Maintenance												

8. Estimated Cost at Completion

Provide an estimated cost at completion, which is an assessment of the total effort at completion of the contract.

		Analysis in Hours					*Analysis in Dollars*				
WBS No.	***Activity Description***	***Budget Hours***	***Actual Hours***	***Est. to Complete remaining work***	***Est. @ Complete of project***	***Variance (+ = More)***	***Budget $***	***Actual $***	***Est. to Complete***	***Est. @ Complete***	***Variance (+ = More)***
				A+ @	***@ = B-A***	***a-b/a***					

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

Form:-PM 01

9. Resource Loading Profiles - Staffing

Provide a staffing plan that shows the number of personnel, by type, that will be required on the project on a monthly basis.

Organization	**Liaison- interfaces**	**Contact Information**
Customer: APMM	Masood	872874287
Subcontractor: None	Hasssa Habib	87287427887
Software Quality Assurance: CRM	Sumair ul haq	873873879838
Software Configuration Management: Team 2	Muhammad Hassaan	8234874387837
Change Control: Team 2	M . Osama	7367439743889

Role	**Description**	**Person**
Project Leader	Leads project team; responsible for project deliverables	Masood Arif
Project Management Team/Analysts	Assisting in building SPMP, SRS and prototype, as well as doing the necessary requirement and risk analysis for the project	Hasssa Habib Sumair ul haq
Project Development Manager	Leads Chinese software developers; responsible for project deliverables	Muhammad Hassaan M .Osama
Programming Manager	Responsible for the communication between the Management Team and the rest of the software development team; the Programming Manager is also responsible for reallocating the human resources and equipment of the project.	Masood Arif

Software Managers	Responsible for managing the team of 7 people; does the design of the software; after reviewing reports from Test Engineer decides whether code needs to be sent back to Development Engineer for improvement or to be send to Quality Assurance Manager for quality assurance phase	Hassan Habib
Development Engineers	Responsible for designing of software and distributing work among Code Developers	Sumair ul haq
Code Developers	Responsible for writing programming code	Masood Arif
Test Engineer	Responsible for testing and validation process in his/her team; leads Test Technician in the testing process and reports the results of the testing process to the software manager	Masood Arif
Test Technician	Performs the testing and validation procedure; reports found errors to Test Engineer	Muhmmad Osama
Quality Assurance Manager	Responsible for quality assurance; reports to Software Manager and Project Development Manager	Sumair ul haq
Quality Engineer	Performs quality assurance procedure; reports the results to Quality Assurance Manager	Muhammad Hassaan

10. Project Requirements

Provide a detailed listing of project requirements, with references, to the statement of work, work breakdown structure, and specifications.

No.	Requirement	RFP Reference Not submitted by the client in Adv.	SOW Reference	WBS Task Reference	Specification Reference	Date Completed	Comments/Clarification
1.	**3.1.1 Login**	**N/A**	**1**	**1.1.3.1**	**3.1.1**	**5/4/2021**	**Good**
2.	**3.1.2 Module 1 CRUDS**	**N/A**	**2**	**1.1.3.2**	**3.1.2**	**5/4/2021**	**Improvement**
3.	**3.1.3 Module 2 CRUDS**	**N/A**	**3**	**1.1.3.3**	**3.1.3**	**5/4/2021**	**Nice**
4.	**3.1.4 Module 3 CRUDS**	**N/A**	**4**	**1.1.3.4**	**3.1.4**	**5/4/2021**	**Well performed**
5.	**3.1.5 Module 4 CRUDS**	**N/A**	**5**	**1.1.3.5**	**3.1.5**	**5/4/2021**	**Improvement**
6.	**3.1.6 Module 5 CRUDS**	**N/A**	**6**	**1.1.3.6**	**3.1.6**	**5/4/2021**	**Good**

SOW = Statement of Work

11. Risk Identification

Provide a description of all risks identified for the project. A risk is anything that might detrimentally affect the successful completion of the project if left unaddressed. The contractual, management, and technical risks associated should be identified and assessed as to the probability of the risk occurring, the cost to correct if the risk occurs, the impact of the risk on the project, and the suggested mitigation activities and cost of mitigation.

Risk Worksheet

Last Risk Assessment Date: Prepared by: Hassan Habib Khan

Risk Category/ Event	*Loss Hours*	*Probability*	*Risk Hours*	*Previous Risk Hours*	*Preventive Measures*	*Contingency Measures*	*Comments*
Governance Risk	**120**	**0.8**	**48**	**-**	**Our Lawyer will handle all the situation accordingly.**	**Consult the court or ministers to resolve the issues with government.**	**CRITICAL**
Schedule Risk	**24**	**0.2**	**12**	**-**	**We will have a tight schedule and will make a schedule. According to our schedule project will be completed and deployed before the time.**	**If our schedule is not as per planned we already made our schedule in a way that we will do the development before time, we will utilize that time as well but if we are too behind schedule our developers have to work overtime.**	**MEDIUM**
Operational Risk	**24-48**	**0.5**	**24**	**-**	**Avoid poor implementations and process problems.**	**Our managers will be restricted to overcome problems and start implementing new strategies.**	**LOW**
Software Risk	**24**	**0.3**	**24**	**-**	**Hire professionals. Select the**	**If we faced this type of emergency we will switch the software technology at**	

					appropriate software for development, stable servers and project management. We will use the best and most stable servers for every software to avoid future problems.	**once which is currently in use in our organization. We are already using the best servers so we don't have to worry about that but for the software performance and stability we will use the most talented team of ours to overcome the tie wasted and complete the project fully.**	**MEDIUM**
Staff experience and professionalism .	**24-72**	**0.3**	**48**	**-**	**Our organization hires the junior developers who are under the teams of professional and experienced team leaders. We also have a team of experienced developers which can handle every type of situations and can work under pressure.**	**If we faced some type problems form our staff we will right away send the project to our experienced developers team or in case they are already stuck in a project we will hire a professional which can team up with our junior developer's leader and can finish the work according to schedule.**	**CRITICAL**
Natural Hazard risk	**-**	**0.5**	**-**	**-**	**Natural Hazards are not something that can be predicted or controlled but**	**If the situation is under control there will be no off. If the situation is critical but will be under control in few days we can either work**	

					humans but we have to be prepared for any type of situation. According to our scheduling we want to complete the project before given time so in this case also we can utilize those leftover days. If the situation is like COVID-19's hazard our developers will remotely.	**remotely or take some rest, it all depends on the schedule. But if the situation is critical and we can't predict when it will be under control our teams will work remotely.**	**CAN BE CRITICAL**
Software Performance and Security Risk	**-**	**0.4**	**-**	**-**	**We are using latest and stable technologies but we will still prototype our modules and test the software with huge dummy data and our security team will try to catch the loop holes. Our maintenance team will be ready to handle the panicked situation**	**Software performance is not being compromised form our organization but if we faced this type of situation our maintenance team will right away check the software bugs and our security team will be ready if there something hacking activity detected.**	**MEDIUM**

					accordingly.		
Poor Management	**48-72**	**0.2**	**48**	**-**	**We will hire professionals for our organization who can face any type of situation and can handle the planning of difficult software. Proper strategies and project planning will be made before starting any project and everyone will act according to the plan.**	**Our project managers will be asked to revise the project planning and strategies. If they can't handle the situation we can compromise our management we will right away send project planning to another professional team manager who will work the previous manager to handle the situation with new and better strategies.**	**MEDIUM**
Budget Changes	**48-72**	**0.1**	**60**	**-**	**We will sign the proper legal contract in which every small detail will be mentioned to avoid future difficulties.**	**However, if the client wants to change the budget we will not leave our client but will act accordingly and we have to compromise on development. Old codes will be refactored, there will be no tough schedule and every situation will be handled by juniors.**	**LOW**

General Risk Analysis Comments:

Risk Items	Risk Management Techniques
Personnel Shortfalls	Staffing with top talent, job matching; team building; morale

	building; cross training; pre-scheduling key people
Unrealistic schedules and budgets	Detailed, multi source cost and schedule estimation; design to cost; incremental development; software reuse; requirement scrubbing
Developing the wrong software functions	Organizational analysis; mission analysis; ops-concept formulation; user surveys; prototyping; early users' manuals
Developing the wrong user interface	Task analysis; prototyping; scenarios; user characterization (functionality, style, workload)
Gold Plating	Requirement scrubbing; prototyping; cost-benefit analysis; design to cost
Continuing stream of requirement changes	High change threshold; information hiding; incremental development (defer changes to later increments)
Shortfalls in externally furnished components	Benchmarking; inspections; reference checking; compatibility analysis
Shortfalls in externally performed tasks	Reference checking; pre-award audits; award-fee contracts; competitive design or prototyping team building
Real-time performance shortfalls	Simulation; benchmarking; modeling; prototyping; instrumentation; tuning
Straining computer-science capabilities	Technical analysis; cost-benefit analysis; prototyping; reference checking

Risk Management:

1	Identify the project's top10 risk items
2	Present a plan for resolving each risk item
3	Update list of top risk items, plan, and results monthly
4	Highlight risk-item status in monthly project reviews. Compare with previous month's ranking status
5	Initiate appropriate corrective actions

12. Configuration Management Plan

Provide a configuration management plan that defines the person responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required to conduct CM.

CM Responsibility

Manager:

Additional Staff for CM:

Procedure Reference:

Configuration Items:. Ensure that CM is implemented throughout the project's life cycle.

No.	Item	Comments
1.	analysis	prototyping; early users' manuals
2.	risk item	Present a plan for resolving
3.	ranking status	Highlight risk-item status in monthly project reviews

Ensure that project has a repository for storing configuration items and associated CM records. Briefly describe.

responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required

13. Quality Plan

Provide a quality plan that defines the person responsible for project quality assurance, the procedures that will be used and resources required to conduct quality assurance.

QA Responsibility

Manager:

Additional Staff for QA:

Procedure Reference:

Planned Quality Event: Ensure that QA is implemented throughout the project's life cycle. Dates include QA audits and reviews, design walkthroughs and other project activities that QA staff will participate in.

No.	Item	Comments
1.	Gold Plating	Initiate appropriate corrective actions
2.	Stream	change threshold; information hiding
3.	Shortfalls	cost-benefit analysis; prototyping; reference

Ensure that project has a repository for storing configuration items and associated QA records. Briefly describe.

Ensure that QA audits the baselines and CM activities on a regular basis. Briefly describe

14. Top Five Issues

Provide a list of known issues associated with the project, with proposed or recommended solutions.

Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
Complete Requirement	*Masood Arif*			*Held by the complete RE procedure*
Development Life Cycle	*Hassan habib*			*The modeling procedure of defining sustainability*
Views	*Muhammad Osama*			*The user friendly view should be appropriate defining.*
Error On uploading	*Sumair ul haq*			*The hosting file size nor enough*
Issue Description	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***

Note: Instructions for the Project Management Plan Template are provided in The Project Management Methodology Volume

15.Action Item Status

Maintain a list of action items, including a description of the item, a point of contact a date by which action should be taken and a description of the action taken to close items.

Action Item #	***Action Item Description***	***Responsible Individual***	***Open Date***	***Closure Date***	***Status***
	The Input model	*Sumair ul haq*			*Resolve*
	Contract	*Muhammad Hassan*			*Sustain*

4. MODELING (ANALYSIS & DESIGN)

a. **Data Dictionary/ERD**
b. **From DFD to Design Patterns (not implemented)**
c. **Interface design/Prototype/Wireframes**

<Already covered in Requirement Engineering>

5. TESTING

a. Write detailed manual "Test Cases" for your selected Modules, keep the Login Test case as it is. Also Execute above developed "Test cases" on your project code and Observe (Pass/fail) Status. Complete <Test Report> by marking "Pass/Fail" status against each executed Test Case

Test Strategy: Unit and Debugging Testing Done					
Test Strategy: Integration Testing and Regression Testing					
Aspects to be covered: (System – Functional Testing, GUI**,** Performance, Security, Usability, Compatibility, Error Handling, Volume, Scalability, Installation, Maintenance, Reliability, Recovery)					
	TC1.1 -1.5	**Purpose**: The user should be able to go to the Home page	**Pre-requisite**: S/w should be compatible with the Operating system. **Login page should appear.** User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	**Test Case Id**	**Test Case Name | Requirement Number | File path**	**Steps/Action**	**Expected Results**	**PASS-FAIL**
1.	TC1.1	Checking **User Interface requirements**.	User views the page to check whether it includes UserId and Password textboxes with appropriate labels. Also expects that Submit and Cancel buttons are available with appropriate captions	Screen displays user interface requirements according to the user.	PASS
2.	TC1.2.	Textbox for **UserId** should: i) allow only alpha-numeric characters{a-z, A-Z} ii) not allow special characters like {'$','#','!','~','*',...} iii) not allow numeric characters like{0-9}	i) User types numbers into the textbox.	i) Error message is displayed for numeric data.	FAIL
			ii) User types alphanumeric data in the textbox.	ii) Text is accepted when user enters alpha-numeric data into the textbox.	
3.	TC31. 3	Checking **functionality of the Password textbox**: i) Textbox for Password should accept more than/minimum 6 characters and maximum 10 Characters	ia) User enters less than 6 characters in the password textbox. EBV: partition 0-5	i) System should not accept. Error message is displayed when user enters less than 6 or greater than 10 characters in the password textbox.	
			Ib) User more than 10 characters in the password textbox. EBV: partition 11-14		
		ii) Data should be displayed in	ii) User enters more than 5 characters and less	System accepts data when user enters	

		encrypted format.	than 11 in the password textbox. EBV: partition 6-10	more than 5 characters and up to 10 characters into the password textbox.	
			ii) User checks whether his data is displayed in the encrypted format.	System accepts data in the encrypted format else displays an error message.	
4.	TC1.4	Checking functionality of 'SUBMIT' button.	i) User checks whether 'SUBMIT' button is enabled or disabled.	i) System displays 'SUBMIT' button as enabled	
			ii) User clicks on the 'SUBMIT' button and expects to view the 'Home' page of the application.	ii) System is redirected to the 'Home' page of the application as soon as he clicks on the 'SUBMIT' button.	
5.	TC1.5	Checking functionality of 'CANCEL' button.	i)User checks whether 'CANCEL' button is enabled or disabled.	i)System displays 'CANCEL' button as enabled.	
			ii)User checks whether the textboxes for UserId and Password are reset to blank by clicking on the 'CANCEL' button.	ii)System clears the data available in the UserId and Password textbox when user clicks on the 'CANCEL' button.	
6.	**TC1.6**	**Checking Decision functionality** of Input boxes userID and Password	Required list of variables and their values should be available For example: [User Id, Password] a. valid, valid; b. valid, invalid ; c. invalid, valid; d. invalid, invalid; e. empty, empty;		
Test Strategy: System – Functional Testing: GUI, Performance, Security, Usability, Compatibility, Error Handling, Volume, Scalability, Installation, Maintenance, Reliability, Recovery					
Test Strategy: User Acceptance Testing: Alpha					
Test Strategy: User Acceptance Testing: Beta					

Project Management Plan: **22 March**

GI's HRPRL

TEST CASE BY Masood FOR Member Maintenance					
1	TC2	**Purpose**: The user should be able to perform MODULE 2 Function and go to the Home page	**Pre-requisite**: A successful Login. **Login page should appear.** User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	**Test Case Id**	**Test Case Name | Requirement Number | File path**	**Steps/Action**	**Expected Results**	**PASS-FAIL**
6.	**TC2. 6.**	**Checking Decision functionality** of Member Maintenance add/Update/Delete Member Maintenance (Only admin can)	A successFull login: add/Update/Delete Member Maintenance Availability status	pass	pass
TEST CASE BY Hassan Habib FOR Book Maintenance					
	TC3	**Purpose**: The user should be able to perform MODULE 2 Function and go to the Home page	**Pre-requisite**: A successful Login. **Login page should appear.** User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		

Sr. No	Test Case Id	Test Case Name | Requirement Number | File path	Steps/Action	Expected Results	PASS-FAIL
6.	**TC2. 6.**	**Checking Decision functionality** of book Maintenance add/Update/Delete Book Maintenance (Only admin can)	Add Book/Update Book/Delete Book/Search book Availability Status	pass	pass
TEST CASE BY M. Hassaan FOR Publisher Maintenance					
	TC2	**Purpose**: The user should be able to perform MODULE 2 Function and go to the Home page	**Pre-requisite**: A successful Login. **Login page should appear.** User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	**Test Case Id**	**Test Case Name | Requirement Number | File path**	**Steps/Action**	**Expected Results**	**PASS-FAIL**
6.	**TC2. 6.**	**Checking Decision functionality** of Publisher Maintenance add/Update/Delete Publisher Maintenance (Manage Book References)	Add Publisher /Delete Publisher /update Publisher (Names of Publisher)	pass	pass
TEST CASE BY Sumair ul haq FOR Report Module					
	TC2	**Purpose**: The user should be able to perform MODULE 2 Function and go to the Home page	**Pre-requisite**: A successful Login. **Login page should appear.** User Id and Password textboxes should be available with appropriate labels.		

			Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	**Test Case Id**	**Test Case Name | Requirement Number | File path**	**Steps/Action**	**Expected Results**	**PASS-FAIL**
6.	**TC2. 6.**	**Checking Decision functionality** of Report Module add/Update/Delete/Search Report Module Manage all Modules (Only admin can)	Perform All CRUD operations Availability Status	pass	pass
TEST CASE BY M .Osama FOR Book Transaction					
	TC2	**Purpose**: The user should be able to perform MODULE 2 Function and go to the Home page	**Pre-requisite**: A successful Login. **Login page should appear.** User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	**Test Case Id**	**Test Case Name | Requirement Number | File path**	**Steps/Action**	**Expected Results**	**PASS-FAIL**
6.	**TC2. 6.**	**Checking Decision functionality** of Book Transaction module date of issue book date of received book type of books names (admin can)	Perform All CRUD operations Availability Status	pass	pass

CONCLUSION OF WHOLE PROJECT

This report covers major "Software Engineering" activities on selected Project. This project activity lasts for duration of 3.5 month time.