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Q1 Prepare the Software Requirement Specification (SRS) document on a problem/project of your own choice by following a standard IEEE template for SRS document.

Ans: Project: Library Management System

SRS: Software requirement specification is the stage available in the software development in which document is generated as output of requirement analysis. The requirement analysis involves obtaining a clear and understanding of the product to be developed. Normally IEEE standard is followed. A typical format of SRS is follows:-

### INTRODUCTION

- i) Purpose: My project "Library Management System" which is used for Library services.

- ii) Scope: This project training has given us exposure to a working environment LMS are covering the issue details, stock details, member details etc.
- iii) Definition: The "LMS" is computerized based system which provides the network system that it can be globally accessed system.
- iv) Overviews: It includes the result of both business analysis and system analysis effort.
- v) Benefits & goals: The main goal of this project is that it provides the complete training of the good programmer and one can use about it so, it can beneficial for that.

### SYSTEM ANALYSIS

- 4) Identification of need: To identify the need for software we use the Principles of Requirement Engineering. Requirement engineering provides the appropriate mechanism for understanding what the customer wants, analyzing need and assessing feasibility.

ii) Preliminary Investigation: The purpose of the preliminary investigation is to determine whether the problem or deficiency in the current system exists or not.

### FUNCTIONAL REQUIREMENT

A functional requirement defines as a set of inputs, the behavior and outputs. It may be calculations, technical details, data manipulation etc.

FR1: New Member Creation

FR2: Book Issue

FR3: Book Return

### NON-FUNCTIONAL REQUIREMENT

USER FRIENDLY: The system should be user friendly so that it can easily be understand by the user without any difficulty.

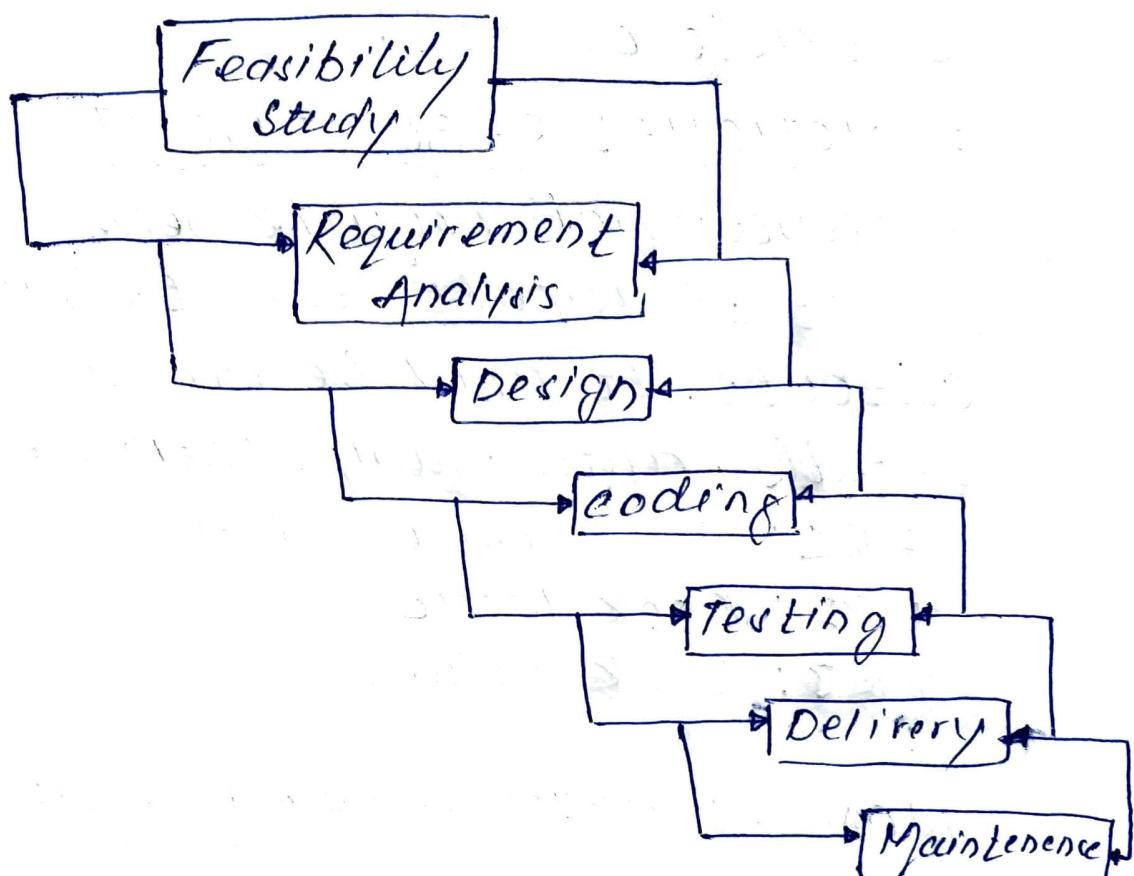
EASE OF MAINTENANCE: The system should be easy to maintain and use.

ERROR FREE: The system should easily handle the user error in any case.

LESS TIME CONSUMING: The system should be less time consuming which could be achieved by good programming.

## SOFTWARE ENGINEERING PARADIGM

There is following steps wise stage of SDLC and waterfall model with feedback:



- ① **Feasibility Study:** The purpose of this phase is to produce a study document that evaluates the cost and benefits of the proposed application.
- ② **Technical Feasibility:** This evaluation determines whether the technology needed for the proposed system is available.
- ③ **Economic Feasibility:** This evaluation looks at the financial aspect of the project. It is also necessary to place money values against any benefits that will come from a new system.

- c) Operational Feasibility: This evaluation determine the general attitude and skills whether such restructuring of the job will be acceptable to the user.
- ② Requirement Analysis: The purpose of this phase is to identify the qualities required of the application.
- ③ Designing: The purpose of this phase is to design the system. This phase defines the description of the software architecture according to requirement analysis phase.
- ④ Coding: This phase produces the actual code which follows the design phase. Coding plays important role in system development.
- ⑤ Testing: Once code has been generated, program testing begins. The testing process focuses on the logical internal of the software.
- ⑥ Delivery: When software is developed and after full testing it delivered to the customer. If any problem occurs in the software then it goes to the another phase.

⑦ Maintenance: This phase is a set of activities that are performed after the system is delivered to the client.

PROJECT PLANNING: The project planning objective is achieved through a process of information discovery that leads to reasonable estimates. Project planning for any company has the following four main steps:

- Organizing the resources available for the project.
- Scheduling the events of the project.
- Evaluating the progress.
- Establishing standards for the project.

### MODULES OF THE PROJECT

#### Starting Modules:

- User Login: This function is used to take admin permission for use library services.
- Main Menu: This function is used to choose services for library management system.

### Entry Modules:

- iii) New Member Creation: This function is used to create new members in library.
- iv) Stock/Book Entry: This function is used to enter new books in library.
- v) Book Issue: This function is used to issue books for library members.
- vi) Book Return: This function is used to return books by issued members.

### Display Modules:

- vii) Member Details: This function is used to display all registered members of library.
- viii) Books Details: This function is used to display all books in library.
- ix) Book by BID: This function is used to display one book in stocks at a time using unique book id.

### Other Modules:

- x) Remove Member: This function is used to remove one member in all members at a time using unique member id.
- xi) Exit: This function is used to exit in library management services software.

Security Mechanism: To provide better security, we had developed an automated services system of "LMS". All information and managements form are stored within the system and access to this sensitive information is controlled through an intricate password system: one who know user id, password to gain to access information.

Limitation of Project: The user will not be able to book online further there can be implementation or enhanced to online handling with advance feature.

Project Scheduling: Scheduling of a project can be correlated to prioritizing various tasks with respect to their cost, time and duration.

Cost Estimation: Cost estimation model are the mathematical algorithm or parametric equation used to estimate the cost of product or project. The cost estimation is find through COCOMO (constructive cost Model).

Q2 Prepare the list of major functionalities of social media platforms such as Facebook, Twitter, Instagram etc and design the test cases to test any five important functionalities of any one of these platforms.

Ans: Major functionalities of some popular social media platforms:-

1) Meta (old name "Facebook"): Meta is a platform where we can connect with the people very easily.

### Functionalities

- a) News Feed: Users can see your uploaded media like picture, music, video etc.
- b) Like: Users can like your posts by clicking on thumb button (Like Button)
- c) Comments: User can comment on your uploaded post by clicking on comment.
- d) Group: We can create a group with our friends.
- e) Notification: It tells the user that something has been added to your profile page.

2) Twitter: Twitter is a platform where we can connect with people and share our thoughts with a big audience.

### Major Functionalities

- a) @Mentions: You can mention anyone in your post.
- b) Search: You can search anyone with their username
- c) Trending: We can see what is trending in the world.
- d) Retweet: We can retweet anyone's post and it will show in our profile.

3) Instagram: It is also used for sharing media and short video (Reels)

- a) IGTV: It gives user to share long videos upto an hour.
- b) Stories: In this we can share picture and 15sec video which is last upto 24 hours.
- c) Filters: There are many filters we can use for taking pictures and for making videos
- d) Like: We can like anyone's post by double clicked on the post that was amazing.

## Test cases for test the functionalities of "Instagram"

Test case id	Test case name	Test Case Description	Test Case Steps	Expected Output	Actual Output
101	Login Page	check the Login of user	Open the browser → Enter the url of Instagram	Instagram Login page open	Instagram Login page open
102	Login Page	check the Login of user	Open the browser → Enter the url → Enter the username & password → click on login	User should be able to login	User is able to login
103	Like	check the Like feature	Open the browser → Enter the url → Enter the username & password → click on login → double tap on any post	User should be able to like the post	User is able to like the post
104	Comment	check the comment feature	Open the browser → Enter the url → Enter the username & password → click on login → click on comment option in any post	User should be able to comment in the post	User is able to comment on someone uploaded post
105	Reels	check the Reels video view feature	Open the browser → Enter the url → Enter the username & password → click on login → click on the third button from the left	User should be able to watch the reels videos	User is able to watch the reels videos

Q3 Write a technical article on system testing taking appropriate examples.

Ans: System testing is a level of testing that ensures the complete and fully integrated software product. The main purpose of system testing is to evaluate the end-to-end system specifications. System testing is actually a series of different tests whose main purpose is to test the full computer-based system. System testing tests the design and behavior of the system and also the expectations of the customer. It has both functional and non-functional testing. There are many types of system testing:

- i) Usability Testing: In this testing we mainly focuses on the user's ease to use the application.
- ii) Load Testing: It is used to know that a software solution will perform under real-life loads or not.

- iii) Regression Testing: This testing involves testing done to make sure that there is no any change made over the course of a development process have caused new bugs.
- iv) Recovery Testing: This testing tests a software solution is reliable, trustworthy.
- v) Migration Testing: This testing ensures that the software can be moved from older system to current system easily without any issues.
- vi) Functional Testing: This testing involves where we try to think of any possible function that was missing.
- vii) Hardware/Software Testing: This is when tester focuses his attention on the interactions between the hardware and software during system testing.