

Assignment - 2

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Short Questions

1) Define Requirement Engineering

Requirement Engineering

- Requirement Engineering is the process of identifying, documenting, analyzing, validating and managing the needs and requirements of stakeholders for software systems.

2) What are Functional Requirements?

- Functional Requirements describe the specific behaviors, functions or operations of a system such as data processing, calculations, or interactions with users.

Observation:

3) What are non-functional Requirements?

- Non-functional requirements define the quality attributes of a system like performance, security, usability, reliability, and maintainability.

4) List any two types of requirements?

- Functional Requirements and Non-functional Requirements

5) What is Feasibility study in requirement engineering?

A feasibility study evaluates whether a proposed system is technically, economically, and operationally viable before development begins.

6) Define Requirement Validation.

Requirement validation is the process of ensuring that documented requirements accurately represent the needs of stakeholders and are complete, correct, and feasible.

7) What is the purpose of Requirement Elicitation?

Requirements elicitation aims to gather information from stakeholders to understand their needs and expectations for the system.

8) What is the difference between user requirements and system requirements?

User Requirements are high-level statements in natural language about what the user expects from the system, while system requirements are detailed technical specifications used by developers to implement the system.

9) What is scope creep in requirement engineering?

→ Scope creep refers to the uncontrolled addition of new features or requirements to a project without corresponding adjustments in time, cost, or resources.

10) What are the key challenges in requirements gathering?

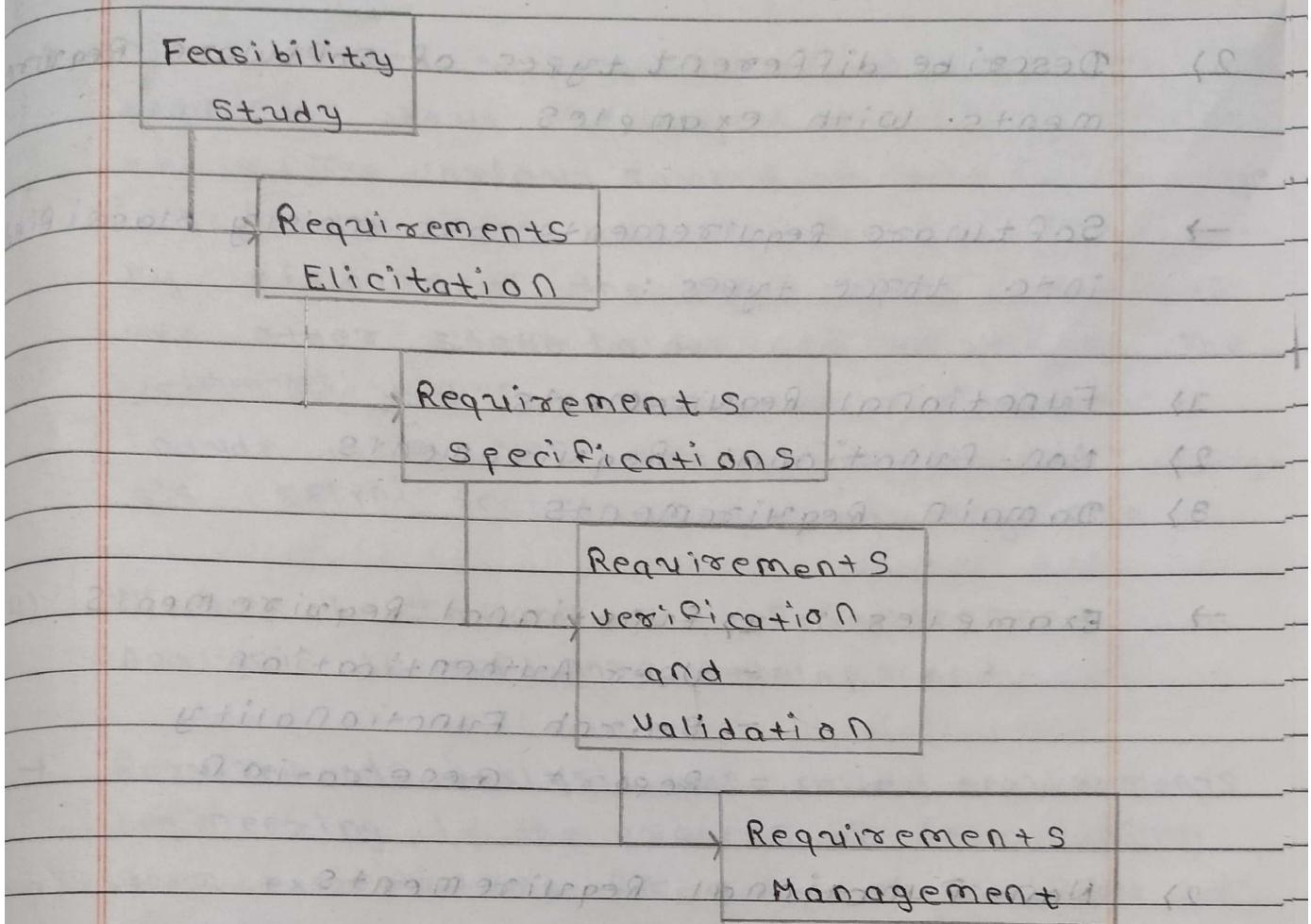
→ Challenges include unclear or changing stakeholder needs, communication gaps, incomplete requirements, and difficulty in understanding complex systems. These issues can lead to project delays or failure if not managed properly.



Long Questions / of what more do you

1) Explain the Requirement Engineering Process with a suitable diagram.

→ Feasibility study :- The Feasibility study mainly concentrates on below five mentions are below. Among these Economic Feasibility Study is the most important part of the feasibility analysis and, the Legal Feasibility Study is less considered Feasibility analysis.



→ Requirements Elicitation : It is related to the various ways used to gain knowledge about the project domain and requirements. The various source of domain knowledge include customers, business manuals, the existing software of the same type, standards and other stakeholders of the project.

2) Describe different types of software Requirements with examples.

→ Software Requirements are mainly classified into three types :

1) Functional Requirements

2) Non-Functional Requirements

3) Domain Requirements

→ Examples of Functional Requirements

- User Authentication

- Search Functionality

- Report Generation

2) Non-Functional Requirements

- Performance

- Usability

- Reliability

- Security

3) Domain Requirements

- Healthcare

- Finance

- E-commerce

4) What are the main techniques for requirement elicitation? Explain with examples

→ It is related to the various ways used to gain knowledge about the project domain and requirements. The various source of domain knowledge include customers, business manuals, the existing software of the same type, standards, and other stakeholders of the project. The techniques used for requirements elicitation include interviews, brainstorming, task analysis, Delphi technique, prototyping etc.

4) Discuss the Importance of Requirements Analysis in software development.

- Requirements analysis, also called requirements engineering, is the process of determining user expectations for a new or modified product.
- These features called requirements must be quantifiable, relevant and detailed.
- In software engineering, such requirements are often called functional specifications.
- The goal of requirement engineering is to develop and maintain sophisticated and descriptive SRS document. The process to gather the software requirements from client, analyze and document them is known as requirements engineering.

- A focused and detailed business requirements analysis can help you avoid problems like these.
- This is the process of discovering, analyzing, defining and documenting the requirements that are related to a specific business objective.
- And it's the process by which you clearly and precisely define the scope of the project so that you can assess the timescales and resources needed to complete it.

5) Explain Functional vs Non-functional Requirements with suitable examples.

Functional Requirements	Non-Functional Requirements
1) Describes what the system should do	1) Describe how the system should perform
2) System behaviors, features, and functions	2) Quality attributes and constraints
3) Defines specific operations or tasks the system must perform	3) Defines performance, usability, reliability, etc.

- 4) Usually expressed in use cases, user stories or feature descriptions.
- 4) Usually expressed as measurable attributes.
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- Ex-1 :- The system shall allow users to login with their email and password.
- Ex-1 :- The system shall respond to login requests within 2 seconds.
- 6) What is Requirement Validation? Discuss different methods used for validation.
- There are several techniques that are used either individually or in conjunction with other techniques to check entire part or part of the system.
- 1) Test case Generation
 - 2) Prototyping
 - 3) Requirement Reviews
 - 4) Automated consistency Analysis
 - 5) Walk-through
 - 6) Simulation
 - 7) checklist for validation

7) Explain the concept of Software Requirement Specification and its components.

→ SRS is a formal document that outlines all the functional and non-functional requirements of a software system. It serves as a contract between stakeholders (clients) and developers, ensuring both parties have a clear understanding of what the software should do.

* Purpose of SRS:

- Acts as a reference for design, development and testing, ensuring timely completion.
- Ensures that requirements are complete, clear, and agreed upon.
- Helps avoid misunderstandings and costly changes during development.

* Components of SRS

- 1) Introduction
- 2) Overall Description
- 3) Functional Requirements
- 4) External Interface Requirements
- 5) System Features
- 6) Other Requirements

8) Explain the common problems and challenges in requirement engineering and suggest solutions.

→ There are several requirements challenges in Requirement Engineering.

- 1) Ambiguous Requirements
- 2) Incomplete Requirements
- 3) Changing Requirements
- 4) Poor communication with stakeholders
- 5) Conflicting Requirements
- 6) Lack of domain knowledge
- 7) Time and Budget constraints