19BCS0012
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1. Explain the five steps in Problem analysis.

↳ Problem analysis is the Process of understanding real-world Problems and user needs and proposing Solutions to meet those needs.

↳ A problem can be defined as the different between things as perceived and things as desired.

↳ The goal of problem analysis is to gain a better understanding of the Problem being solved before development begins.

The five steps in Problem Analysis:-

1. Gain agreement on the problem definition:

↳ One of the simplest ways to gain this agreement is to simply.

write the problem down and ask whether everyone agrees.

Problem statement format:

Element	Description
the problem of..	Describe the problem.
Affects ...	Identify stakeholders affected by the problem.
And results in..	Describe the impact of this problem on stakeholders and business activity.
Benefits of a Solution..	Indicate the proposed solution and list a few key benefits.

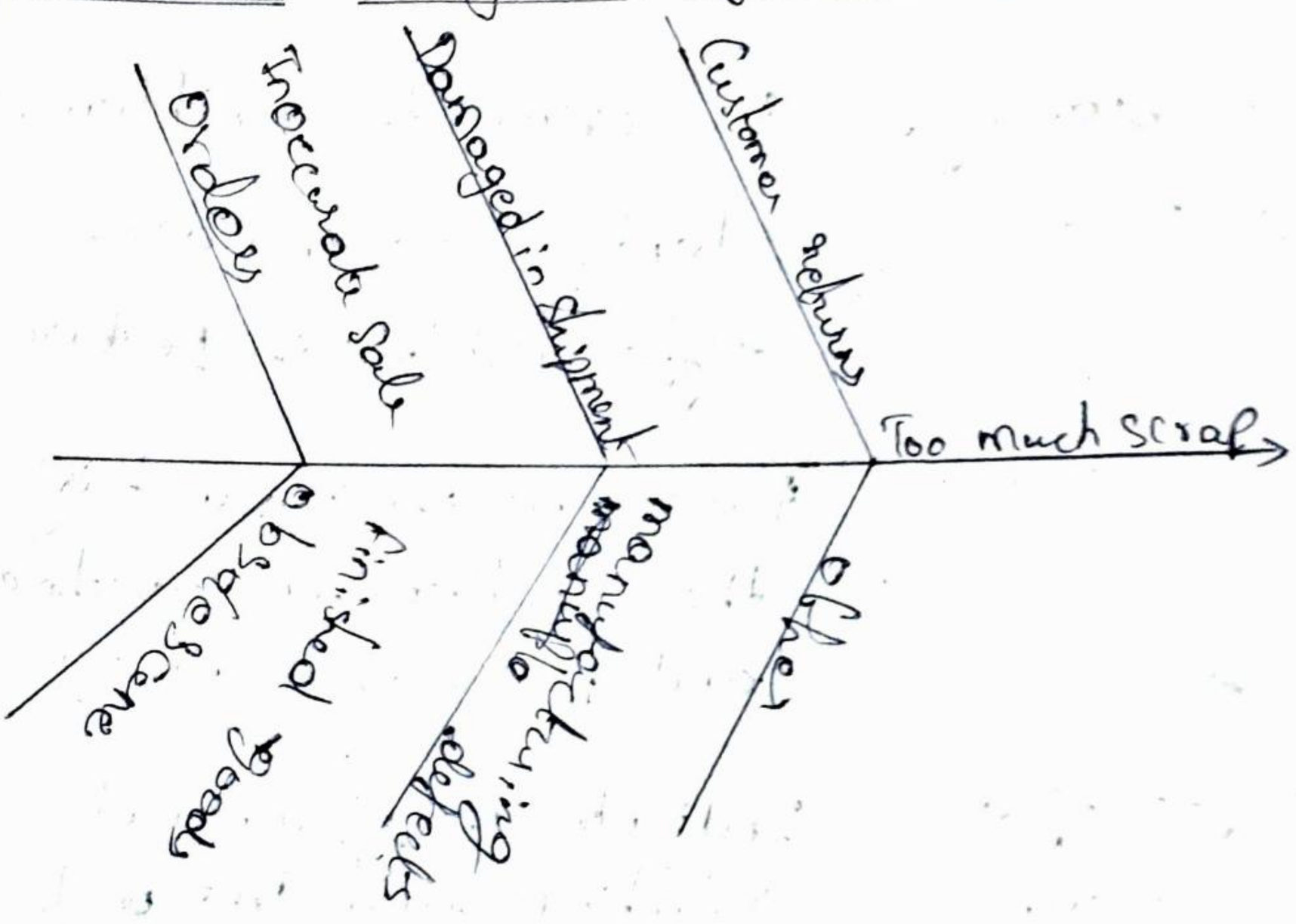
2-7

Understand the Root Causes (The Problem Behind the problem)

↳ Root Cause Analysis is a systematic way of uncovering the root, or underlying, cause of an identified problem or a symptom of a problem.

→ Example: a mail-order catalog company.
-address the problem of insufficient
Profitability:
→ cost of non-conformance.

Fishbone Diagram of Root Cause:



3.) Identify the Stakeholders and the users.

It Understanding the needs of the Users and other Stakeholders is a key factor in developing on effective solution.

It A Stakeholder is anyone who could be materially affected by the implementation of a new system.

Possible stakeholders:-

- Decision makers:
- Potential users
- other interested parties:

Define the solution system

Boundary:

⇒ We divide the world into two:

1) Our System

2) Things that interact with our system.

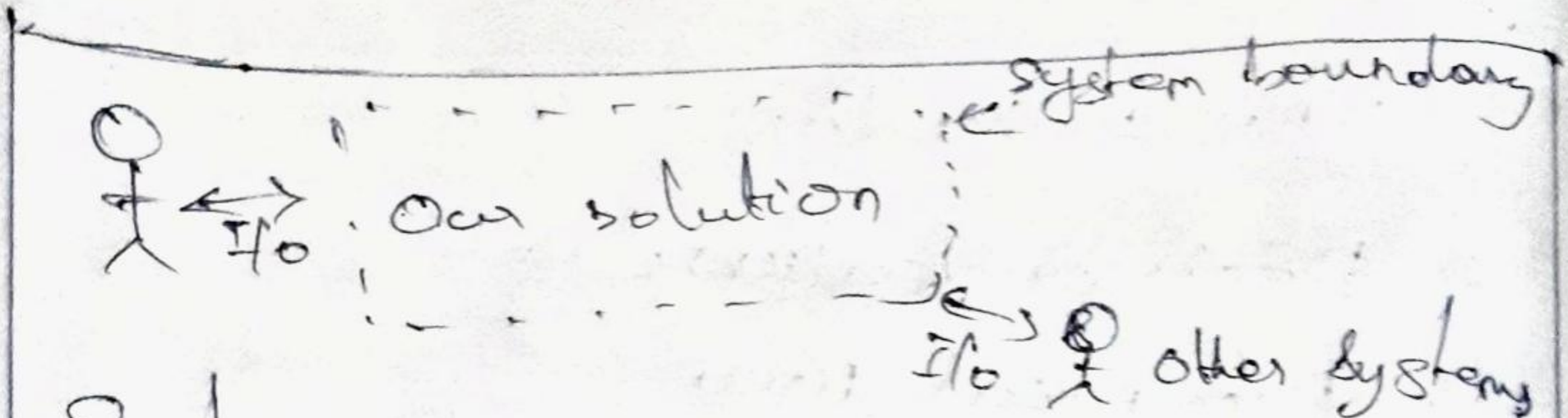
Input → [System] → output.

↳ system boundary defines the border between the solution and the real world that surrounds the solution.

↳ Describes the envelope in which the solution system is contained.

Actors:

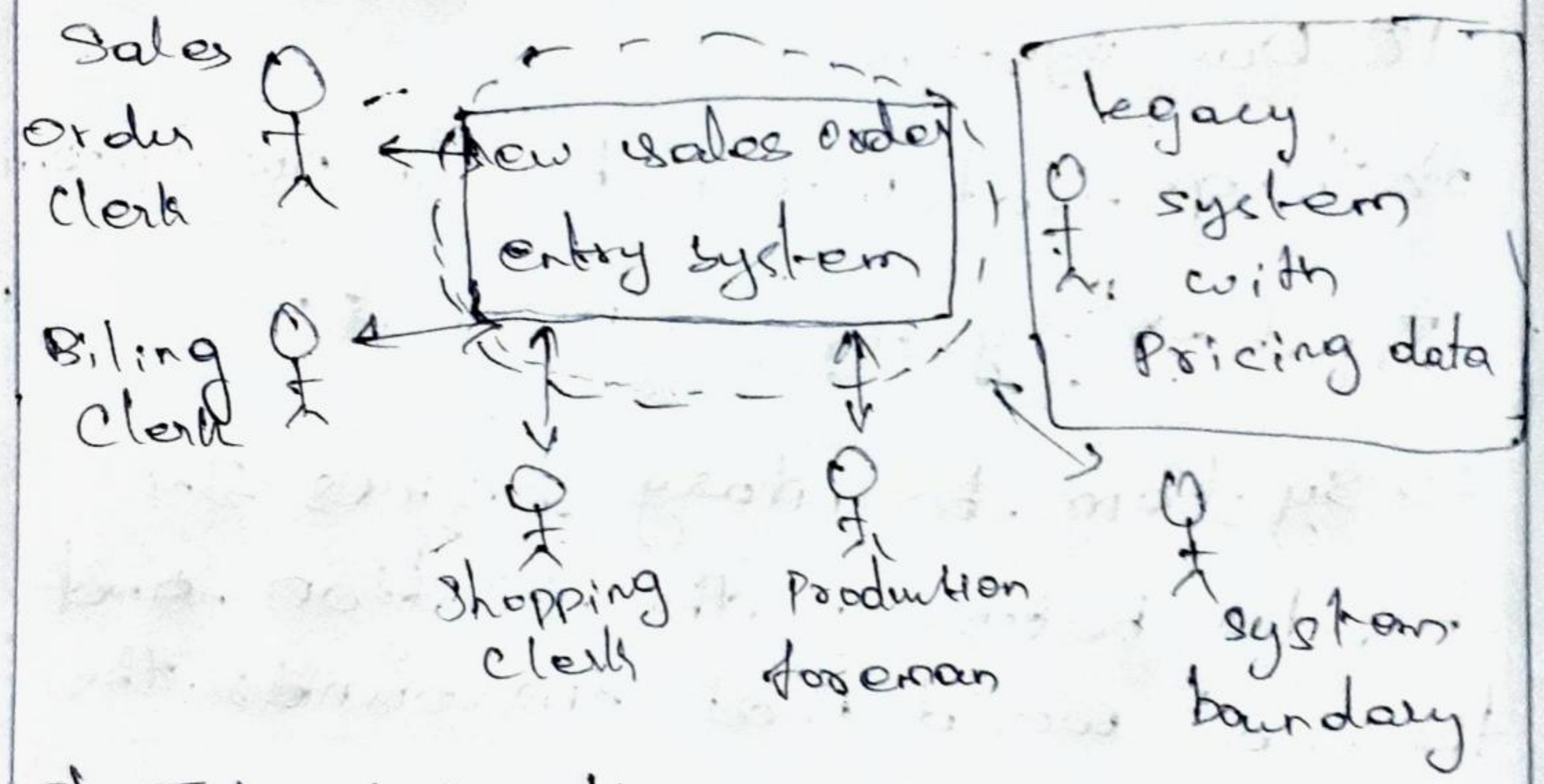
↳ An actor is someone or something outside the system that interacts with the System.



System perspective!

↳ A block diagram that describes the boundaries of the system, the user, and other interfaces.

Our new solution



5) Identify the constraints to be imposed on the solution:

↳ A constraint is a restriction on the degree of freedom we have in providing a solution.

2) Write about the contents of IEEE requirements document structure.

Soln

Information in requirements document depends on type of system and the approach to development used.

↳ Systems developed incrementally will, typically, have less detail in the requirements document.

↳ Requirements documents standards have been designed E.g. IEEE standards. These are mostly applicable to the requirements for large systems engineering Projects.

The structure of the requirements document:

1) Preface → This should define the expected readership of the document and describe its version history. including a rationale for the creation of a new version and a

2.) Introduction: This should describe the need for the system. It should briefly describe the systems functions and explain how it will work with other systems.

ii. It should also describe how the system fits into the overall business or strategic objectives of the organization commissioning the software.

3.) Glossary:

⇒ This should define define the technical terms used in the document. You should not make assumptions about the experience or expertise of the reader.

4.) User requirements definition:

Here, you describe the services provided for the user, the non-function

System requirements should also be described in this section. This description may use natural langugs, diagrams, or other notations that are standards that must be followed should be specified.

5) System architecture

↳ This chapter should present a high-level overview of the anticipated System architecture, showing the distribution of functions across System modules.

6) System requirements specification:

↳ this should describe the functional and non functional requirements in more detail. If necessary, further detail may also be added to the non functional requirements.

7.) System models:- This might include graphical system models showing the relationships between the system components and the systems.

8.) System evolution:-

⇒ This should describe the fundamental assumptions on which the system is based, and any anticipated changes due to hardware evolution.

9.) Appendices ⇒ these should provide detailed, specific information that is related to the application being developed;

10) Index: several indexes to the document may be included. As well as a normal alphabetic index, there may be an index of diagrams & index of functions and so on.