SOFTWARE REQUIREMENTS

- The software requirements are description of features and functionalities of the target system
- Requirements convey the expectations of users from the software products
- the process of gathering the software requirements from client, analyse and document them is known as requirement engineering
- the goal of requirement engineering is to develop and maintain sophisticated and descriptive 'System Requirements specification' document

Requirement engineering has 4 (four) steps

(1) Feasibility study : → It explores technical aspects like usability, maintainability, productivity integration

- when client approaches organization for getting the desired product developed it comes up with rough idea about what all functions the software must perform and which all features are expected from software
- Refering to this information, the analyst does a detail study about whether the desired system and its functionality are feasible to develop

- We has to make a feasibility study report that contain adequate info whether the project should be undertaken or not

② Requirement Gathering :/ Elicitation & analysing process

if feasibility report is positive, next starts with gathering requirements from user They communicate with clients, end users for more information

③ Software Requirement specification (SRS)

SRS is a document created by system analyst after the requirements are collected from various stakeholders

SRS defines how the intended software will interact with hardware, external interfaces, speed of operation, response time of system, portability of software across various platforms, maintainability, speed of recovery after crashing, security, quality, limitations etc

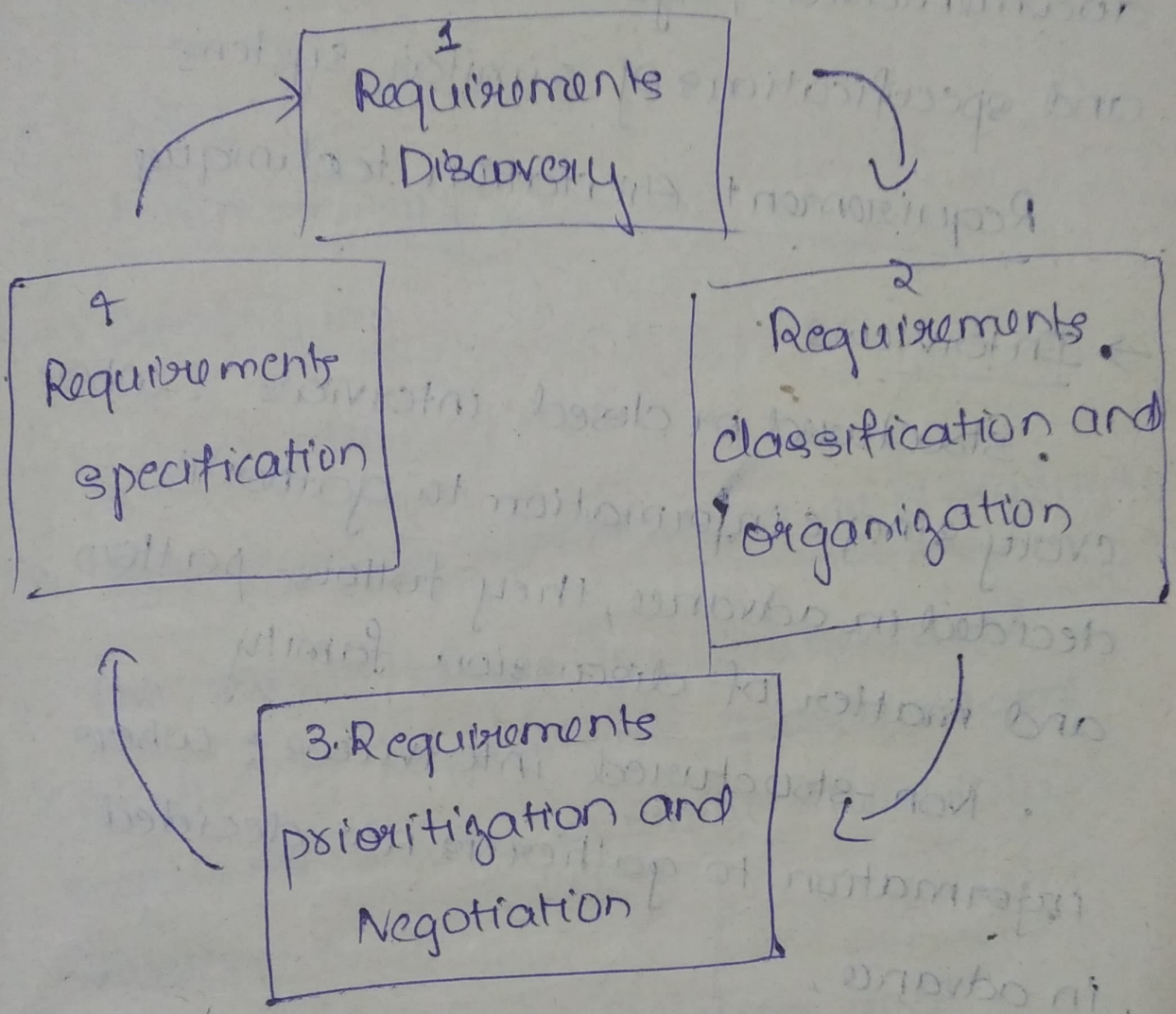
④ Software Requirement Validation

- We have to do validation : for all the requirements specified in SRS document - checking accuracy, correctness etc
- User might illegally, impractically may provide wrong requirements which may increase the cost. Those must be validated
- they are complete
- No ambiguity
- practically implemented
- they can be demonstrated
- if they are valid and as per functionality and domain of software

Requirements Validation Techniques

- Reviews / inspections
- Prototyping
- Test case generation
- Automated consistency analysis

② REQUIREMENT ELICITATION AND ANALYSIS PROCESS



① Requirements Discovery / requirement elicitation

→ it is the process of gathering information about the required system and existing systems, and distilling the user and system requirements from this information

→ Sources of information during the requirements discovery phase include documentation, system stakeholders and specifications of similar systems

Requirement Elicitation techniques

→ Interviews :

- structured or closed interviews : where every single information to gather is decided in advance, they follow pattern and matter of discussion family
- Non-structured interviews : where information to gather is not decided in advance,
  - oral interviews
  - written interviews
  - Group interviews

→ Surveys

→ Questionnaries A document with pre-defined set of objective questions and respective options is handed over

to all stakeholders to answer, which are collected and compiled

→ task analyzing

→ Domain Analysis

→ Brain stroming

→ Prototyping

→ observation

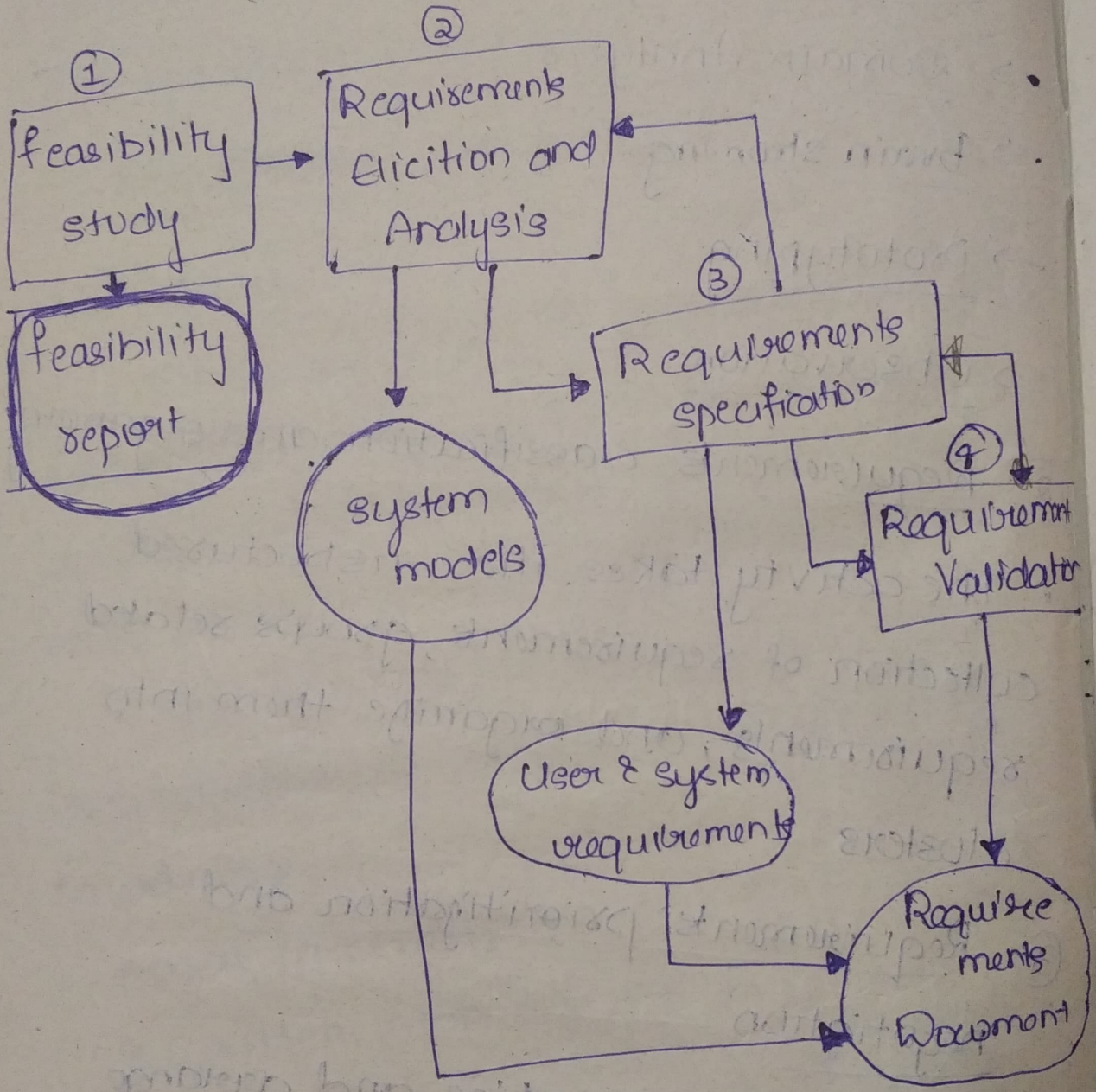
② Requirements classification and organizing

. The activty takes the unstructured collection of requirements, groups related requirements, and organize them into clusters

③ Requirements prioritigation and negotiation

- The developers prioritize and arrange the requirements in order of importance, urgency and convenience.
- if requirements are ambiguous and arise some conflict it must be negotiated and discussed with stakeholders

REQUIREMENT ENGINEERING PROCESS



(3) SRS (Software Requirements specification)

- SRS is a discription of the software system to be developed
- It lays out functional and non functional requirements of the software to be developed
- It may include a set of use cases that describe user interactions that the software must provide to the user for perfect interaction.

SRS structure

(1). Introduction
- 1.1 Purpose
- 1.2 Intended Audience
- 1.3 Scope
- 1.4 Definations
- 1.5 References

(2) Overall description
- 2.1 User interface
- 2.2 System interface

2.3 constraints, assumptions and dependencies

2.4 User characteristics

① Introduction

a) purpose : why?

b) Intended Audience :

who use this?

students, people etc

c) scope : what is the scope in future?

d) Defination :

definations or explanation for new terminology

Ex: HOD (Head of department)

e) Reference :

where and how they referred

② Overall Description

a) User interface : how it looks for user

b) System interface : who and how system related components like servers, etc are maintained

c) Constraints
assumption
dependencies

d) User characteristics
different types of users

(3) System Features and Requirements

3.1 Functional Requirements

3.2 Use cases

3.3 External interface Requirements

3.4 Logical database requirement

3.5 Non functional requirement

(4) Deliver for approval :

3 System Features and Requirements

3.a) Functional requirement
How it works?

b) Use cases : Some scenario examples like forget password then what to do?

c) External Interface Requirements
any third party linking should be mentioned

d) Logical database requirement
whether mysql, Oracle what kind of database we use

e) Non-functional Requirements
security, availability, portability requirements

Deliver for Approval

Approval signature

STRUCTURE OF SRS

1. INTRODUCTION
   - 1.1 purpose
   - 1.2 Intended Audience
   - 1.3 scope
   - 1.4 defination
   - 1.5 References
2. Overall DESCRIPTION
   - 2.1 User interface
   - 2.2 System interface
   - 2.3 Constraints, assumptions and dependencies
   - 2.4 User characteristics
3. SYSTEM FEATURES AND REQUIREMENTS
   - 3.1 Functional requirements
   - 3.2 Use cases
   - 3.3 External interface Requirements
   - 3.4 Logical database requirement
   - 3.5 Non functional Requirements
4. DELIVER FOR APPROVAL

FUNCTIONAL REQUIREMENTS and NON FUNCTIONAL REQUIREMENTS

Software requirements are broadly categorized in two categories

① FUNCTIONAL REQUIREMENT

which are related to functional / working aspect of software fall into this category

- It defines functions and functionality within and from the software system

Ex : . search option to user
. mailing for any queries

② NON FUNCTION REQUIREMENT

are expected characteristics of target software. They are implicit or expected characteristic of software, which users make assumption

Ex: Security
logging