

SRE

- conflicts

Requirement analysis.

to avoid conflicts:-

to avoid repetition:-

Interaction matrices

	R ₁	R ₂	R ₃	R ₄
R ₁		0	0	
R ₂				
R ₃				
R ₄				

elements

Unique = 0.

Conflicting = 1.

Overlap = 1000

Conflicts exists

sum of rows → conflicts

sum of columns → overlap

	R ₁	R ₂	R ₃	R ₄	R ₅
R ₁	0	0	1	1000	
R ₂					
R ₃	0		1		1-conflict
R ₄					
R ₅					

Not more than 200 Requirements

* Requirement Negotiation

Discussion

Prioritization → to identify critical requirements
 Agreement → Solution
to help making

Unnecessary Conflicting Infeasible

Discussion Prioritize Agreement

Information Stage :- objective problems

Discussion :- how problems solved

Resolution :- agreement

Requirement & Validation Elicitation

Negotiation

Specification

Validation

Acceptable description of system
check R.D for

* Completeness and Consistency

Conformance to standards

Requirements Conflicts

Technical errors

Ambiguous Requirements

Analysis on raw material

Validation on final draft of requirements document

R Document

List of problems

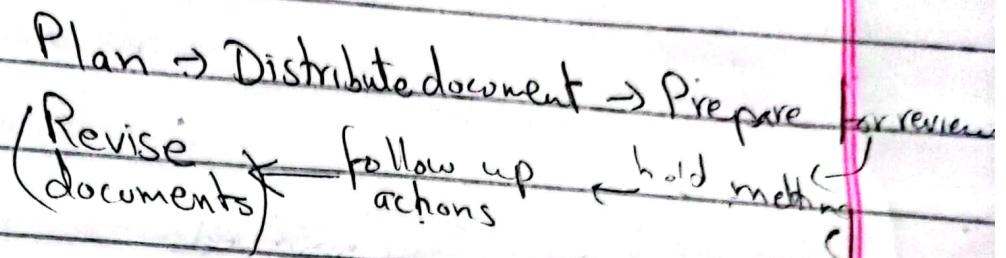
Organizational knowledge

Agreed actions

Organizational standards

Requirement review:

group of people read and analyze requirements



Page No Line No, R No

Problem actions:-

Requirements clarification

→ go to source of that requirements

Missing information

→ All stakeholders

Requirements conflicts

Unrealistic requirements

Pre-review checking

Reviews are expensive → reduced using

prereview checking

one person check and straightforward problem)

check document structure → check completeness →

④, 7, 3
Problem reports ← Run automatic checkers ← Check document against standards

Good practice Guide

Reviews → group of people
Review cost → reduced → deviation from organizational standards.

Validation Techniques:-

Review checklist

Prototyping

mostly used Brainstorming.

Storyboarding

Expert review

Model validation

Requirement testing

① Review -checklist :-

④ Ambiguity

⑤ Consistency

⑥ Understandability

⑦ Redundancy → information repeated

③ Completeness

⑧ Organization

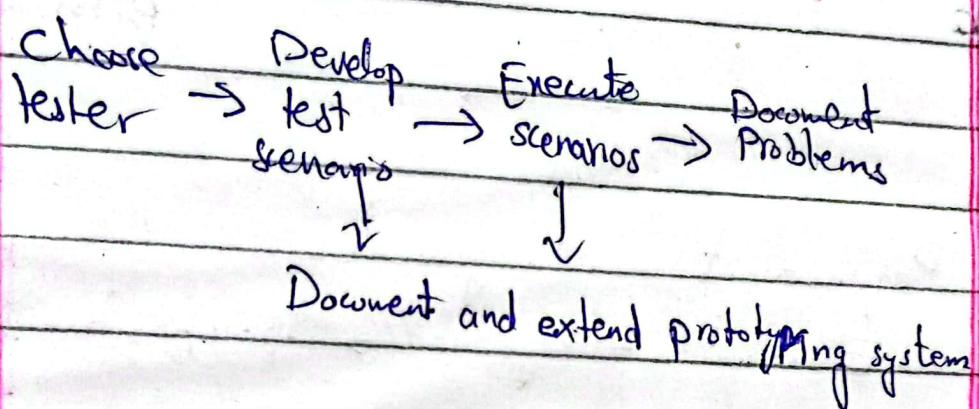
Conformance to standard → according to template
Traceability.

checklist

Backward → from where it comes (source)
forward traceability → from ^{how} where it use
testing, designing part

Vet (value edit text)

Prototyping



User manual development
for easiness

BrainStorming:

Get together and talk about thinking of
of software.

Group activity → experts:-

Storyboarding

set of steps pinned on board

how use of software

sketch of

test set

nature, size,

demographic

location users.

Background

App



Requirement Management:-

Elicitation → Negotiation → Specification →

Process of managing requirement

Reason of changing

how to manage

Can't manage without traceability

traceable if ^{know} who suggested, why ^{req} exist

Related requirements → How req relate with other
information such as system design, implementation
and user document

Change - A constraint:-

Nothing permanent except change

⇒ changing Requirements

stakeholder wants to change

⇒ Sources-

New business market change

Reorganization or business growth

Budgetary or scheduling constraints

New customer needs demand.

⇒ Why All This modifications:

As time passes, all constituents know

About what they need.

How to get it done and still make money.

Statement fact: most changes are justified

(جواہر) جو اے > req (جواہر) جو اے

نہیں جو اے کو جو اے کو نہیں کیا گی

(جواہر) جو req اے

⇒ Managing changing Requirements:-

tell them in proper ← Formal change of requirements - git, et
way and then change) State of art configuration control tools start end

Requirement reviews

Main Concern in MR

Managing changing to agree requirement

Managing relationships between requirement

Case Tools

collection, storage and maintenance of large amount of information.

Number of CASE tools available which are specifically designed to support RM.

Configuration management tools may be adapted for req. Management

Changing Requirements

Stable and volatile Req:-

stable

may change

essence of system and application domains

due to environment

Change factors

errors, conflicts, inconsistencies

Evolving customer/end-user knowledge
of system

Technical, schedule, cost problems

→ Business down sizing ↑ due to

Change factor :-

changing Re. customer prioritized
(due to any reason in environment) Environmental changes

Organizational changes

Stakeholder (client change)

Volatile Requirements:-

for change ← Mutable Requirement (due to change in environment)

Emergent Req (ज्ञान के लिए डिजाइन के दौरान विकसित होते हैं)

Compatibility Req (change due to other factors req)
depends on other req)

Consequently Req

Emergent

cannot completed. defined when system

is specified but which emerge as system
design

Consequential Requirements
based on assumptions.

Summary:-

Inevitable as customer develop
Types

Requirement Identification :-

like Excel, Word Dynamic renumbering or automatic assign

Database record identification

Symbolic identification

Database record

When Req identified it is entered in

req database and database record

identifier is assigned

Symbolic Representation

FR - 001

FR - cart - 001

Storing Requirements

In one or more word processor files.

In a specially designed requirement database.

→ Same place, anyone can use

easy to use/produce requirement document
disadvantage:- difficult to search

No automated navigation

No version control on individual req

Not possible to link requ with proposed requ change.

Req dependancies must be maintain externally.

RD

Choice factor

Statement of Req

Number of Req

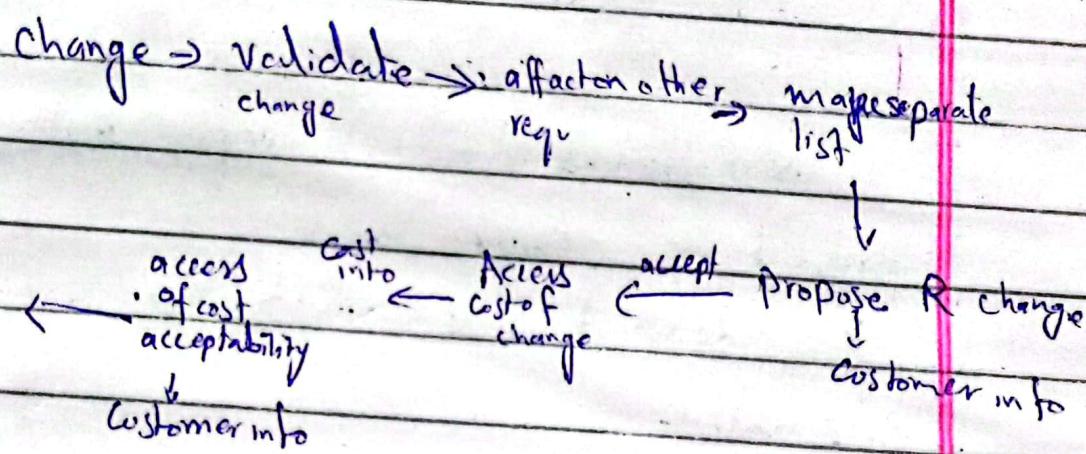
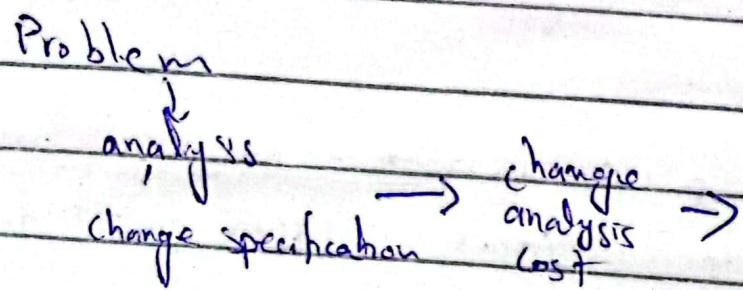
Team work, Team distribution, computer support.

CASE tool use

Mongo DB

Existing database usage.

Change Management for stages



Requirement Traceability

6 → REM

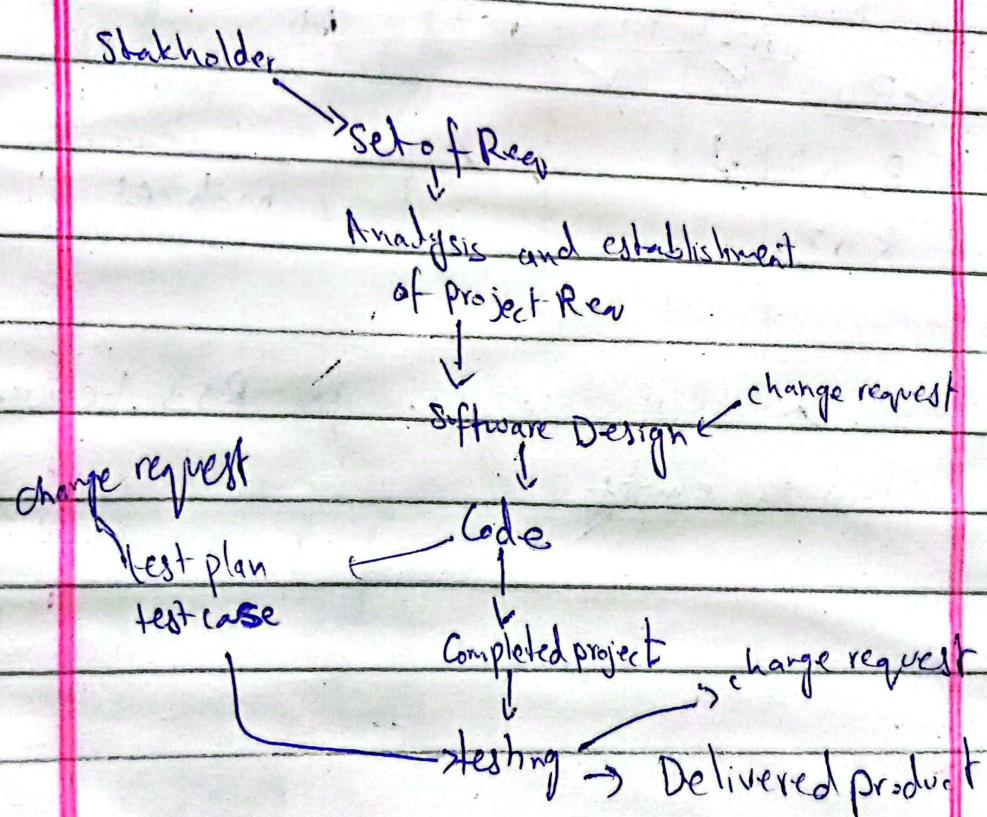
9 → RE good practice

Identifying requirements in all software artifact including information artifact

- Origin of Requirement

- How it is implemented

This is continuous process



case study → check forward and backward traceability matrices

Backward from

forward from

Backward to

Forward to - traceability
test cases

Set of requirement in rows

get from source	some	Source of	Req	backward → Column			
				A01	A02	A03	Aii
R01	✓		✓				
R02	✓				✓		
R03							

→ Forward
→ Backward
Matrices

No test case plan for R03 because row is empty.

Name

Person roll no

Contribution

Texts

video, Questions, Question Answers

Survey, Template, Results (Compile, individual)

Chapter 6

chapter 9 → good practice

Traceability

Backward - from

link requirements to their sources in other document or people

Forward - from

to design and implementation components.

Backward to

link design and implementation component back to requirement

Forward to → Business plan

from → more from requirements
to requirements towards

9.1 tables.

Source, Test case

1 Specification / Documentation

management 10, 11, 12, 13

Validation

Traceability