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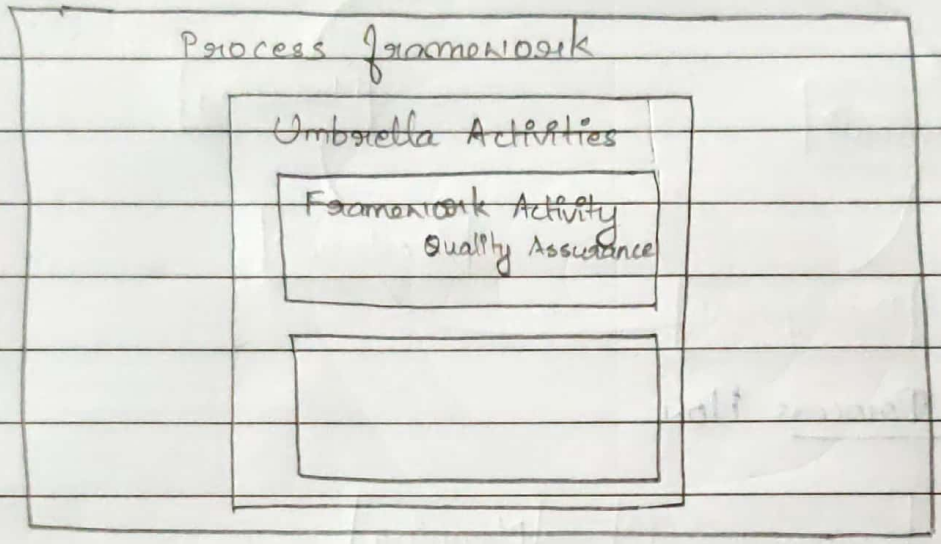
MODULE-2

Process Framework

S/W Process

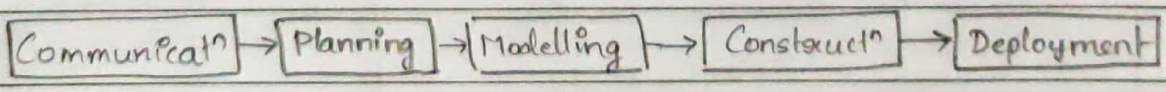


Process Flow

(i) Linear Process Flow
(ii) Iterative " "
(iii) Evolutionary " "
(iv) Parallel " "

(i) Linear Process Flow

- It proceeds in a sequential manner.



- Requirements are collected via communicatn (eg: survey)
- Construct" → coding

(ii) Iterative Process Flow

- Repeating the steps
- We can go back from any stage & start over

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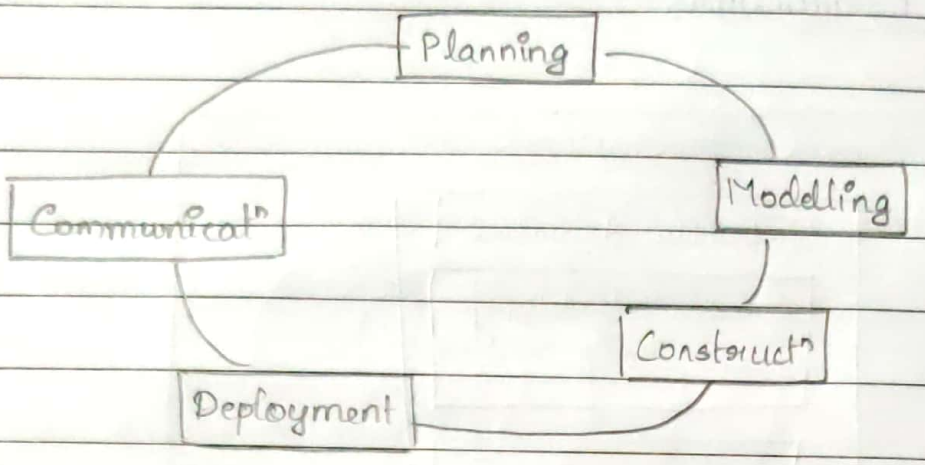
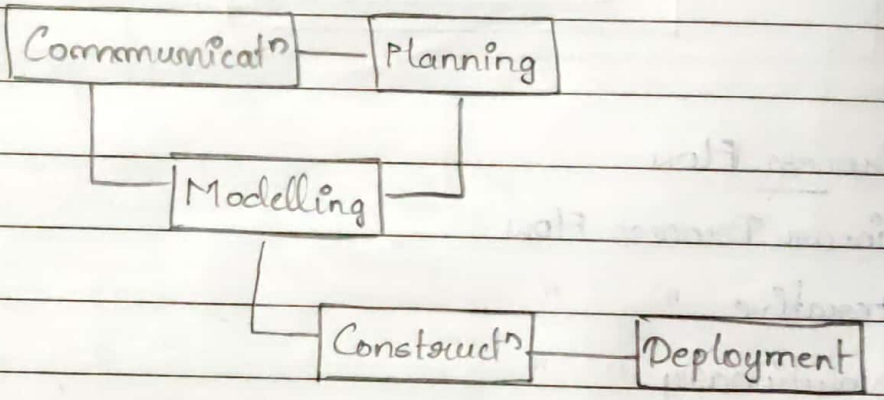
(iii) Evolutionary Process Flow



(iv) Parallel Process Flow



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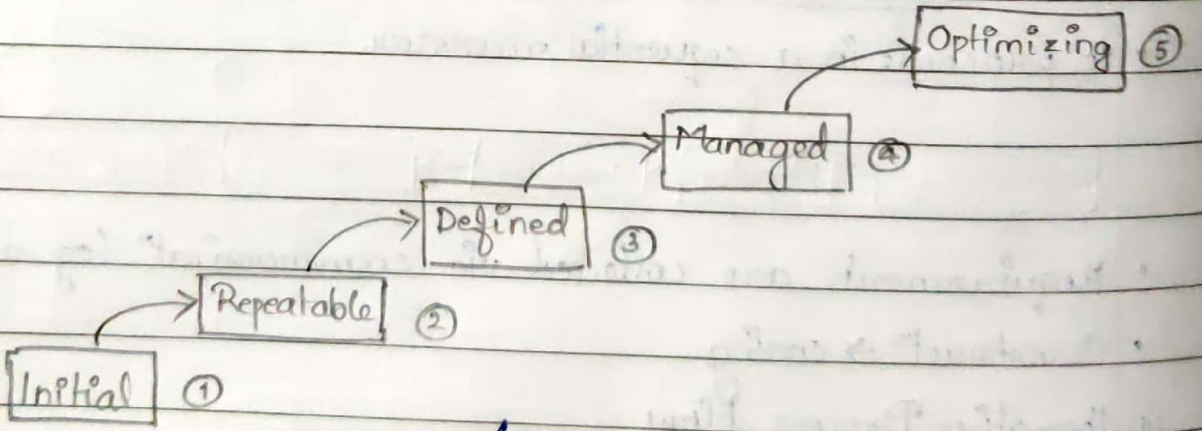
Capability Maturity Models (CMM)



- KPA → Key Process ~~Activities~~ Areas → Activites involved in all levels except "Initial" level.

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- Repeatable → (i) Software planning
(ii) Requirement analysis
(iii) Quality assurance
- Defined → Peer reviews
→ Inter-grp coordinatn
→ Training programs
→ Organisatn
- Managed → Config. mgmt
→ S/w quality mgmt
- Optimizatn → Highest level
→ Feedbacks
→ Defect preventn

Phases of Software Development

(i) Requirement Engg.
(ii) Planning
(iii) Designing
(iv) Coding
(v) Testing
(vi) Maintenance

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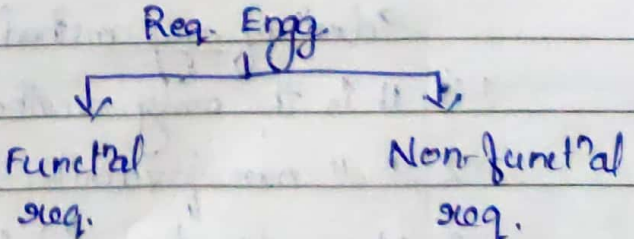
Requirement Engg

- Req. Elicitatn

Perhaps.

→ Most difficult
→ " critical
→ " error prone



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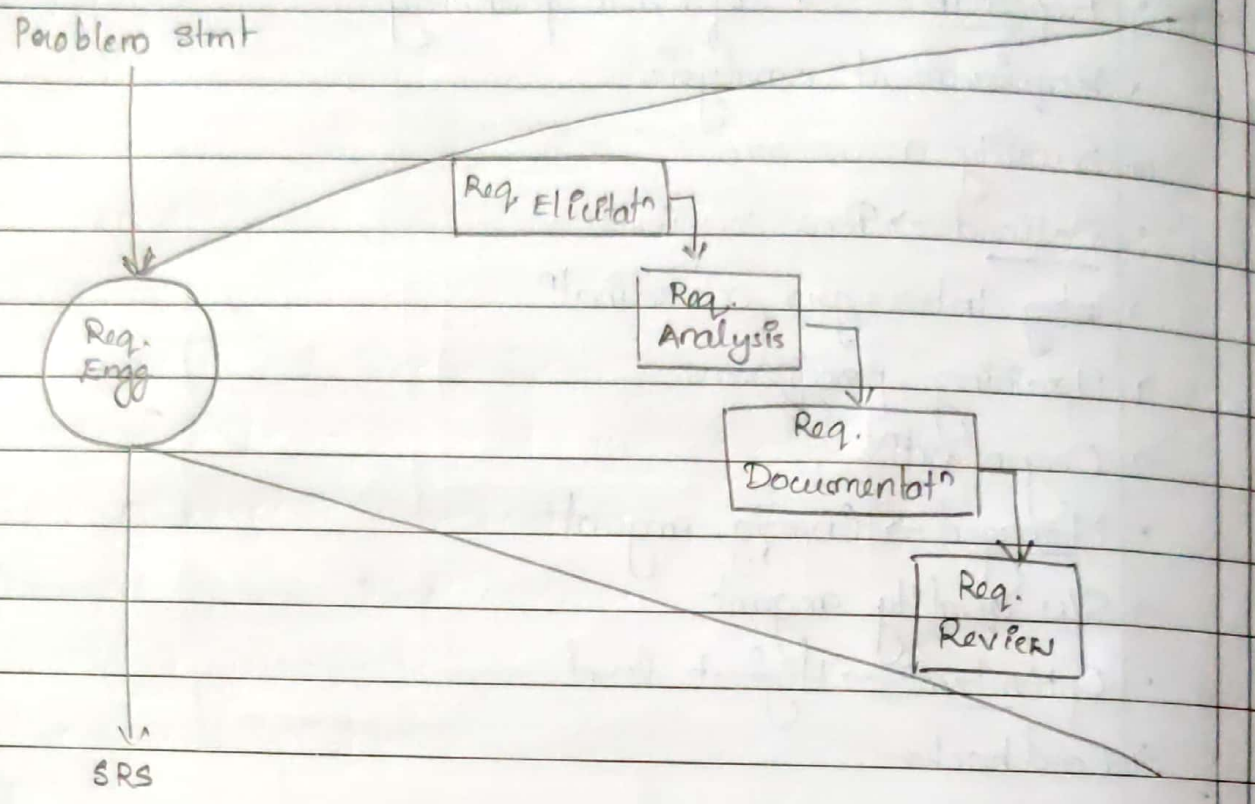

→ Most communicat^n intensive

Succeed → Effective customer developer partnership

Types of Req.

- Known
- Unknown
- Undreamed

Req.

- Funct^nal
- Non-funct^nal

Select^n of any method

1. It is the only method that we know
2. " " our favourite " for all situat^ns
3. We understand intuitively that the method is effective in the present circumstances.

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Conduct a feasibility study before starting the project.

Feasibility Study
- Technical
- Non-technical

Req. Elicitatn
- → Interview
- → Brainstorming
- → Facilitated App. Specificatn Techniques (FAST)
  - Similar to brainstorming sessions
  - Team oriented approach
  - Creatn of joint team of customers & developers
- → Use Case Approach
  - Identify actors
  - " use cases
  - Use case scenario
  - Use case diagram

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Use Case — Components
- (i) Actors → External agent which lies outside the model
  - (i) 1° actor → Give assistance to system
  - (ii) 2° "
- (ii) Use Cases → Seq. of interactn with system

Use case describes the seq of interactn btw actor & the system.

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Req. Elicitat^n → Jacobson & others proposed a template for use cases

(i) Introduct^n :- Describe a quick background of the use case.

(ii) Actors :- List actors that interact & participate in use cases

(iii) Pre-condit^{n}s :- Pre condit^{n}s that need to be satisfied for use case to perform.

(iv) Post condit^{n}s :- Define different states in which we expect the system to be in, after the use case executes.

(v) Flow of Events :- (a) Basic Flow
(b) Alternative "

(vi) Special Requirements

(vii) Use Case Relat^{n}ships

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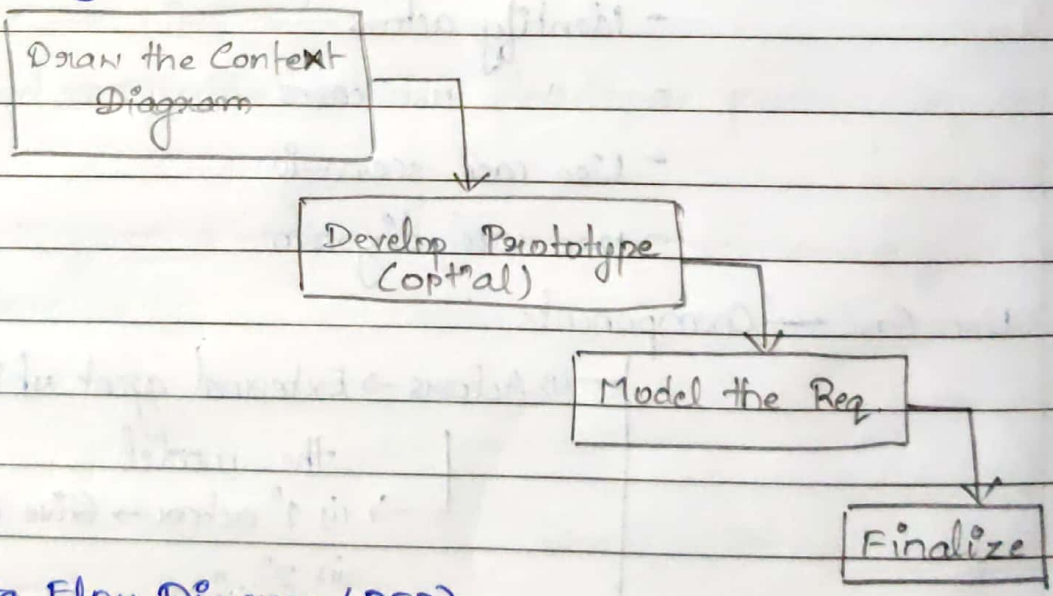
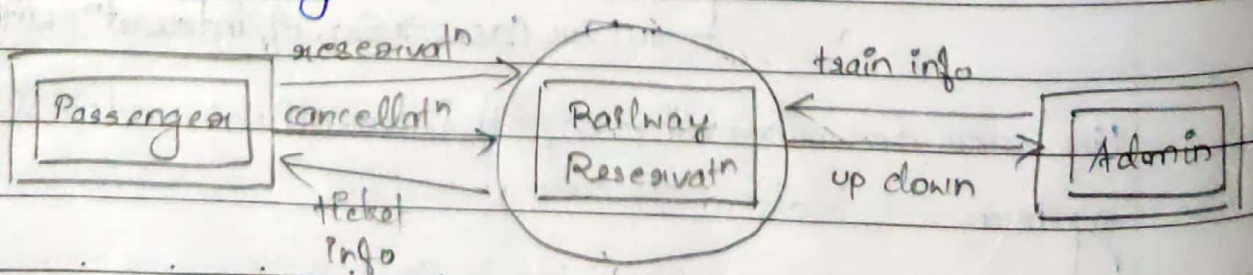
• Req. Analysis



Data Flow Diagram (DFD)



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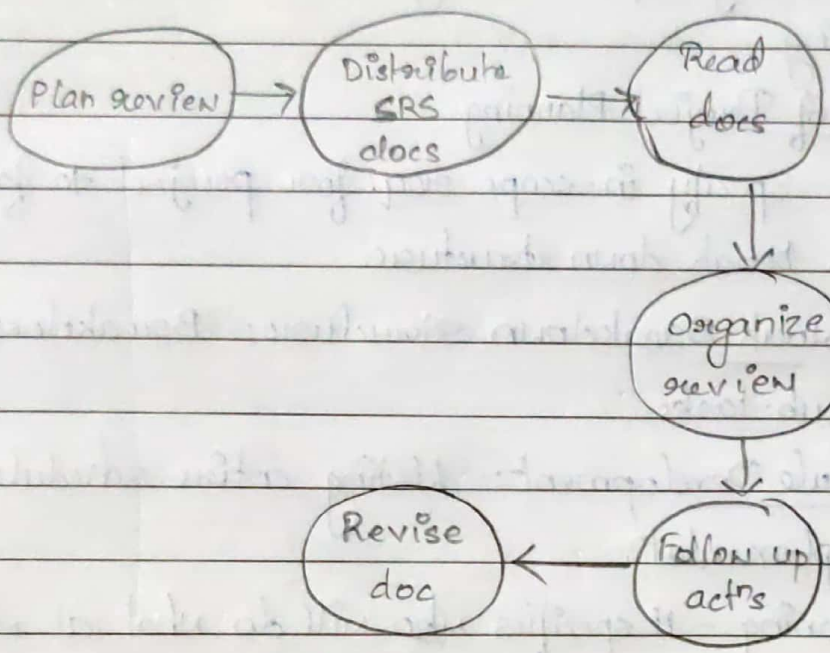
- Req. Documentation

Way of representing requirements in a consistent format (SRS)

- Req. Review Process



① A university wish to develop a software system for the student result mgmt of its M.Tech. Programme. A problem stmt is to be prepared for the s/w development company. The problem stmt may give an overview of existing system & broad expectat^ns from the new s/w system.

ans