Requirements Eng :— → It is an activity

It is the process of eliciting stakeholders needs and desires and developing them into an agreed-upon set of detailed requirements that can serve as a basis for all subsequent development activities.

Elicitation

Now Quality Function Deployment (QFD) — Set of Req^m

Past Functional Requirements — Directly involved with business

Non- " " — Not directly involved with business but necessary.

Scalibility, portability, Security are non-functional requirement

QFD :— → Normal Req^m : What client directly asked for

→ Expected Req^m : Clients did not ask but it is essential

→ Exciting Req^m : Wow-factors (Marketing strategy) — Not essential but exciting

Acceptance Test using QFD

Mid-2/Presentation — Report Submission

Goal is requirement analysis not development.

Negotiation

Win-Win Situation / Win situation if no other party

Need
- Knowledge
- Impartial Mind

QFD will guide us to how to develop ~~ment~~ the product.

Elaboration

Purpose of Model
- Elaboration
- More clear understanding

Power Purpose of Elaboration
- Details idea

Model (Types) → Scenario Based Modelling
→ Data Based Modelling
→ Class Based Modelling
→ Behavioural Modelling

Scenario Based Modelling

- User/Usage Story
- Use Case Diagram
  - → Non-technical Diagram
  - → Graphical view of that story
- Activity Diagram
- Swim Lane Diagram

Data Based Modelling

- Data Model
- (E-R) Schema

(OOP) Class Based Modelling

- Class Card
- CRC Model (Class Responsibility Collaboration)

Behavioural Modelling

- (Structured Prog.) Data Flow Diagram
- State Transition Diagram
- Sequence Diagram

Data Flow:— → Activity, Process, Function

Data —Flow→ Information

(Arguments) (Return)

State Transition:— Intra

One class has states — Active, Hibernation

Through Inputs, methods class changes their transitions internally

Sequence Diagram:— Inter

Class —Transition→ Class

18/02/24

Waterfall Model is for Mission Critical

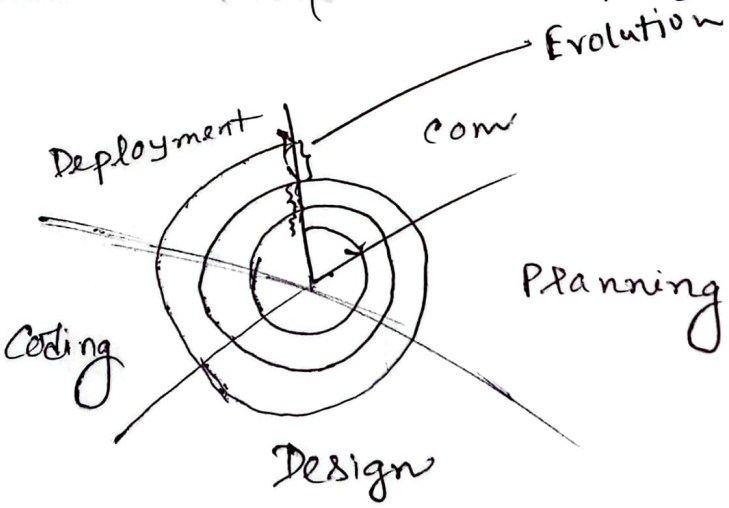
Incremental Model:—

Some laxity time So no banking software

Evolutionary Model:—

Prototyping Model: One kind of evolutionary.

Spiral Model:— [Web based project]

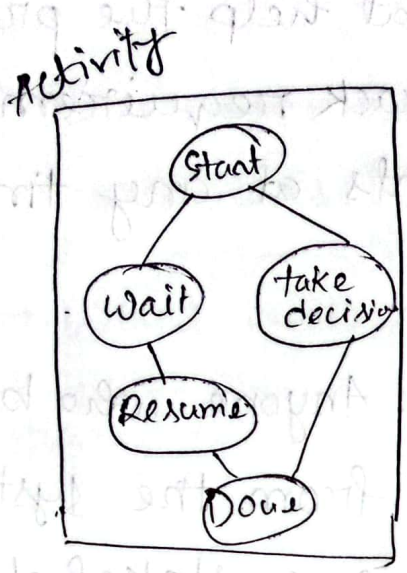


We need evolution or progress in every cycle.

Quality Focus— Flexibility

Creative work is abundant

Parallel Model:—



2) COTS (Components on the shelf)

↳ Component Based Development/Model

↳ Which is independent, no dependencies

Building Block

Cons:—

Process ——

A set of framework activities

Why do we need process?

Cause it's a systematic approach

Formal Methods

Representing everything with mathematics

→ Creating mathematical model

Pros
→ Automated (If pure mathematics)
→ Reusability

Cons
→ Scarcity of this type modelers.

Aspect Oriented

Cross cutting concerns / aspects

: Security in CRM and HRM

Assignment

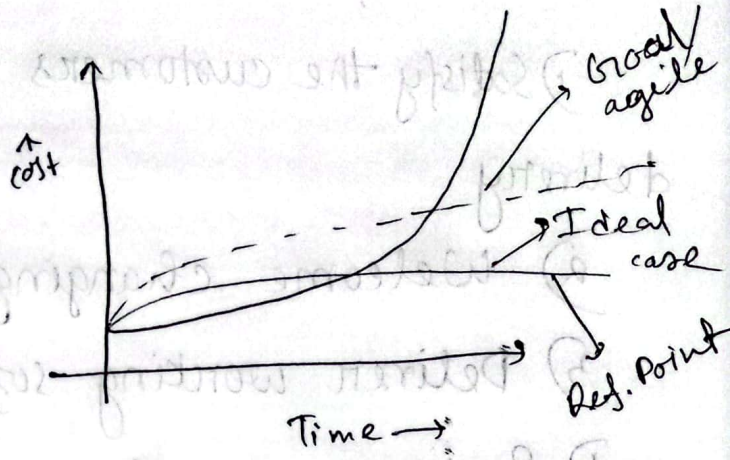
3 model — 2 page each (Not from book)

Agile Model: (Process Flow)

→ Most Effective

→ Fast Changing

Kayaking



Goal:

Cost should be linear in respect to changes.

Assumptions: (When to use Agile)

1. Requirements can change. So it is difficult to predict.

2. Design and construction are interleaved

3. All activities are not predictable as it could b.

Summary: Unpredictability ⇒ Adaptable

Incremental growth

Agile Process Flow

50 < — Mid Range Project

mean 100 — Big/Huge Project

Principles of Agile Model:—

1) Satisfy the customers through early and continu delivery

2) Welcome changing requirements.

3) Deliver working software frequently.

4) Business people and developers must work together daily

5) Build projects around motivated people.

6) Face to face communication

7) Working software is the primary measu of progress

8) Constant pace indefinitely

9) Continuous Attention

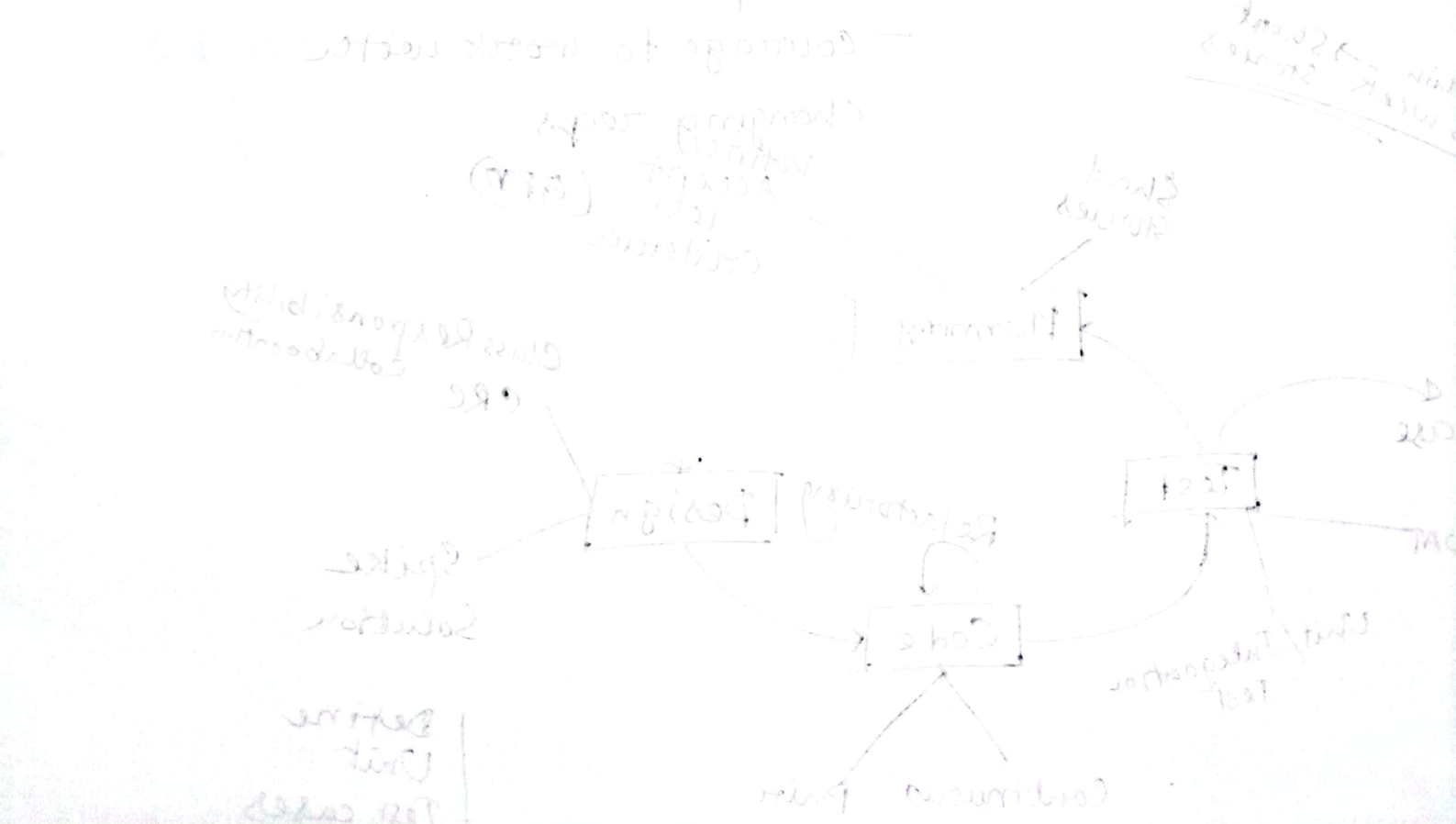
10) Simplicity

11) Self-Organizing Team

12) Adjust behaviour accordingly.

* Must *

- Agile vs Waterfall
- Human factors
  1. Competence
  2. common focus
  3. Collaboration
  4. Decision making ability
  5. Fuzzy - Problem Solving Ability
  6. Mutual trust and respect
  7. Self - Organizing



zzzz---...

XP (Extreme Programming)

It is a process model

Popular for mid-size projects

Values (5):—

→ Communication ① — informal & f2f

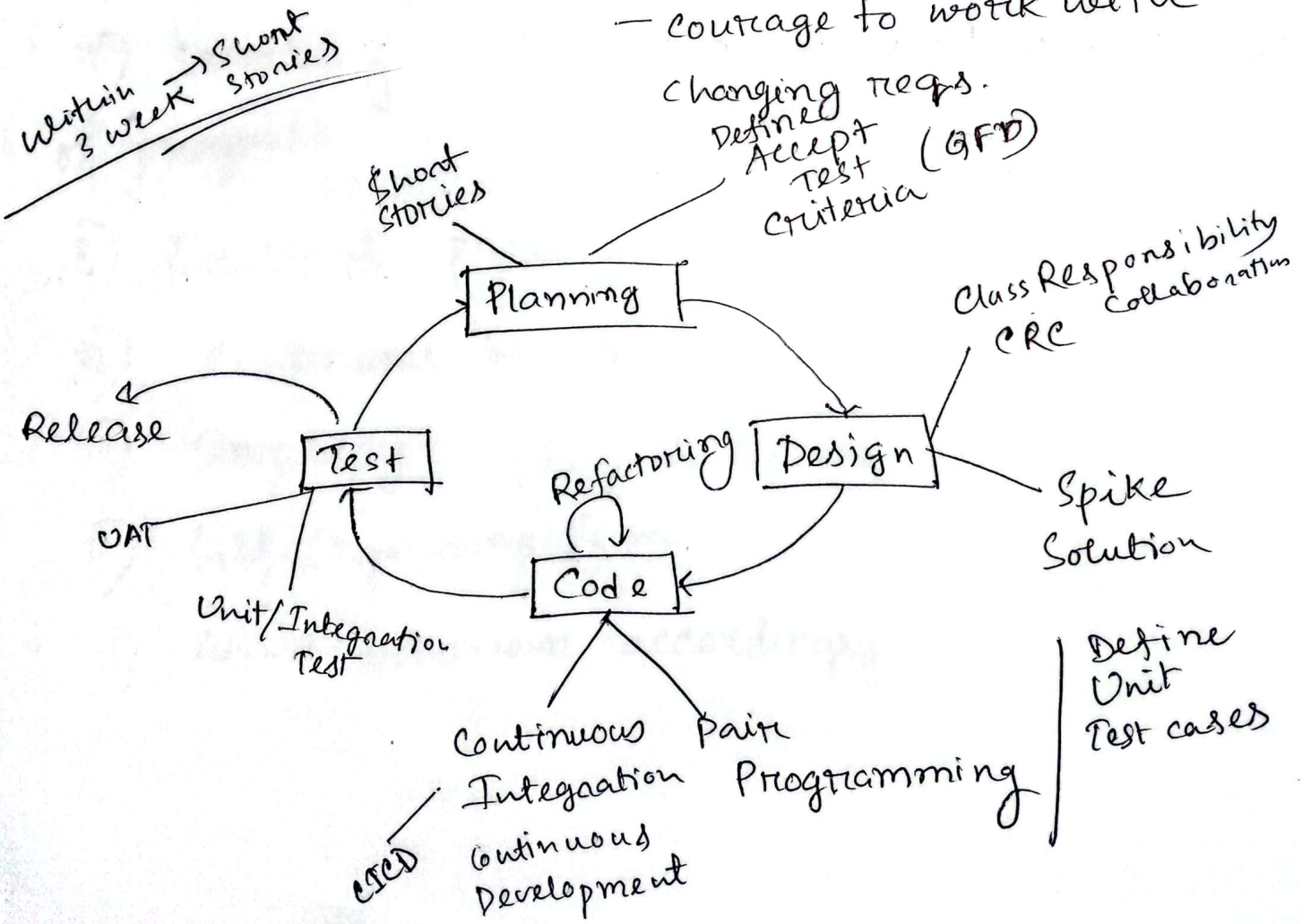
→ Feedback ③ — from User & the product itself

→ Design Respect ⑤ - People around and the task that I am doing

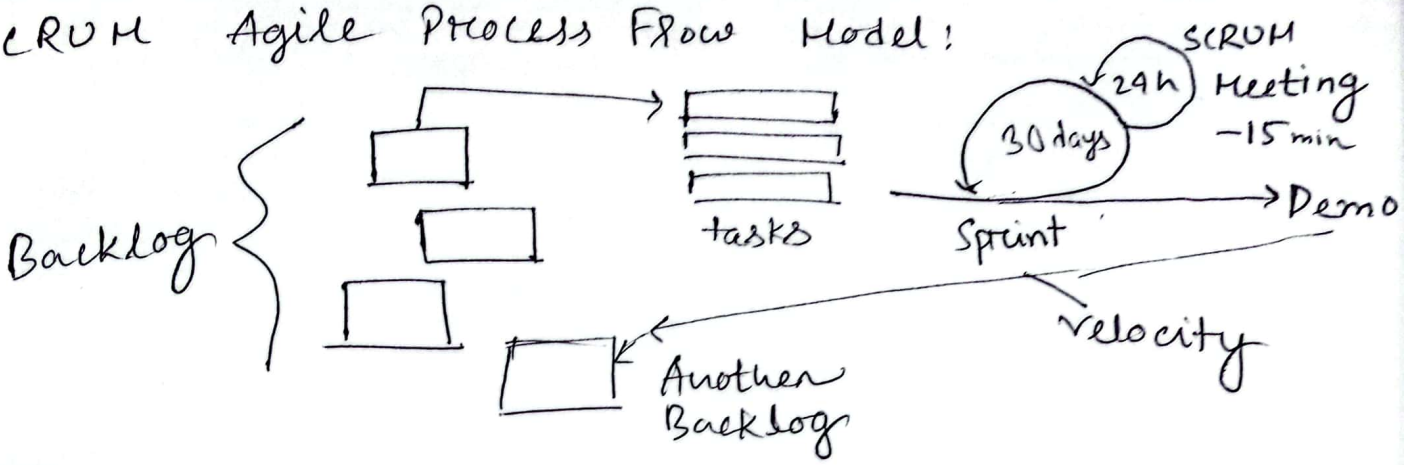
→ Simplicity ② - Design should be KIS

→ Courage ④ — Discipline

— courage to work with changing reqs.



SCRUM Agile Process Flow Model:



Half day - Full day - week - months

SCRUM Meeting

- What did I do yesterday?
- What am I going to do today?
- What is/was the challenges?

SCRUM Team — Master