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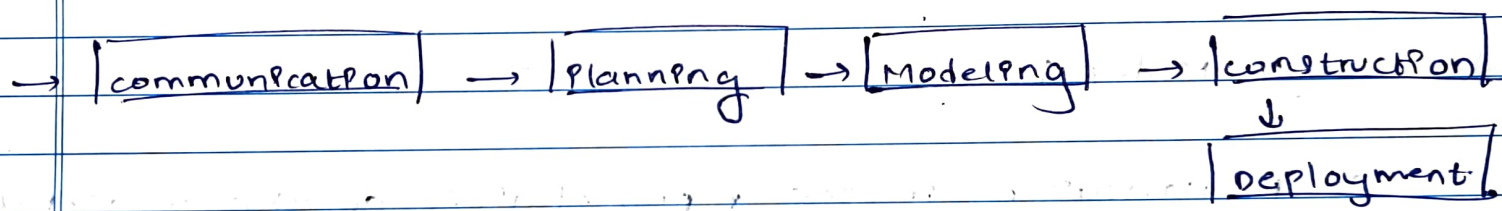
Assignment 1

SEPM

Waterfall Model :

The waterfall model, sometimes called the classic life cycle, suggest a systematic, sequential approach to software development that begins with customer specification of requirements and progress through planning, modeling, construction and deployment, culminating in ongoing support of the completed software. A variation in representation of the waterfall model is called the V-model.



The Waterfall Model.

Advantages :

- Simple and easy to understand.
- Easy to manage.
- Best for smaller projects.
- Individual processing.

Disadvantage :

- Inflexible.
- Late testing.
- Not suitable for evolving projects.
- Lengthy development cycle.

For example:

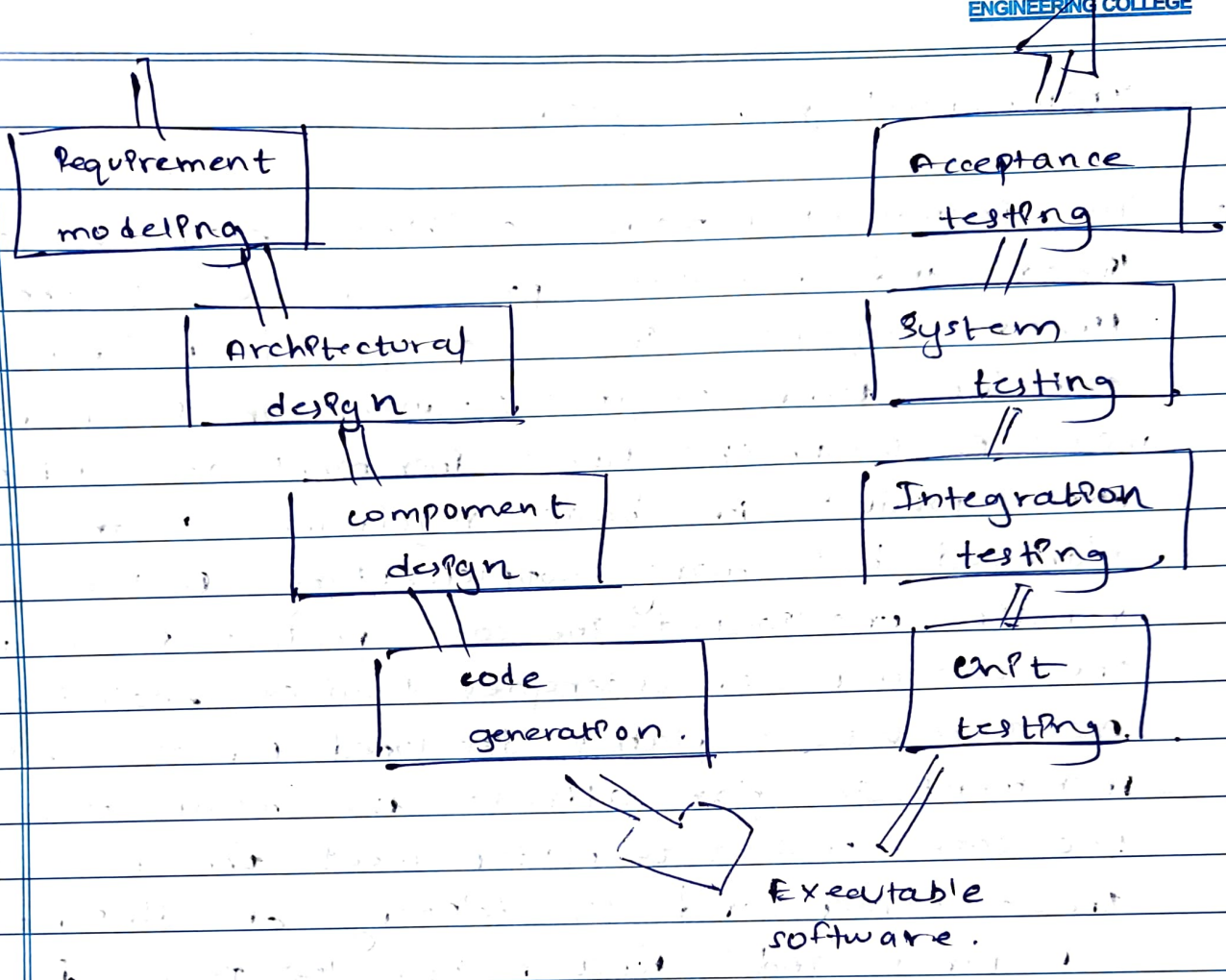
→ In a library management system, phases include requirement analysis, system design, implementation, testing, depolyment and maintanence. once a phase is finished it doesn't return to previous stage.

→ where to use waterfall model?:

- were understood requirement
- very little change expected.
- small to medium size projects
- client prefers a linear and sequntial approach
- limited Resources.

V Model:

→ A variation in the representation of the waterfall model is called the V-Model. It is also referred to as the verification and validation model. It depicts the relationship of quality assurance actions to the actions associated with communication, modeling and early construction activities. In the v-model as the team moves down the left-~~down~~ side requirements are ~~der~~ refined into detailed solutions. once coding is done they move up the right side, performing tests to validate each development phase, ensuring quality at every step.



→ where to use V model?

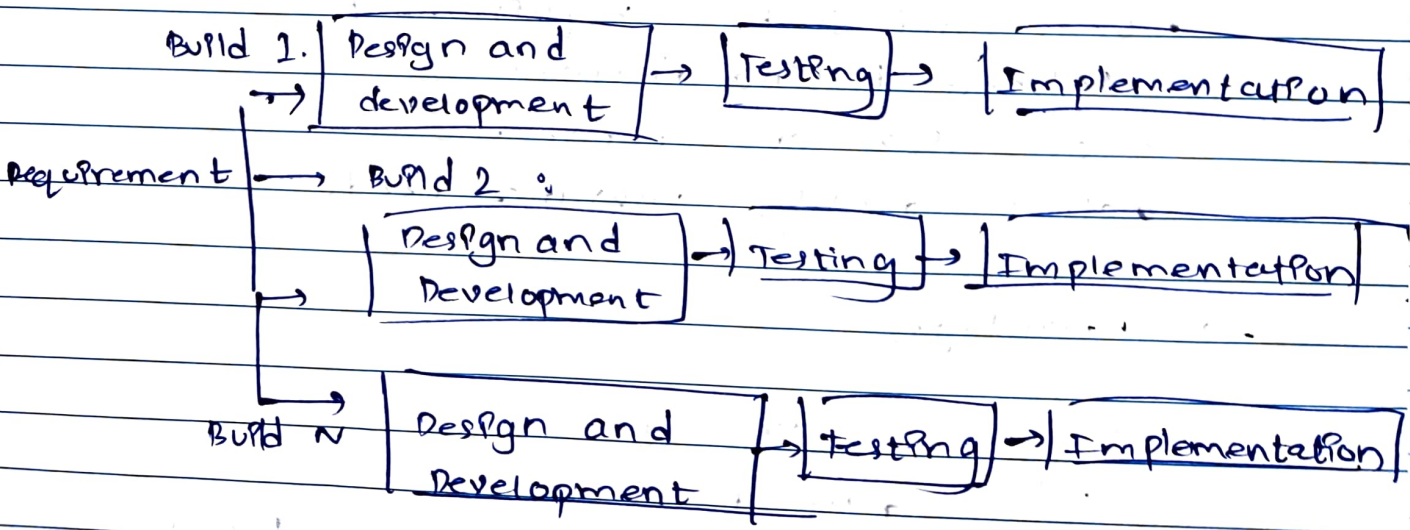
- Clear and stable requirements
- Defined testing phases
- Low risk of changes
- strict quality assurance needs

→ Advantages :-

- Easy to understand
- Saves a lot of time
- Avoids downward flow of defects

Incremental process model.

→ The Incremental model combines elements of linear and parallel process flows. It applies linear sequences in a staggered fashion as calender time progresses. when an Incremental model is used, the finest increment are often a core product i.e basic requirements are addressed but many supplementary features remain undelivered. The core product is used by the customer or undergoes detailed evaluation. As a result, a plan is developed for the next increment. The plan addresses the modification of the core product to better meet the needs of the customer and the delivery of additional features and functionality. The process is repeated following the delivery of each increment until the complete product is produced.



Incremental model.

Advantages

- Errors are easy to be recognized..
- More flexible.
- Easier to test and debug.

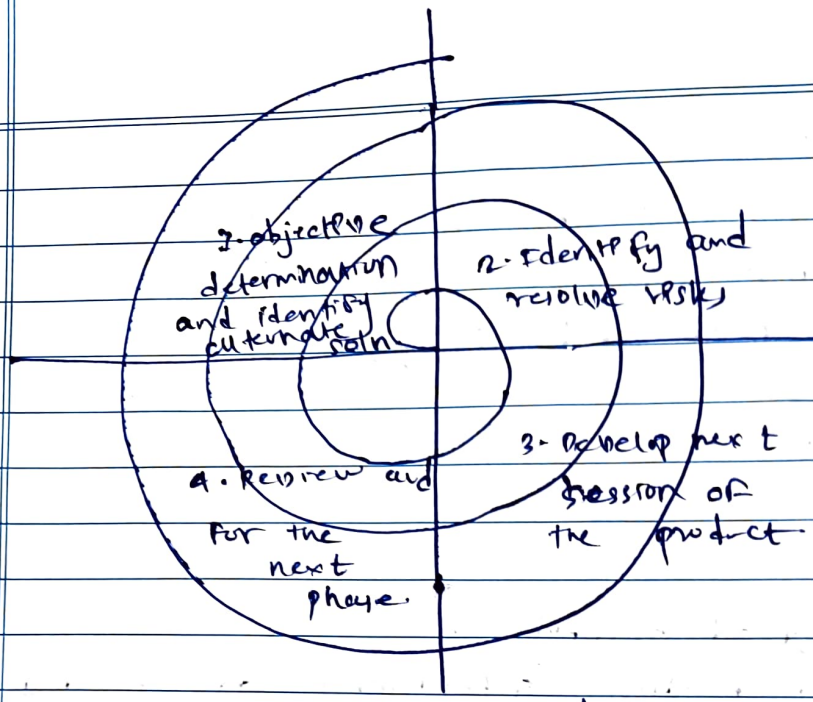
Disadvantages:-

- cost is high
- Need for good planning.
- well defined module interfaces are needed.

Spiral model

→ Orginally proposed by Barry Boehm, the spiral model is an evolutionary software process model that couples the iterative nature of prototyping with controlled and systematic departs of the waterfall model.

The spiral development model is a risk driven model generator that is used to guide multi-stakeholder concurrent engineering of software intensive systems. It has two main, distinguishing features. one is a cyclic approach for incrementaly growing a systems degree of definition of implementation while decreasing its degree of risk. The other is a set of anchor point milestones for ensuring stake-holder commitment to feasible and mutually satisfactory system solutions.



Spiral Model.

Advantages :-

- Risk handling.
- Good for large projects.
- Customer satisfaction.
- Improved quality.

Disadvantages :-

- complex
- Expensive.
- Difficulty in time management
- Too much dependency on Risk Analysis.

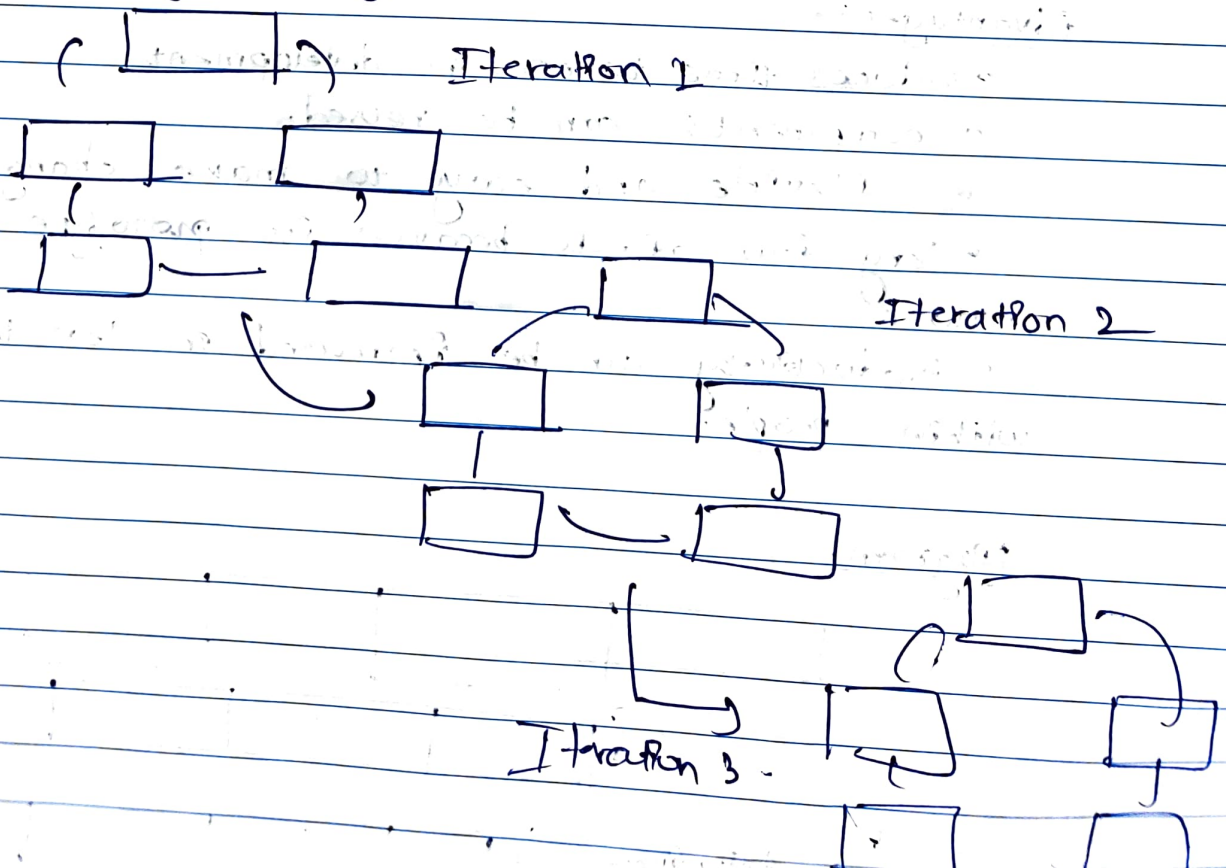
Spiral model deliever high-quality software by promoting risk identification, iterative development and continous client feedback. when a project is vast in software engineering a spiral model is utilized.

Disadvantages :-

- need highly skilled developers and designers.
- Very difficult to manage.
- Not suitable for all project that all complex and take long time.
- Automated code generation is expensive.

(6) Agile Model

It is a combination of iterative and environmental models. It's focus is given to process adaptability and customers satisfaction. It was created mainly to make changes in the middle of software development so that the software project can be completely quickly.



5) Rapid prototyping

→ Methodology is circular to that of incremental or waterfall model. The project is completed within the given time and all requirement all collected before offering project. It is very fast. The main objective of this model is to reuse code, component, tools, processes in the project development process.

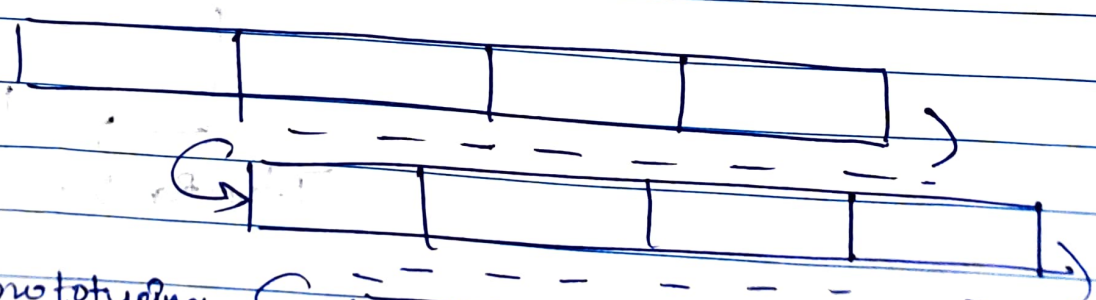
Phases :-

- Business Modelling
- Data Modelling.
- Process modelling
- Application generations.
- Testing and turn over.

Advantages :-

- Reduces time taken in development.
- components can be reused.
- flexible and easy to make changes.
- Very few afects because its prototype by nature.
- Productivity can be increased in less time within people.

Diagram.



Rapid prototyping.

→ Agile Manifest principle.

(1) Individual and interactions.
(2) working software.
(3) customers collobaration.
(4) Responding to change.

Advantage :-

- Project completed is very small time.
- customers representive has an idea of each it can easily change the requirement.
- relly realistic approach.
- very few rules and documentations is negligable
- provides flexibility to developers.

Disadvantages :-

- cannot handle comple depandances.
- Due to lack of formal documentation, there confusion in development.
- Mostly depends on customers representation.
- In the beginning of process, its not known how much time and effort will be required.