Spiral Models

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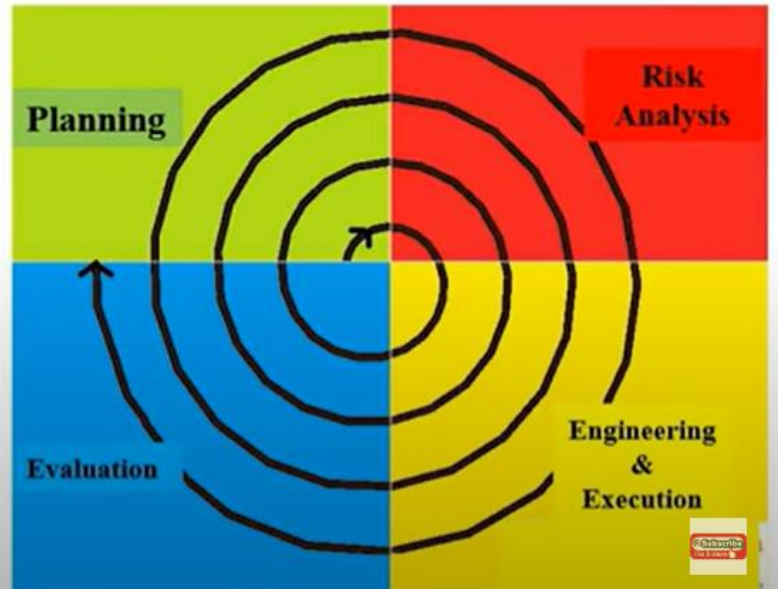
About Spiral model

- Initially proposed by Boehm in 1986.
- Spiral Model is a **risk-driven software development process model**.
- It is a combination of Waterfall model, Iterative model & Prototyping model.
- Software is developed in a series of incremental releases as per each spiral.
- **Example:** Microsoft, OS Versions, Gaming industry ex.
- Also called as Meta model.

➢**Spiral model divided into the four parts:**

1. **Planning**
2. **Risk Analysis**
3. **Engineering & Execution**
4. **Customer Evaluation**



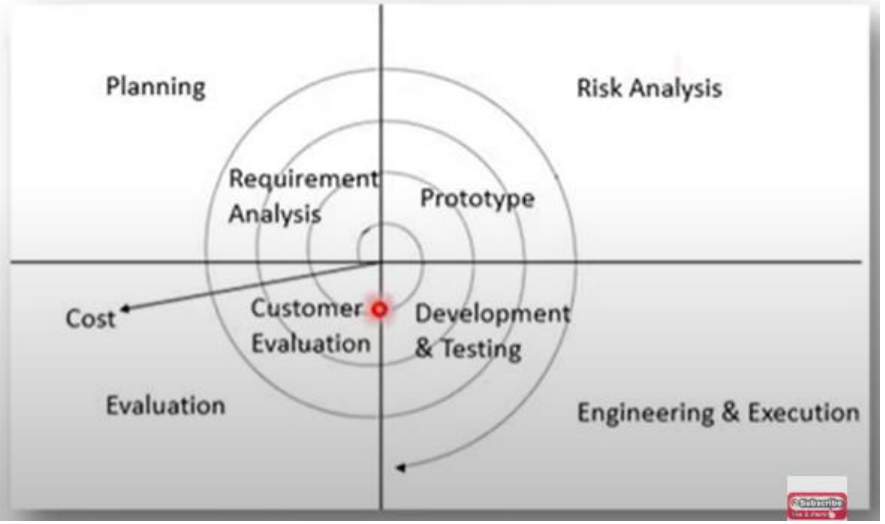
Spiral model phases

1. Planning: (Requirement Gathering & Analysis)

- Communication between customers & project head.
- Collect all the requirements from customers.
- Analyses estimated cost, schedule & required recourses.

2. Risk Analysis:

- Identification of all the potential risks.
- Risk mitigation strategy is planned for solving risks.
- Design a prototype of model.



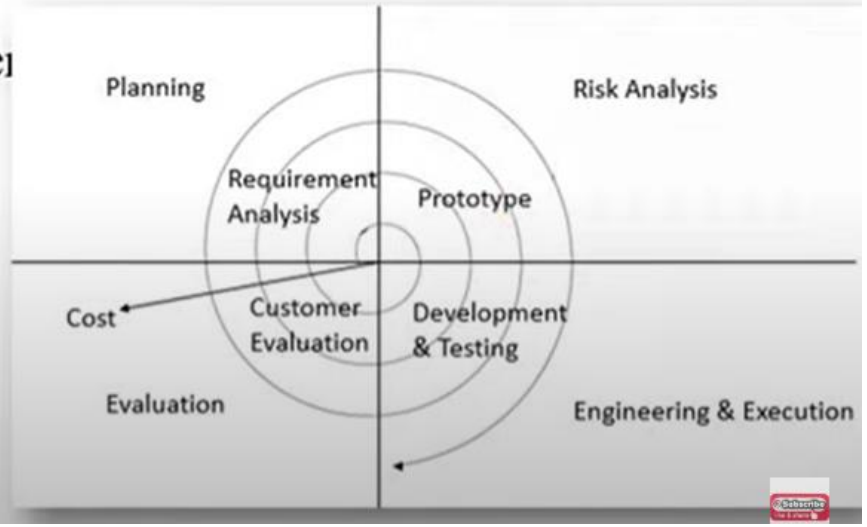
Spiral model phases

3. Engineering & Execution:

- Actual development start.
- Designer design the product as per final prototype.
- Developer perform actual coding or implementation.
- Tester perform all testing methods.
- Deploy or Release product to the customer environmer

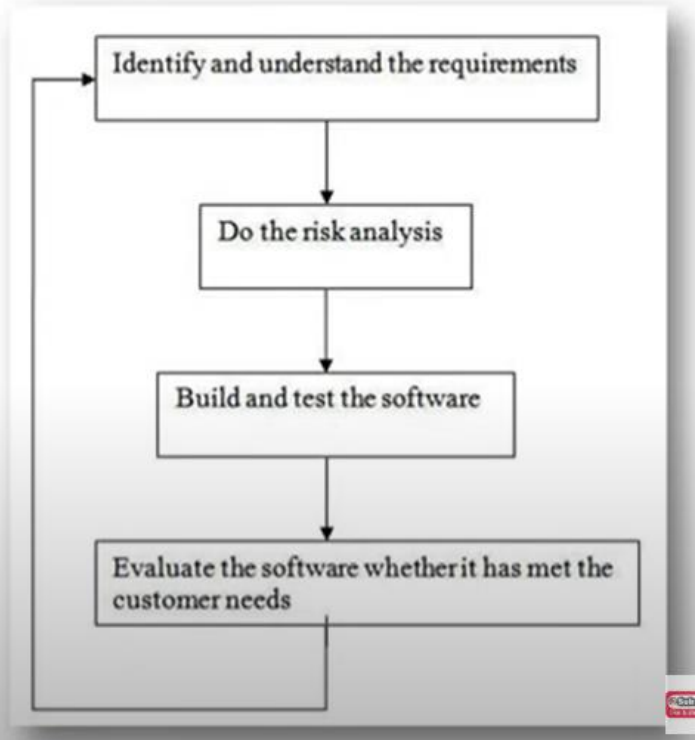
4. Evaluation:

- Take a feedback from customers.
- If customer want any changes, goes to next planning OR **next spiral iteration.**



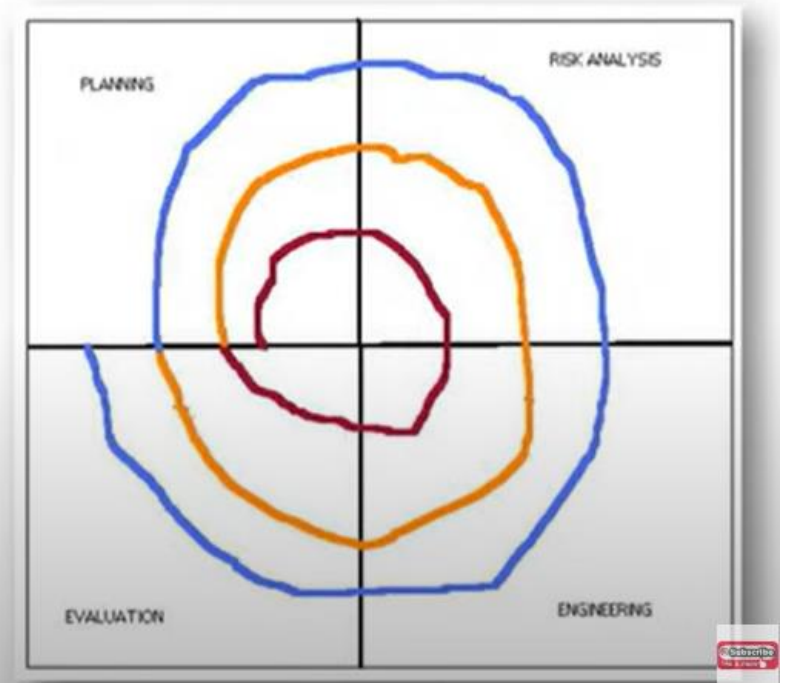
When to use the Spiral model

1. When the project is large & high budget.
2. When requirements are unclear and complex.
3. Where the software needs continuous risk evaluation.
4. When creation of a prototype is applicable.
5. When changes may require at any time.
6. When long term project commitment is not feasible due to changes in economic priorities



Advantages of Spiral models

1. High amount of risk analysis.
2. Risky parts can be developed earlier which helps in better risk management.
3. Useful for large and mission-critical projects.
4. Allows extensive use of prototypes.
5. There is always a space for customer feedback
6. Changing requirements can be accommodated.
7. Development is fast.



Disadvantages of Spiral model

1. Risk analysis needed highly particular expertise.
2. Can be a costly model to use.
3. Doesn't work well for smaller projects.
4. Spiral Process is complex sometimes because Spiral may go infinitely.
5. Large number of spiral stages requires excessive documentation.