SET-3

① What do you mean by Agile? List agile methods and practices?

Agile is a philosophy and approach to project management and software development that emphasizes flexibility, collaboration and customer satisfaction through iterative progress.

Agile practices in software development

1. User Stories
   - Small, concise descriptions of a feature from an end user perspective.
2. Sprints or Iterations
   - Time boxed periods during which a specific set of tasks is completed
3. Daily Stand-Ups
   - Short term meetings to discuss progress, challenges and plans
4. Backlog Refinement
   - Continuous prioritization of features, bugs and task in the product backlog.
5. Continuous Integration and Continuous Deployement (CI/CD).
   - Automating the integration, testing and deployement of code to ensure frequent, reliable releases.
6. Retrospective.
   - Meetings to reflect on what went well, what didn't and how to improve in the next iteration

Agile Methods

1. Iterative and Incremental Frameworks.

These methods emphasize delivering small, functional parts of a product through iterative cycles.

Scrum:

- Iterative progress through sprints.

Extreme Programming

- Highly-quality software through technical excellence and customer satisfaction.

Dynamic Systems Development Method

- Structured yet flexible delivery of software

2. Flow-Based Frameworks

These methods focus on managing workflows and visualizing progress to optimize delivery.

Kanban: Visualizing workflows and limiting work in progress

Scrumban: Combines Scrum's structure with Kanban's flexibility

3. Scaling Agile Frameworks

Designed for large organizations with multiple teams working on interconnected projects.

- Scaled Agile Framework (SAFe)
- Large scale Scrum (LeSS)
- Disciplined Agile (DA)

4. Agile methods for Continuous Improvement

These methods emphasize incremental improvement and lean thinking.

- Lean Software Development.
- Kaizen

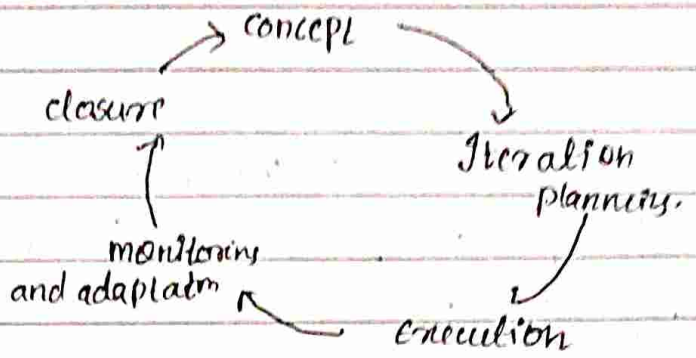
5. Industry-Specific Agile Methods:

These are tailored for specific fields or workflows.

- Agile Marketing.
- Agile UX Design.

2. What is agile project life cycle and its stages?

A:
- Agile project life cycle depicts the stages or steps through which different stages a project goes through.
- Agile life cycle mainly consists of 5 stages



1. Concept / Initiation:
   - Define high level goals and identify key stakeholders
   - Create a product vision and initial backlog.

2. Iteration Planning
   - Breaks the process into sprints or Events.
   - Defines tasks and prioritize features.

3. Execution.
   - Teamworks collaboratively to complete tasks from the sprint backlog.
   - Deliver increments of working software at the end of each sprint.

4. Monitoring and Adapting
   - Regularly review progress through stand-ups and sprint reviews.
   - Adjust priorities and refine the backlog based on feedback.

5. Closure
   - Deliver the final product increment
   - Conduct a retrospective to gather lessons learned for future projects.

3) Represent the three phases of Adaptive software development?

Ans: Adaptive Software Development is an Agile Methodology focused on adapting to change and fostering continuous learning throughout the software development process. It was created by Jim Highsmith and focusses on complex, uncertain and rapidly changing environments, making it ideal for projects where requirements are fluid & unknown.

Key principles of Adaptive Software Development
- Collaborative Development
- Iterative and Incremental process
- continuous Adaptation
- Feedback Driven Development
- Risk Management.

The Three phases of Adaptive Software Development

1. Speculation

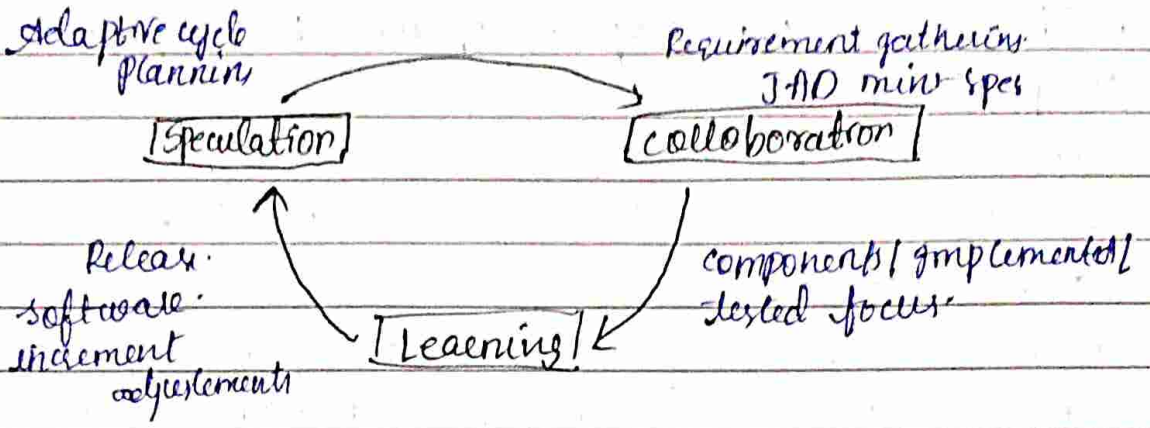
- In this phase teams make initial assumptions about the project, identifying high-level requirements, goals and constraints
- This phase is about setting direction, but there's an acknowledgement that these assumptions may change.
- Instead of creating a fixed plan, teams will speculate about how the project might unfold, identifying risks and preparing for flexibility in approach.

2. Colloboration

- Once the initial decision is set, the team enters a phase of collobroration where they work closely with stakeholders, users and each other.
- This phase is about sharing knowledge, idea and perspective to ensure everyone is aligned.
- Constant collobrations is key here to refine and adjust the product based on what's being learned throughout the process

3. Learning

- As a developemental progress, the team will continuously gather feedback from stakeholders and real-world usage.
- With each iteration, the team learns more about the project's challenges and the user's needs.



Core values of Adaptive software Developement.

- Embrace Change.
- Customer colloboration.
- Frequent Delivery of working software.
- Simplicity and Focus.

4) Explain in detail about the life cycle of extreme programming?

Ans: Extreme programming is an Agile software development methodology that emphasizes high quality software and responsive customer-centric delivery. It focuses on engineering practices, frequent releases, and fostering collaborations among team members to adapt to changing requirements effectively.

core principles

- Communication
- Simplicity
- Feedback
- Courage
- Respect.

Goals

- Delivery high-quality software
- Increase adaptability to customer needs.
- Improve team collaboration and efficiency.

Lifecycle of XP

XP operates in a short, iterative cycles, making it adaptive to changing requirements, each cycle includes the following phases.

a. Exploration phase.

Obj: understanding the customer requirements

Activities

- collaborate with customers to create user stories that define desired features
- Explore the technical feasibility of user stories.

b. Planning phase:

Objective: Prioritize and plan for developement.

Activities

- Break down user stories into small, managable tasks.
- Estimate efforts and select tasks for the iteration.

C. Iteration to Release

Objective: Develop and deliver a working product increment.

Activities:

- Write code using pair programming.
- Validate with Test-driven-developement.

- Frequent Integrate and test changes.

d. Production/ying phase:
Objective: Prepare for release.
Activities:
- conduct final system testing.
- Release the product increment to the customer.

e. Maintanence Phase:
objective: Handle updates and feedback.
Activities:
- Respond to bugs & changing requirements.
- Continue development using XP practices.

f. Death Phase.
Objective: Close the Project.
Activities.
- Deliver the completed product.
- Reflect on lessons learned for future improvement.

5. Indicate the concepts of Earls KM Model ?

A. • Knowledge Management is the process of Identifying, capturing, creating organizing, storing, sharing and effectively utilizing knowledge and Information within an organization or community.
• It involves managing knowledge resources such as People's expertise, intellectual property and databases to facilitate learning.

Meaning and Concept of Knowledge management.

- The concept of knowledge management is rooted in the idea that knowledge is a valuable asset that can be leveraged for the benefit of organizations and communities.
- knowledge management encompasses a range of activities, practices including knowledge creation, knowledge capture and knowledge transfer.
- By managing knowledge effectively, organizations can build and sustain their competitive advantage, enhance their capacity to innovate and respond more effectively to change circumstances and opportunities.

Process Knowledge Management

The following are the basic steps, involved in the knowledgen management procss.

1. Knowledge identification:
   - The first step is to identify the knowledge that exists within the organization.
   - This can be done by analysing existing documents

2. knowledge capture.
   once the knowledge has been captured, it needs to be captured and documented in a way that it is accessible to the employees.

3. Knowledge organization
- The captured knowledged needs to be organized in a way that makes it easy to find and use.
- can be done through various methods such as categorizing knowledge by topic.

4. Knowledge sharing
- Once the knowledge has been captured and organized, it needs to be shared with relevant stakeholders within the organization.
- This can be done through various methods such as training programs, collaboration tools.

5. Knowledge Transfer.
- Knowledge transfer involves transferring knowledge from one person/department to another.
- This can be done through various methods such as mentoring, job shadowing, or on-the-job training.

6. Knowledge application.
- The ultimate goal of knowledge management is to apply knowledge to improve organizational performance.
- This can be done through various methods such as process improvement, product innovation & customer service enhancement.

7. Knowledge Evaluation
- It is important to continuously evaluate the effectiveness of the knowledge management process
- This can be done through various methods such as feedback surveys @ performance metrics.

8. Knowledge maintenance.
- knowledge needs to be updated and maintained overtime. to ensure its relevance and accuracy.
- This can be done through various methods, such as regular reviews, updates to knowledge management systems @ ongoing training programs.

Significance of knowledge Management
- Improved decision making
- Increased Innovation.
- Extended collaboration.
- Improved customer service
- Reduced Risk.