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Software Process Model Part-2

Software Process Models 2:

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Project Management: It is the process of leading the work of a team to achieve goals and meet success criteria at a specified time. **It**is to achieve all of the **project** goals within the given constraints.

- Five phases of project management include conception and **initiation**, **planning**, **execution**, performance and project close.

1: Project Initiation

The start of the project, and the goal of project is to define the project at a broad level. This phase usually begins with a business case. This is when you will research whether the project is feasible and undertaken.

2: Project Planning

This phase is key to successful project management and focuses on developing a roadmap that each will follow. This phase typically begins with setting goals.

3: Project Execution

The phase where deliverable are developed and completed. This feels like the meat of the project since a more is happening during a time, like status reports and meetings, development updates, and performance reports.

4: Project Performance/Monitoring

This is all about measuring project progression and performance and ensuring that everything happening aligns with the project management plan. Project managers will use key performance indicators to determine if the project is on track.

5: Project Closure

This phase represents the completed project. Contractors hired to work specifically on the project are terminated at this time. Valuable team members are recognized.

Aspect – Oriented Software Development: It is a software technology that seeks new modularization of software systems in order to isolate secondary or supporting functions from the main program's business logic.

It describes a number of approaches to software modularization and composition including, in order of publication, reflection .

It considers that code scattering and tangling are the symptoms of crosscutting concerns.

Example: Coordination of components

It represents the UML architecture diagram of a telecom component. Each box corresponds to a process that communicates with other processes through connectors.

Extreme Programming: It is a **software** development methodology which is intended to improve **software** quality and responsiveness to changing customer requirements. It takes its name from the idea that the beneficial elements of traditional **software** practices are taken to "**extreme**" levels.

Principle of extreme programming:It is a software development approach based on values of simplicity, communication, feedback, and courage. Companies that build their workflow on XP **principles** and values create a competitive atmosphere.

Framework used in software development. It prescribes everything, from how to organize projects and develop software.

Agile Process Models: Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile Methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like -

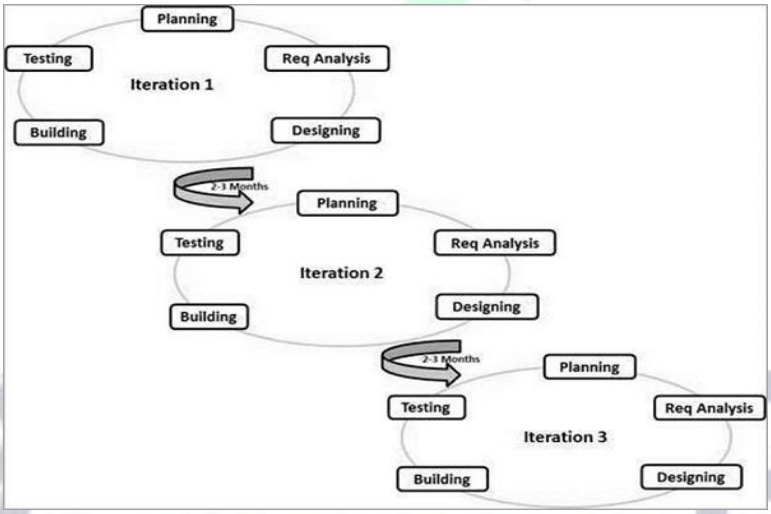
- Planning
- Requirements Analysis
- Design
- Coding
- Unit Testing and
- Acceptance Testing.

Agile model believes that every project needs to be handled differently and the existing methods need to be tailored to best suit the project requirements. In Agile, the tasks are divied to time boxes (small time frames) to deliver specific features for a release.Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features; the final build holds all the features required by the customer.

The Agile thought process had started early in the software development and started becoming popular with time due to its flexibility and adaptability.

Advantages are:

- It is very realistic approach to software development.
- Promotes teamwork and cross training.
- Functionality can be developed rapidly and demonstrated.
- Resource requirements are minimum.
- Suitable for fixed or changing requirements
- Delivers early partial working solutions.



- Good model for environments that change steadily.
- Minimal rules, documentation easily employed.

Disadvantages are:

- Not suitable for handling complex dependencies.
- More risk of sustainability, maintainability and extensibility.
- A combined plan, an agile leader and agile PM practice is a must without which it will not work.
- Strict delivery management say something to the scope, functionality to be received, and adjustments to meet the deadlines.
- Depends on customer interaction, if customer is not clear, team can be driven in the wrong direction.

Phases of Agile Model:

1. **Requirements gathering:** In this, user must define the requirements. User should explain business opportunities and plan time and effort needed to build the project. Depend on this information, user can evaluate technical and economic feasibility.

2. **Design the requirements:** When you have identified the project, work with stakeholders to define requirements.

3. **Construction/ iteration:** When the team defines the requirements, the work begins. Designers and developers start working on their project, which goals to deploy a working product. The product will undergo some stages of improvement, it includes simple, minimal functionality.

4. **Testing:** In this phase, the Quality Assurance team examines the product's performance and looks for the bug.

5. **Deployment:** The team issues a product for the user's work environment.

6. **Feedback:** After producing the product, the last step is feedback, the team receives feedback about the product and works through the this.

Adaptive Software Development: It is a software development process that grew out of rapid application development work by Jim Highsmith and Sam Bayer. It is design principle for the creation of software systems. It focuses on the evolution of software systems. It grew out of the rapid application development method.

It replaced the waterfall cycle with a repeating series of speculate, collaborate, and learn cycles. Cycle provides for continuous learning and adaptation to the emergent state of the project.

Characteristics of an ASD life cycle is that it is mission focused, feature based, iterative.

The focus of this is in the computer code. Instead of planning the program out before hand, developers have a basic idea in their heads and they go to work. If software needs a patch, somebody just makes it.

Scrum: It is an agile process most commonly used for product development, especially software development. It is a management framework that is applicable to any project with aggressive deadlines, complex requirements.

Process: It is a framework that helps teams work together.This is the reasons it is so popular. An agile project management framework, it describes a set of meetings, tools, and roles that work in concert to help teams structure.

Three pillars of Scrum are:

- Transparency
- Inspection
- Adaptation

Principles:

- Control over the empirical process. Transparency, checking, and adaptation carry the whole its methodology.
- Self-organization.
- Collaboration.

- Value-based prioritization.
- Timeboxing.
- Iterative development.

It is an agile development process focused primarily on ways to arrange tasks in team-based development conditions.

There are three roles in it, and their responsibilities are:

- **Scrum Master:** The scrum can develop the master team, combine the meeting and remove obstacles for the process
- **Product owner:** The product owner makes the product backlog, prioritizes the delay and is responsible for the distribution of functionality on each repetition.
- **Scrum Team:** It manages the work and organizes the work to complete the sprint.

Feature Driven Development Crystal: It consists of five basic activities, namely, the development of an overall model, the building of a feature list, the planning by feature, the designing by feature.The main purpose is to deliver tangible, working software repeatedly in a timely manner.

It is customer-centric, iterative, with the goal of delivering tangible software results often and efficiently. It is in Agile encourages status reporting at all levels, which helps to track progress and results.

Practice that make up FDD are:

- Domain Object Modeling.
- Developing by Feature.
- Individual Class (Code) Ownership.
- Feature Teams.
- Inspections.

Web Engineering: It is the application of systematic, disciplined and quantifiable approaches to development, operation, and maintenance of **Web**-based applications. Both pro-active approach and a growing collection of theoretical and research in **Web** application development.

It is basically all about designing and promoting web based systems. "The project of systematic and quantity approaches to cost-effective analysis, design, implementation, testing, and maintenance of high-quality Web applications.

It is concerned with the developed and use of sound scientific, engineering, and management principles and disciplined and systematic approaches to the successful development, deployment, and maintenance of high quality Web-based systems and applications.

Web Engineering Process:

The process is different from that of conventional software development process. Projects deliver a complex array of inhalt and functionality to a broad population of end- users. **It**uses incremental development process.

It is the process that is used to create high-quality WebApps. It is not a perfect clone of software engineering, but it borrows many of software engineering's fundamental concepts and principles, emphasizing the same technical and management activities.

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