Teamwork 2 – Report

Team name: OpsForge

Team members: Mao Tamura (e2502119), Dominik Stiegler (e2502128), Dario Mathys (e2502127)

1. **What is the main idea of Agile software development model?**

Agile emphasizes flexibility, collaboration, and iterative progress. Instead of rigid plans, Agile delivers working software in small increments, adapts quickly to change, and involves continuous customer feedback. The core idea is to create value early, reduce risk, and ensure the product aligns with user needs.

2. **What are the main principle of Agile Agile software development model?**

The Agile Manifesto defines 12 principles. The most important are:

- Deliver useful software rapidly and continuously.
- Welcome changes, even late in development.
- Deliver working software frequently (weeks, not months).
- Working software is the main measure of progress.
- Maintain a sustainable pace of development.
- Encourage daily cooperation between developers and business people.
- Prefer face-to-face communication when possible.
- Build projects around motivated, trusted individuals.
- Pay continuous attention to design and technical quality.
- Keep solutions simple.
- Teams should be self-organizing.
- Regularly reflect and adapt to improve processes.

3. **What are similarities and differences between RUP and Agile software development models?**

Similarities:

- Both emphasize iterative and incremental development.
- Both value risk management and customer involvement.
- Both produce working software throughout the process.

Differences:

- RUP is a heavyweight framework with structured phases (Inception, Elaboration, Construction, Transition). Agile is lightweight and adaptive.
- RUP uses use cases, UML, and documentation; Agile minimizes documentation in favor of direct collaboration.
- RUP stresses architecture and planning early; Agile prioritizes delivering working software in short cycles.

4. **What are similarities and differences between Spiral and Agile software development models?**

Similarities:

- Both are iterative, allowing progress in cycles rather than linear stages.
- Both involve continuous stakeholder participation.
- Both manage risks by addressing them early.

Differences:

- Spiral explicitly centers on risk analysis and prototyping; Agile focuses on customer feedback and adaptability.
- Spiral is more formal and management-heavy; Agile is lightweight and team-driven.
- Spiral suits large, high-risk projects; Agile suits projects with rapidly changing requirements.

5. **What are similarities and differences between Scrum, XP and FDD programming models?**

Similarities:

- All three are Agile methods.
- All divide work into short iterations (1–4 weeks).
- All stress team collaboration and delivering usable software frequently.

Differences:

- Scrum: Defines clear roles (Product Owner, Scrum Master, Development Team), artifacts (backlogs, increment), and events (sprints, daily scrums, reviews, retrospectives).
- XP (Extreme Programming): Focuses on engineering practices such as pair programming, test-driven development, continuous integration, and refactoring.
- FDD (Feature Driven Development): Focuses on building by features using domain modeling, feature lists, and structured planning.

6. **What are the advantages of Scrum development model?**

- Provides clear structure with **roles, artifacts, and events**.
- Promotes transparency and accountability through daily stand-ups and sprint reviews.
- Regular increments of working software enable rapid feedback.
- Strong stakeholder involvement ensures alignment with business goals.
- Supports adaptability to changing requirements.
- Encourages continuous improvement through retrospectives.

7. **Explain roles, artifacts and events in Scrum.**

Roles:

- Product Owner: Represents stakeholders, manages and prioritizes backlog.
- Scrum Master: Facilitates Scrum, removes impediments, supports the team.
- Development Team: Cross-functional, self-organizing group that delivers increments.

Artifacts:

- Product Backlog: Prioritized list of features and fixes.
- Sprint Backlog: Selected items for the sprint plus tasks.
- Increment: Sum of completed work, a potentially shippable product.

Events:

- Sprint: 2–4 week cycle delivering an increment.
- Sprint Planning: Plan scope and tasks for the sprint.
- Daily Scrum: 15-minute stand-up for progress and obstacles.
- Sprint Review: Demonstration of the increment to stakeholders.
- Sprint Retrospective: Reflection to improve team processes.

8. **What are the roles in XP development model?**

XP defines several roles to keep collaboration effective:

- Programmers: Write and test code.
- Customers: Provide requirements, prioritize features, and give feedback.
- Testers: Ensure quality with automated/manual testing.
- Tracker: Monitors progress and metrics.
- Coach: Guides the team in XP practices.
- Consultant: Supplies specialized knowledge when needed.
- Manager: Ensures organizational support and resolves external issues.

9. **What are the main advantages of XP development model.**

- High code quality through practices like pair programming and TDD.
- Continuous feedback from tests, customers, and team members.
- Adaptability to changing requirements.
- Small, frequent releases provide value early.
- Simplicity in design and refactoring reduces complexity.
- Shared ownership improves collaboration and knowledge sharing.

10. What are the main features of Feature Driven development model?

- Domain Object Modeling: Builds understanding of the problem domain.
- Developing by Feature: Small, client-valued functions, typically under 2 weeks.
- Short Iterations: Regular, incremental delivery.
- Structured Roles: Chief Programmers (design/coordination) and Class Owners (implementation).
- Five Processes: Build overall model, create feature list, plan by feature, design by feature, build by feature.
- Regular Builds: Continuous integration ensures the system always works.
- Best Practices: Emphasizes inspections, version control, and testing.