

Agile Software Development

☰ Tags

| Topic Covered today:

- Agile Software Development
 - Pair Programming
 - Test Driven Development
- Challenges

Agile Software Development :

1. Concept:

- The product owner will determine the scope to the project. This will involve discussing the key requirements with a client and prepare documentation to outline them, including what features will be supported and the proposed end results.
- It is advisable to keep the requirements to a minimum as they can be added on to later stages.
- The time and cost estimation is also done at this stage.

2. Inception

- Once the inception stage involves further input from stakeholders to fully flesh out the requirements on a diagram and determine the product functionality.

3. Iteration

- The iterative process is the process of breaking down large tasks into small manageable ones these are called iterations or sprints.
- In each sprint you are aiming for a potentially shippable product.
- Each sprint will involve:
 - Meetings / Standups
 - Testing
 - Review and Retrospective : At the end of the sprint the team reviews and presents it to the stakeholders. Which leads onto the next iteration



How does Agile working method suit coders working style?

▼ Ans:

- It does not involve a lot of micromanaged tasks
- Working at a steady pace
- minimise the amount of unnecessary work



Describe the iteration process of the Agile software development

▼ Ans:

- Every iteration aims to provide a shippable project.
- There are clear goals and retrospectives at the end of each sprint process
- Testing code through out on smaller chunks rather than a big code being tested at the end

Benefits of agile iterative development:

- Flexibility for making changes. The methodology allows for modification throughout the development process as each sprint aims to provide a final product
- Customer involvement. Customer / stakeholders feedback is taken more regularly
- Rapid delivery: The iterative approach requires less time on documenting
- Testing during each iteration is easier than testing a large developed final project

Agile Methods:

- There are various approaches that adhere to the agile values and principles :
 - Extreme Programming
 - Test Driven Development
 - Kanban
 - Scrum

Extreme Programming:

| Pair Programming :

- Code is written by two programmers on one machine
- The **Helm** (the one writing the code) writes the code where as the **the tactician** thinks about potential implications and problems that could occur
- Communication is a key aspect of pair programming
- No one coder 'owns' the code
- Frequent switching of roles is encouraged



What are the core concept of Pair Programming

▼ Ans:

Benefits:

- improvement in design and code quality
- Knowledge sharing and enhancement in collaborative efforts
- Focus on testing as you go along

Test Driven Development

- Test Driven Development emphasises writing tests for codes before writing the code itself
- The tests are based on the requirements of each sprint decided at the beginning of the development process
- There are three stages of TDD:
 - **Red:** Write a test for a functionality you want to add, this test should fail because the functionality doesn't exist yet
 - **Green:** Write the minimal code for the functionality to pass the test
 - **Refactor:** Clean up the code and make it more efficient if necessary



What are the main concepts behind TDD

▼ Ans:

Benefits:

- Improved code quality
- Better design and better maintained code
- Documentation
- Confidence in change

Challenges:

- Because the requirements and specifications are not all written in advance drawing up legal contracts and exact milestones before hand can be difficult
- It is good for green field development, when a new system development process is occurring, not for brown field development where you are maintaining legacy systems or previous work.
- Not suited for large multi distributed teams across the country world.



What are the key problems associated with the Agile method