# Lab 2: Software process models/Intermediate GitLab

**Task 2: Software Process Models**

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| **Process model** | **Iterative?** | **QA** | **Risk management** |
| **Ad-Hoc** | Yes/No | If it happens then typically towards the end. | No |
| **Waterfall** | No | Done between phases | Yes |
| **Prototyping** | No | Work checked after produced. | No |
| **Spiral** | Yes | Occurs throughout development, software testing done typically at end. | Yes; after each plan |
| **Scrum** | Yes | Done during sprints. | Yes; during sprint planning |

**Task 3: Ad-hoc and Agile**

We know that ad-hoc testing and development involves little to no planning or documentation.

Unlike that of Agile software development which follows a dynamic plan that is subject to change or rule base/outline that once completed will lead to a product that not only satisfies the customer but is best suited to their needs.

As such, ad-hoc is not an Agile method of development as ad-hoc product development does not follow any form of structure or planning. Ad-hoc is random in nature and cannot be filed under Agile software development and it does not involve communicating with the client.

**Task 4: Agile Principles & Practices**

(See below table for references to twelve principles of the agile manifesto).

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|  | **Principles Supported** | **Principles Conflicted** |
| **Agile teams** | Agile teams seek to create and showcase deliverables as quickly and as of high quality as possible, this supports principles (**1,3,7,9**). | Agile teams are created with the idea to produce work whilst following the principles of the Agile manifesto as closely as possible, because of this there is very little conflict. |
| **Daily standup meetings** | Having daily meetings allows the team to communicate changes to requirements and coordinate the implementation of these changes. These meetings also promote face to face conversation between team members and conversation with the client. **(2,4,6)** | Meetings are a beneficial exercise, but they do present more work to team members. **(10)** |
| **Sprints** | Sprints are meant to give a continuous flow of presentable products over short development periods which welcomes changes to requirements in the project backlog and not in the sprint backlog**(1,2,3)** | Sprints do not encompass all of the Agile Principles however they are not in direct conflict with any as the idea of sprints is designed to be able to work with the constraints of the Agile Principles. |
| **Project backlog** | A project backlog explicitly states all the tasks that need to be completed, team members can focus on these tasks and not do any excess work or overlap with other members. The backlog allows team to self-organize. **(10,11)** | The project backlog do not encompass all of the Agile Principles however they are not in direct conflict with any as the idea of sprints is designed to be able to work with the constraints of the Agile Principles. |
| **Retrospective** | Agile method involves reflecting on how they have been progressing as a team.  Often the efficiency of a group can improve from looking back and adjusting to the behaviour of the group. Reflecting allows the team to improve their productivity over time. **(12)** | Discussing about how the product has been built is a beneficial exercise, but they do present more work to team members. **(10)** |

**Agile Teams:** Typically small groups made up of 7-9 members. A good Agile team ensures that many members are able to contribute to any task to avoid any single sources of failure.

**Daily standup meetings:** An activity conducted to allow a team to discuss their progress and coordinate future activities.

**Sprints:** A sprint is a set timeframe decided at the start of the project on going through a sprint backlog, the goal of each sprint is to produce a potentially shippable increment - a piece of software that does something useful.

**Backlog:** An ordered list of items representing all the tasks that need to be completed in order to a deliver an outcome. Items can be added and taken away according to the software owner, this list is used to create the sprint logs, once they reach this stage, no changes should be made to the backlog items (BLI).

**Retrospective:** Where the team gets together to discuss what went well and what went badly, the objective of the meeting is to refine the team’s process by looking at how the product is being built.

***Twelve Principles Behind the Agile Manifesto***

*(https://www.agilealliance.org/agile101/12-principles-behind-the-agile-manifesto/)*

**1.** Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

**2.** Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

**3.** Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

**4.** Business people and developers must work together daily throughout the project.

**5.** Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

**6.** The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

**7.** Working software is the primary measure of progress.

**8.** Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

**9.** Continuous attention to technical excellence and good design enhances agility.

**10.** Simplicity--the art of maximizing the amount of work not done--is essential.

**11.**The best architectures, requirements, and designs emerge from self-organizing teams.

**12.** At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.