# *Lab 1 – System Development Life Cycle (SDLC)*

Date Assigned: Thursday, August 21

Date due: **Thursday, August 21, end of lab**

**Learning Objectives**

Upon successful completion of this lab exercise, the student will:

* Understand the purpose of a development methodology and the different phases of the System Development Life Cycle, including the Maintenance Phase;
* Understand the basic concepts of Agile Scrum;
* Understand the basic concepts of Agile Kanban; and
* Understand the use of the Responsibility Assignment Matrix (RACI).

To do:

1. Ensure you enrol in the Systems Maintenance course in Moodle – the key is 420K30.
2. Download a copy of the Lab 1 file from the Moodle page.
3. Save this document as a Word document named YourUserName\_K30\_L01\_SDLC.docx in your 420-K30 folder on your home drive. The document will hold your answers for your lab.
4. Research from class notes and resources, and online resources to answer the questions. Make sure you use your own words, don’t just cut and paste.
5. Write your answers to the lab questions in the appropriate locations in this file and be sure to save.
6. When you are ready to have your lab marked, notify the professor.
7. When you are finished, submit to Moodle.

## **Part A: Methodologies and SDLC ( 8 marks)**

1. What is a methodology and why is it important for a project team to follow one? (2)

A methodology is a process that a team follows to achieve goals that is composed tasks, work products and roles

1. Describe what happens in the planning phase, analysis phase, design phase, and implementation phase of the SDLC. (4)

Planning: What is the problem that the system is trying to fix?

Analysis: What will the system do and how will that fix our problem?

Design: How will the system do what it needs to do to fix our problem?

Implementation: Build the system.

1. What happens in the maintenance phase of a project? How long does the maintenance last and when does it end? (2)

In the maintenance phase of a project, changes that were unable to be made during implementation are considered and taken action upon. The maintenance phase is usually the longest phase and lasts until the system has served its purpose and goes into end-of-life EOL.

1. What are three disadvantages of Waterfall versus Agile (3)

It is hard to make changes when moved onto the next phase

The client is excluded

Testing is done at the end, which is ineffecient and can cause problems

## **Part B: Agile Development (8 Marks)**

1. Describe the 4 main characteristics of Agile Development. (4)

Tight communication between everyone involved in the system

A ready-to-go finished product over extensive documentation

High involvement from the customer and their requirements

Being able to adapt on the fly

1. In Agile, what does MVP mean? How is this concept consistent with the main characteristics of Agile? (4)

Minimum Viable Product -> It promotes simple iterations and additions to the system where it doesn’t ever go far enough in the wrong direction to be unable to reasonably change or modify the system

## **Part C: Agile Scrum and Kanban (33 Marks)**

1. What are the 3 scrum roles? Describe the role of each of them in determing sprint content. (3)

Product Owner: The visionary who owns the vision of the direction of the product. Gives the go on ideas for the product on whether or not they are realistic and part of the vision.

Scrum Master: The team lead that allows for the team to flow within itself and is there as a resource and responds quickly to help their team.

Scrum Team: Autonomous group who collaborate with the product owner or visionary on how to reach the ideas that are approved.

1. What are the 6 scrum ceremonies? Describe the purpose of each one and who participates in them. (12)

Backlog refinement or grooming:

Ensure Product Backlog is up-to-date, well-understood, and prioritized.

Involved

Product Owner

Scrum Team

Scrum Master

Release Planning:

Determining when and what features will be delivered in the upcoming release.

Involved

Product Owner

Scrum Team

Scrum Master (optional)

Sprint Planning:

Held at the beginning of each sprint to decide what work will be accomplished in the next sprint.

Involved

Product Owner

Scrum Team

Scrum Master

Daily Scrum:

Short meeting to discuss progress and identify obstacles. What did I do yesterday? What will I do today? Are there any obstacles?

Involved

Scrum Team

Scrum Master

Product Owner

Sprint Review:

Meeting held after each sprint to demonstrate the completed work to stakeholders.

Involved

Scrum Team

Scrum Master

Product Owner

Stakeholders

Sprint Retrospective:

Held after sprint review and before sprint planning. Reflect on past sprint to see what went well, what didn’t, and how can things be improved for future sprints.

Involved

Scrum Team

Scrum Master

Product Owner (optional)

1. What is a product backlog? What is a sprint backlog? How are they related? (3)

Product backlog: List of user stories that are used for sprint planning

Sprint backlog: List of user stories and tasks to be finished before the end of the sprint.

They are related as the sprint backlog usually consists of the product backlog, though the product backlog cannot contain the sprint backlog.

1. Describe how *commitment* is important in Scrum. (2)

It is important because the tasks defined within a sprint are usually a promise to the stakeholders and the product owner, and not completing these tasks because of a lack of commitment can be detrimental to the entire project.

1. What is the definition of a “Sprint Goal”? When and how do you evaluate a Sprint Goal? (3 marks)

Sprint Goal is the primary objective that the team is trying to achieve during a sprint. It guides the team and provides a clear purpose for the duration of a sprint. It is evaluated during the sprint in daily scrums and after the sprint during the sprint review, and perhaps the sprint retrospective.

1. How could a scrum board/ kanban board be used to assist during a daily scrum? (2)

The tasks that are to do could be assigned to the scrum team buy the scrum master or they could autonomously manage themselves this way.

1. Name and describe 4 key differences between Kanban and Scrum. (8)

Scrum has fixed roles, kanban doesn’t

Scrums use Sprints, Kanban does continuous flow of work

Scrum uses sprint backlogs to keep track of tasks and aims to have them done at the end of the sprint, kanban uses a visual board with columns representing stages of workflow

When a scrum sprint begins, the scope is fixed, in kanban changes can be made at any time.

1. Capture your Kanban process (class exercise), (show me the swim lanes and describe the purpose of each lane) (6)

A white board with writing on it

Description automatically generated

## **Part D: RACI and Project Tools (11 Marks)**

1. What does RACI stand for? Why is this matrix important for a development project? (2)

Responsible Accountable Consulted Informed: Its important because of the throat to choke principle where the person responsible can be clearly identified.

1. What is the Azure DevOps front end? Give 5 examples of how it could be used on an agile scrum or kanban project. (5)

It is a user interface that allows teams to interact with the Azure DevOps platofrm. And it can be used to:

Manage releases

Track work items

Plan sprints

Kanban

View analytics

1. Capture your RACI chart from the class exercise (4)

A white board with writing on it

Description automatically generated

**To submit:**

When you have completed the lab save the file and upload the following to Moodle:

* YourUserName\_K30\_L01\_SDLC.docx.

**Marking Scheme**

|  |  |  |
| --- | --- | --- |
|  | Marks |  |
| Part A Q1 | 2 |  |
| Part A Q2 | 4 |  |
| Part A Q3 | 2 |  |
| Part A Q4 | 3 |  |
| Part B Q1 | 4 |  |
| Part B Q2 | 4 |  |
| Part C Q1 | 3 |  |
| Part C Q2 | 12 |  |
| Part C Q3 | 3 |  |
| Part C Q4 | 2 |  |
| Part C Q5 | 3 |  |
| Part C Q6 | 2 |  |
| Part C Q7 | 8 |  |
| PartC Q8 | 8 |  |
| Part D | 11 |  |
|  |  |  |
| Organization – handed into Moodle correctly, proper use of English | 2 |  |
| Total | 62 |  |