

An Overview of Software Development Life Cycle (SDLC)

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Abstract: *As far as we are aware, software requirements are gunning for lower costs, simpler delivery, and better quality. There are many different models, but what counts is which model a project requires to create its software. "Out of the many models listed below, a select few are noteworthy, including the Waterfall, Incremental model, Spiral, V - Model, and Agile models. We wish to explain the various models in this essay. The main goal of this essay is to compare a range of models to demonstrate the benefits and drawbacks of each one".*

Keywords: SDLC, Software Testing, SDLC Models

1. Introduction

In the world we live in, using computers is required. A person depends on computers for 75% of their daily activities. In order to keep up with the ever - expanding demands of the digital world, one must use computers, laptops, or desktop PCs. "So, in order to use a computer, software is required. Everything on a computer functions according to the software's operating principles. Therefore, we need the models to create the necessary software".

a) Software Development Life Cycle (SDLC)

"These are the models that aid in creating the software that is wanted. The software life cycle is rendered in depth and in a diagram. It consists of all the tasks necessary to move a software product through each stage of its life cycle. In other words, it organises the range of tasks carried out on a software product from conception through retirement".

SDLC Phases

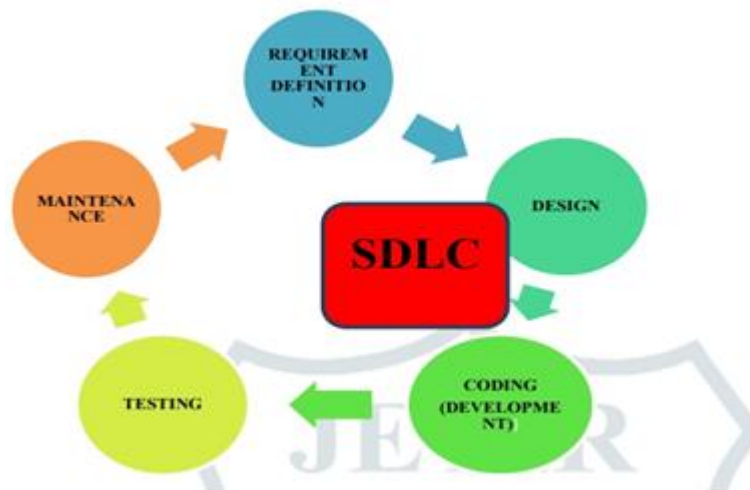


Figure 1: SDLC Phases

"There are many phases of the SDLC are shown by the cyclic figure above. It comprises the following stages:

- 1) Requirement Definition
- 2) Design
- 3) Coding (Development)
- 4) Testing
- 5) Maintenance

The problem - solving phase of requirement definition includes this step. The design phase comes next. During the coding phase, the proposed solution is put into action. This is then put through its paces in the testing step. The next necessary stage is deployment and upkeep. The lifespan of software refers to all of these".

A. SDLC Models

"There are several established and created software development life cycle models that are used in the software development process. Software Development Process Models are another name for these models. To ensure success in the software development process, each process model adheres to a set of specific processes that are specific to its kind".

The industry's most significant and well - liked SDLC models are listed below:

1) Waterfall Model

This kind of paradigm involves doing each step one at a time. It happens in order. "The first stage's outputs "flow" into the second stage, which in turn "flows" into the third

stage, and so on. Additionally, each step must be finished in order to go on to the following stage”.

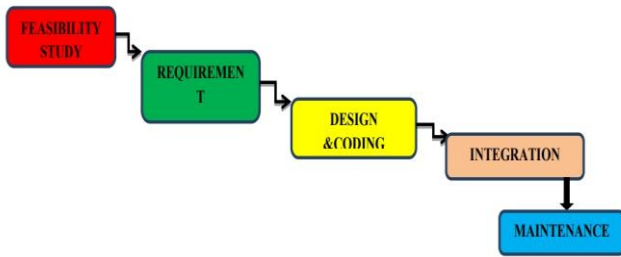


Figure 2: Waterfall Model

2) Incremental Model

The repeating prototyping philosophy and elements of the linear sequential paradigm are combined in this methodology. “There is a core product in this first increment. This indicates that while the initial demands are met, a lot of auxiliary elements are still missing. The consumer uses the main product. Following the outcome, the following strategy is made for the next move”.

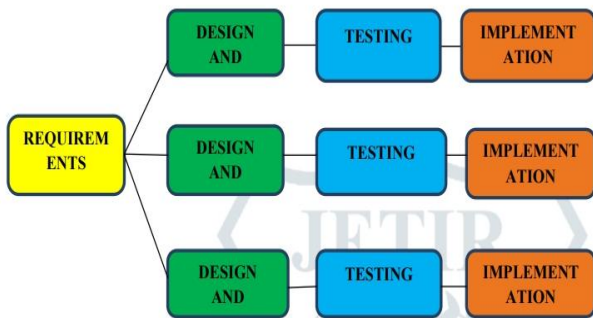


Figure 3: Progressive Model

3) Spiral Model

“It is similar to the incremental model in certain ways and places greater emphasis on risk analysis. Planning, Risk

analysis, Engineering and Construction, and Release are its 4 components. The specific program iterates through these stages repeatedly in a loop that corresponds to various spirals in the model. It begins with the planning phase when requirements are gathered. Solutions are given when risks are found during the risk phase. The tested software is created at the conclusion of the engineering phase. The client assesses the software's output at the last stage”.

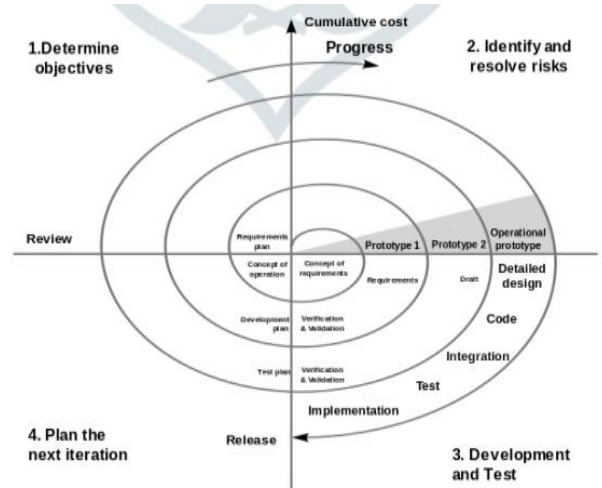


Figure 4: Spiral Model

4) V - Shaped Model

“It is said to be a model for validation and verification. Similar to the earliest model, it likewise follows a sequence, and the start of the next phase cannot occur until the previous phase is finished. Its unique characteristic is that testing happens at the same time as development so that earlier work gets confirmed later”.

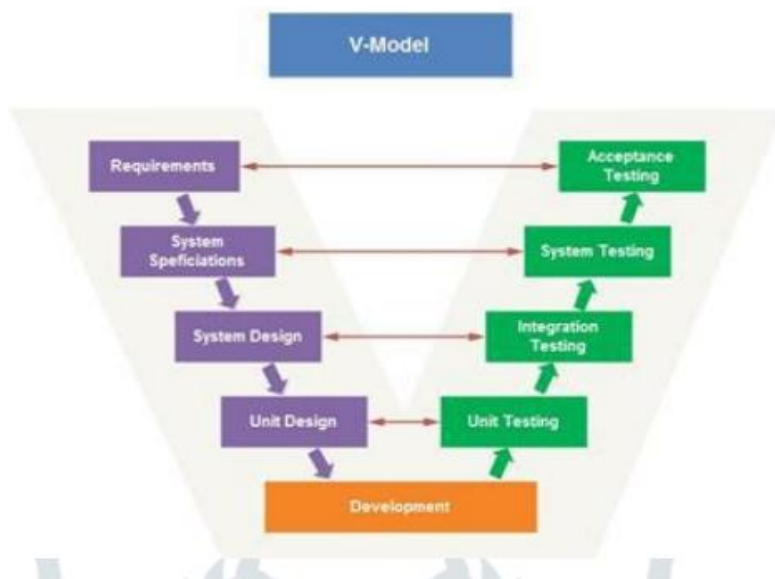


Figure 5: V - Shaped Model

5) Agile Model

“The agile team first introduced this software in 2001. Its major goal is to provide software on time and without interruption so that clients are satisfied. The main imputes of this are:

- Incremental - Smaller software is created, with quick development cycles.
- Co - operative - More engagement between clients and developers.
- Adaptive - Whippy enough to adapt quickly to changes”.

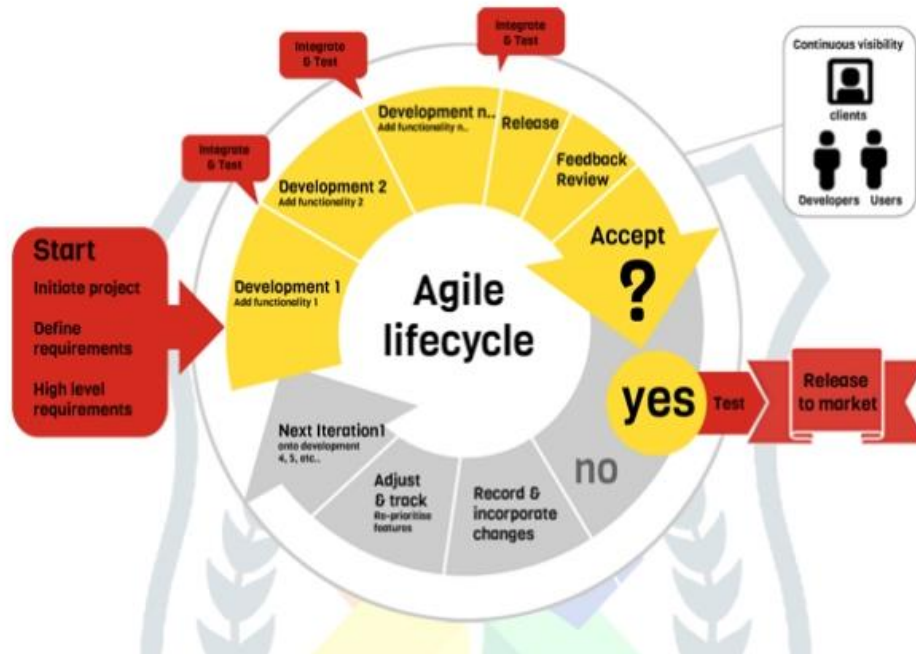


Figure 6: Agile Model

2. Conclusion

There are several models for developing software, as we discovered after reading numerous publications on the SDLC. Each piece of software has various benefits and drawbacks. On the basis of the requirements, models are adopted. These days, we can see how quickly technology is developing. The developers must select a certain model while keeping this in mind in order to create the needed programme. A development model that is properly chosen can result in a product that is delivered quickly and is of high quality.

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