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SOFTWARE DEVLOPMENT LIFE CYCLE MODEL

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ABSTRACT

In modern society software is playing an important role. Particularly, this paper focused on large no. of software development process models. Software process is defined as a sequence of activities that carried out in a software engineering project. It represents some of the software development models name as waterfall, v-shaped, incremental, RAD, iterative spiral and agile model. Therefore, the main goal of this paper is to represent different models of software development and different aspects of every model to help the developers to select particular model at specific situation depending on customer need and requirement.

I.INTRODUCTION

Software Engineering which concentrated on mostly outlining, composition, testing, executing and looking after programming. It is the most premise type of operational plan and improvement instrument to all PC frameworks. Programming advancement isn't only a solitary action. It comprises of arrangement of exercises or activity completed methodologically to help our product item. These stages comprise the Software advancement Life Cycle (SDLC).

There are large no. of models for such processes, each describing different approaches to a variety of activitie that carried out during the process.

There are some Software development models or methodologies.

Which are the following:

- Waterfall model
- V model
- Incremental model
- RAD model
- Iterative model
- Spiral model

II.WATERFALL MODEL

The model Which is known as a Waterfall model is a sequential design process, which is used in software development processes, in which progress of development is seen as a steadily downwards (like a waterfall) through the phases of initiation, conception, design, implementation, testing and maintenance. In this model,

each phase must be completely finish next phase being start. At the end of each and every phase, a review is takes place to check that the project is on the correct path or not. However, in this model phases do not overlap.

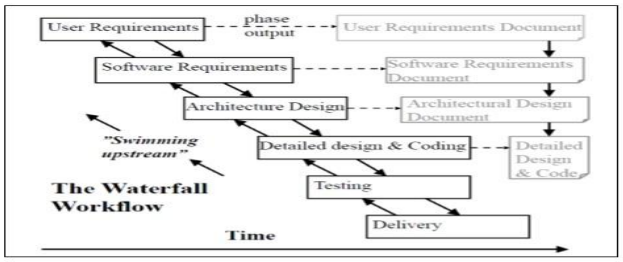

Fig1. Waterfall Model

Advantages of Waterfall Model:

- Easy and simple to use and understand.
- Due to the rigidity Easy to manage this model.

Disadvantages of Waterfall Model:

- When an application is in its testing stage.Very difficult to go back and change anything .

III. V-MODEL

The V shaped model is the modified or extended form of the waterfall model with a main focus on testing activities. The waterfall model allows us to start testing activities after the completion of the implementation phase. This was popular when testing was primarily validation oriented. Now, there is a shift in testing activities from validation to verification where we want to review inspect every activity of the software development life cycle

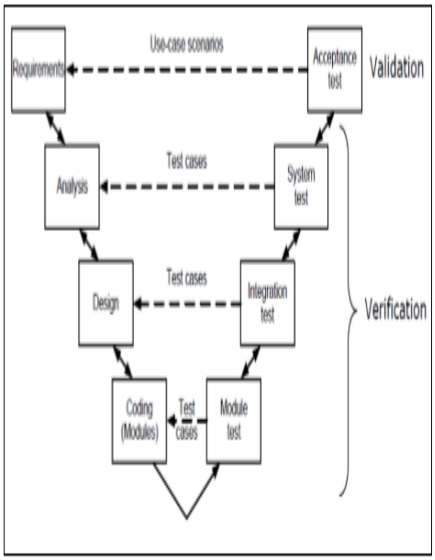

Fig2. V Model

We should use V- model in the following cases -

1) The V-shaped model must be used for small to medium sized projects where requirements are clearly fixed and known,

2) The V-Shaped model should be chosen when technical resources like ample is available with needed technical expertise.

Advantages of V-model:

- Simple and easy understand and use.
- Testing activities like planning, test designing happens

Before coding. This saves a lot of time. Henc Complexity is less as compared to waterfall model.

Disadvantages of V-model:

- Very hard and less flexible.
- During the implementation phase, Software is evovled .Hence early prototypes of the software are produced.

IV. INCREMENTAL MODEL

In incremental model all the prerequisite are separated into different forms. Vast no. of advancement cycles occur here, influences the life to cycle a "multi-waterfall" cycle. Cycles are partitioned into little, more oversaw modules. Every module goes through the necessities, outline, usage and testing stage. Amid the principal module a working adaptation of programming is delivered, so we have working of programming amid the product life cycle display. Every single consequent arrival of the module adds capacity to the last discharge. The procedure proceeds till the entire framework is accomplished.

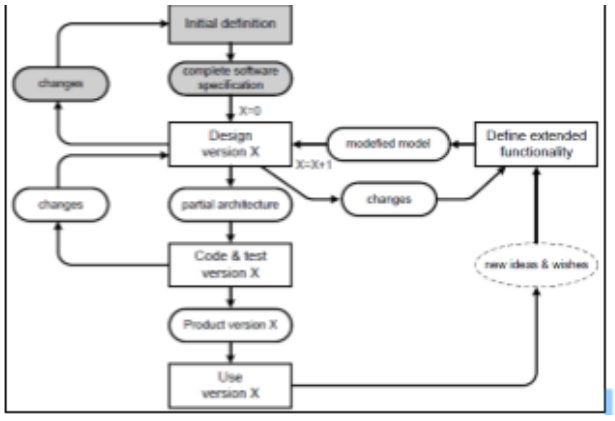

Fig4. Incremental Model

Advantages of Incremental Model:

- It is very fast model to produce software.

- Highly flexible – less costly to change scope.

Disadvantages of Incremental Model:

- It is very necessary for good planning and desig Needs a clear and complete definition of the whole system before it can be broken and built incrementally.

V. RAD Model

RAD display remains for Rapid Application Development demonstrate. It is likewise a sort of incremental model. In this model the modules or capacities are created or advanced in parallel as though they were little activities. The improvements is time boxed, conveyed and afterward gathered into a working model. This can give the client a remark and utilize and to give input with respect to the conveyance and their needs, prerequisites. We need to utilize RAD demonstrate in the accompanying cases, for example,

1) RAD model ought to be utilized when there is a need to make the framework that can be modularized in 2-3 months of time.

2) RAD SDLC model would be picked just if the assets with high learning of bussinesses are accessible and there is a need to build up the framework in a brief timeframe (2-3 months

Advantages of the RAD Model:

- Development time is very less.
- Scope of reusability of components is high.

Disadvantages of RAD Model:

- Totally depends on strong team and individual .
- System that can be modularized can only be built using

Rad.

VI. ITERATIVE MODEL

An iterative SDLC model does not attempt to start with a total specification of requirements. Instead, development of software start by specifying and implementing just only a little part of the software, which can then be reviewed to find further requirements.

Fig5. Iterative Model

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Advantages of Iterative Model

- Through iterative model we can just manufactured an abnormal state outline of the application before we really start to fabricate the item and characterize the plan answer for the whole item.
- In this model we are making and enhancing the item well ordered. Consequently we can follow the imperfections at beginning times. This tackles the issue of the descending stream of the deformities.

Disadvantages of Iterative Model:

- Each phases of an iteration is difficult with no overlaps and It is very costly.

VII. SPIRAL MODEL

The winding model is like the incremental model, with more vital set on chance investigation. The winding model has four stages: Planning, Risk Analysis, Engineering and Evaluation. A product venture over and again goes through these stages in emphasess (called Spirals in this model). The initial step of winding, beginning in the arranging stage, prerequisites is accumulated and hazard sister surveyed. Each resulting winding expands on the gauge winding During the arranging stage. Prerequisites are accumulated. In the hazard investigation stage, a stage is attempted to recognize hazard and its substitute arrangements. A model is delivered toward the finish of the hazard investigation stage. Programming is created in the building stage, alongside testing toward the finish of the stage. The assessment stage enables the client to assess the yield of the venture to date before the undertaking proceeds to the following winding

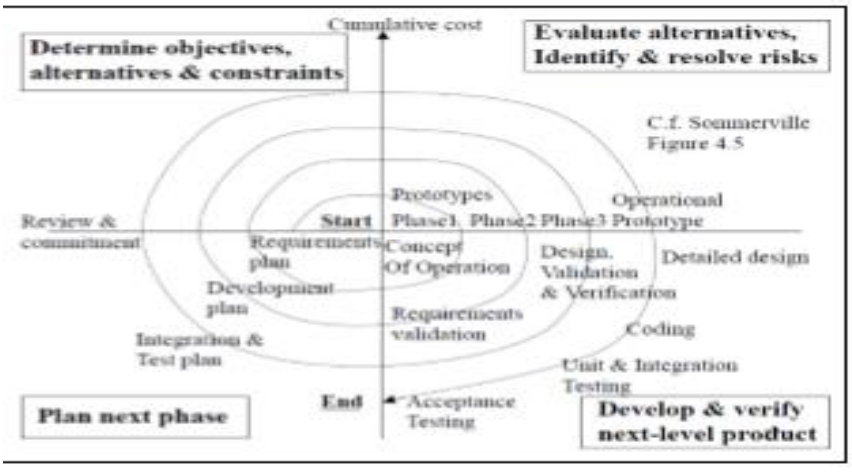

Fig6. Spiral Model

Advantages of Spiral Model:

- Best reasonable for substantial and mission-basic activities.
- Strong endorsement and documentation control.
- In the product life cycle Software is delivered some time recently.

Disadvantages of Spiral Model:

It is very costly.

- . Risk analysis requires large specific expertise.
- . It is not perfect for small project.

VIII. CONCLUSION

A brief study is given to different development models and their comparison. This paper defines six different models out of which, First one is Waterfall model which proves base for other development models. Then its enhanced models are known a Iterative model, Spiral model, V shaped model and finally model. The comparison includes the advantages and disadvantages of different models which can help to select particular model at specific situation depending on customer demand.

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