# **Software Engineering**

# **CS - Team 5**

# **Cerious**

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# **SDLC MODELS**

# Version - 1.1.1

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# **Document Revision History :-**

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| 25/09/2016 | 1.0 | K Naveen Kumar,  Mukesh Sahu | 1.2,2.1.1 | Ayush Pandey |
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# **1. Accepted SDLC Models:-**

## **1.1 Prototype And Incremental Model:-**

Prototype model is a working model of software with some limited functionality. It is used to allow the user’s evaluate developer proposals and try them out before implementation. It also helps to understand the requirements which are user specific and may not have been considered by the developer during product design.

Incremental model applies the waterfall model incrementally. The series of releases is referred to as “increments”, with each increment providing more functionality to the customers. After the first increment, a core product is delivered which can already be used by the customer. Based on customer feedback a plan is developed for the next increments and modifications are made accordingly. This process continues with increments being delivered until the complete product is delivered.

## **1.2 Reason To Accept Prototype And Incremental Model:-**

Our project requires user involvement and allows them to see and interact with the prototype allowing them to provide better and more complete feedback and specification. For example, the requirement corresponding to functionality to be able to review the code and correcting it. So, to fulfill this requirement we choosed Prototype model.

The presence of prototype being examined by the user prevents many misunderstandings and excommunications that occur when each side believe the other understands, what they said. For example, our project needs functionality to be able to declare and call functions, call built in Libraries into code. So prototyping makes it without any ambiguity to the user.

Prototyping at the first stage was important as we realised that there was a limitation to Natural Language Toolkit (NLTK). The grammar has to be perfect to use NLTK. We have hence changed our project definition a little based on this realisation.

In Incremental model after each iteration, regression testing should be conducted, during this testing faulty elements of the software can be quickly identified because few changes are made within any single iteration. For example, in our project if we are in “C pointer” implementation and if we are getting any error related to our previous code of “C function” implementation we can solve this using regression testing.

Customer can respond to features and review the product for any needed or useful changes. For example, the product obtained in the first increment say that we generate code for Fibonacci series, it will be reviewed by the user and changes can be made in the next iteration if he specifies any.

In this project , the four increments of DESIGN-IMPLEMENT-TEST cycles we are following:

1. Declarations, Arithmetic Operations, Printing & Scanning.

2. Control Statements- conditionals and looping

3. Pointers

4. Structures and Functions

By considering the above facts of Prototype and Incremental model we choose that model to be the most appropriate for our project.

# **2. Rejected SDLC Models:-**

## **2.1 Reasons:-**

## **2.1.1 WaterFall Model:-**

In Waterfall model, user involvement is not much. User is involved in one stage of model that is requirement. The software is delivered to the user only after all the stages of life cycle is completed. It cannot be tracked back so in our project we often need to trace back and make changes.

Regarding the requirements of our ,additional requirements, functionalities will pop out as the project proceeds. So we can’t restrict ourselves to one specific phase for requirements and finalize them.

## **2.1.2 Iterative Model:-**

Iterative approach has no set number of steps, rather development is done in cycles. It is less concerned with tracking the progress of individual features. Instead, focus is put on creating a working prototype first and adding features in development cycles where the increment development steps are done for every cycle.

For our project it is an acceptable model but Prototype and Incremental is more appropriate comparatively.

## **2.1.3 Spiral Model:-**

In Spiral Model project’s success is highly dependent on risk analysis phase. Risk analysis requires highly specific expertise. Amount of documentation required in intermediate stages makes management of a project very complex. Time spent for evaluating risks for small or low-risk projects may be too large.

For our project we don’t have any specific expertise and everyone are average coders.

## **2.1.4 V Model:-**

In V model, Software is developed during the implementation phase, so no early prototypes of the software are produced. If any changes happen in the midway, then the test document along with requirement documents has to to be updated.

Our project often undergo incremental changes ,unifying modules of code all together and testing each module. So this model doesn’t allow us to do the same. Hence we rejected this.

## **2.1.5 Agile Model:-**

In Agile Model, the project can easily be get taken off track if the customer representative is not clear what final outcome that they want. Only senior programmer are capable of taking the kind of decisions required during the development process. More risk of sustainability, maintainability and extensibility. There is very high individual dependency, since there is minimum documentation generated. Transfer of technology to new team members may be quite challenging due to lack of documentation.

In our project the user is not much clear on what the final outcome of the project is he just want the code he want to be displaced and run successfully, but according to agile project will be taken off track if it was this way. So, we rejected this model.

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