**Advanced Software Development Methodology**

**(ASDM)**

Assignment 1 - SDLC Model

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| Section | B |

1. Discuss the prototyping model. What is the effect of designing a prototype on the overall cost of the Project?

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The prototype model requires that before carrying out the development of actual software, a working prototype of the system should be built. A prototype is a toy implementation of the system. A prototype usually turns out to be a very crude version of the actual system, possibly exhibiting limited functional capabilities, low reliability, and inefficient performance as compared to actual software. In many instances, the client only has a general view of what is expected from the software product. In such a scenario where there is an absence of detailed information regarding the input to the system, the processing needs, and the output requirement, the prototyping model may be employed.

Prototyping may have some initial costs of developing, but it reduces the overall budget by helping your product to be free of the errors or glitches that could have occurred if the idea was made from scratch without any prior user testing. Furthermore, prototyping also helps to understand the intrinsic flaws, shortcomings and drawbacks that can be improved during the product development process. If the prototyping process is ignored completely, it might result in the restructuring and redesigning of the entire product after spending all your resources on its development. So, the effect of designing a prototype on the overall cost of a software project is to actually reduce the additional costs of restructuring and reframing it after its full- fledged development- which might cost a fortune.

1. Compare iterative enhancement model and evolutionary process model.

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Iterative Enhancement Model: This model has the similar phases as the waterfall model, but with fewer restrictions. In general the phases occur in the same order as in the waterfall model but these may be conducted in several cycles. A utilizable product is released at the end of each cycle with each release providing additional functionality.

Evolutionary Development Model: Evolutionary development model bears a resemblance to iterative enhancement model. The similar phases as defined for the waterfall model occur here in a cyclical fashion. This model is different from the iterative enhancement model in the sense that this doesn't require a usable product at the end of each cycle. In evolutionary development requirements are implemented by category rather than by priority.

1. As we move outward along the process flow path of the spiral model, what can we say about software that is being developed or maintained.

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One of the most significant models for the Software Development Life Cycle that supports risk handling is the spiral model.

In diagrammatic form, it resembles a spiral with several loops. The spiral's precise number of loops is unclear and varies from project to project. A phase of the software development process is referred to as each spiral loop.

The project manager might alter the precise number of phases required to build the product depending on the project's risks. The project manager plays a crucial role in the spiral model of product development since they dynamically set the number of phases.

The waterfall model's methodical, managed elements are combined with the idea of iterative development in the spiral model. Iterative and sequential linear development models, or the waterfall model, are combined to create the spiral model, which places a strong emphasis on risk analysis.

1. Explain the Scrum Agile methodology.

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Agile is the overarching methodology, while Scrum is the project management framework that follows the principles of Agile. You could have an Agile team that doesn’t use Scrum, but Scrum will always use the Agile methodology. It is sometimes referred to as Scrum methodology, but Scrum is an Agile framework that helps teams collaborate and deliver a final product.

Scrum is a framework that helps agile teams to work together. Using it, the team members can deliver and sustain the complex product. It encourages the team to learn through practice, self-organize while working on the problem. Scum is a work done through the framework and continuously shipping values to customers.

It is the most frequent software that is used by the development team. Its principle and lessons can be applied to all kinds of teamwork. Its policy and experiences is a reason for the popularity of Scrum framework. The Scrum describes a set of tools, meetings, and roles that help the teams structure. There can be many different roles in a Scrum project, but there are three core roles. These three primary roles are product owner, scrum master, and scrum team. It also manages the work done by the team.

1. Explain the utility of Kanban CFD reports.

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Cumulative Flow Diagram is an analytical tool, fundamental to the Kanban [method](https://kanbantool.com/kanban-guide/kanban-method). It allows teams to visualize their effort and project progress. When there's an impediment about to occur within the process - the CFD is where you'll see it first. The [Cumulative Flow Diagram](https://kanbantool.com/kanban-guide/cumulative-flow-diagram) visualizes how tasks mount up over time, together with their distribution along the process stages. The graph is built from different colored bands of tasks gathered in various columns. One color represents one column - so that each band shows how many tasks sit at what stage of the process, in a given time - the horizontal value. Shows the statuses of issues over time. This helps you identify potential bottlenecks that need to be investigated.

The CFD only requires 3 basic things from the process - a Backlog, an In Progress column and a Done section - using this type of division allows you to read valid and usable information from the diagram. Therefore, any team that utilizes this kind of workflow division, can benefit from Cumulative Flow.