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**Incremental Software Development Life Cycle**

Works by designing a prototype based on initial assumptions on needs before actually the requirements gathering process. The prototype is then shown to potential customer to gather essential feedback on the prototype. The gathered feedback will be utilized to add onto the prototype for further improvements which will then be shown to the customer once again. The process continues, leading to the name incremental software development life cycle as it adds on incrementally every time feedback is gathered after showing to customer until satisfaction is met.

Benefits of Incremental SDLC is the ability to gather customers feedback for every version of the prototype that is made, so that they can steer the direction of the development and ensure the end product is as they expect. Additionally, the customer feedback allows developers to gauge the importance of features that is required and they can first tackle those features before moving onto features with less importance

**Spiral Model**

A model that places risk assessment process at high significance. Similar to incremental model, there is prototypes are made which is passed out which will allow customers to give their feedback. The main difference between Incremental and spiral is that spiral has a four steps process during each loop which they follow through. Spiral model is therefore suitable when the final product being developed are prone to changes throughout development and will need constant change.

Benefits of spiral model is the rigorous testing phase that the prototype is put through. Only useful when the end product is highly critical and cannot have faults in it or it will endanger lives or cost huge profit.

**Waterfall Model**

A plan driven model where all plans are made before hand before any work on the project is started. Usually used when requirements given by customer is easily understood and not prone to changes during development. Waterfall's rigid structure makes it difficult to apply changes after there are changes made to the requirements.

There are 5 stages to waterfall model

Requirements Definition:

This process involves the inquiring and understanding of the final product that needs to be made.

System and software design:

After gathering the requirements, this step of the process will specify the hardware and system requirements that is required. Additionally, the codes are also developed in this process.

Implementation and Unit Testing

In this step, small programmed called units are developed for integration in the next step. The units are tested for its functionality in this step as well.

Integration and System Testing

Units developed in the previous step are integrated into the system after testing of each unit is done. After compiling the units, the system will need to be tested for bugs in the system.

Maintenance

Modifications will be made to system or individual components to improve performance after installation. They're made usually when there is bugs that went undiscovered or requests are specifically made.

Benefits of Waterfall model is it’s simplicity itself but at the cost of its inflexibility when it comes to changes being made. It might halt the progress of the project by quite a while and therefore should only be utilized when the user specifications are clear and not prone to changes by requested by customer.