Software Engineering Project 1

Problem 1:

What are the three benefits of incremental development, compared to the waterfall model?

Solution 1:

1. **Lower Cost of Change**
   In incremental development, the cost of accommodating changing customer requirements is significantly lower. Unlike the waterfall model, where development phases are strictly separated and returning to a previous phase is difficult and costly, incremental development allows for greater flexibility. The waterfall model typically requires complete rework and documentation updates if requirements change after a phase is completed.

2. **Continuous Customer Feedback**
   Incremental development supports repeated customer feedback at every stage of development. Customers can observe the implementation of features as they are developed and provide timely input. This ongoing feedback loop leads to a better understanding of customer satisfaction. In contrast, the waterfall model does not incorporate continuous feedback, making it less effective when requirements are not fully understood from the beginning.

3. **Faster and More Efficient Delivery**
   Incremental development enables faster delivery of functional software components. Each increment delivers a working version of the software, allowing customers to use and benefit from it earlier. This approach supports unknown or evolving requirements better than the waterfall model. It also helps detect missing criteria or adjustments early, resulting in a more efficient and streamlined development process.

Problem 2:

The university has decided to add new functionality to its undergraduate application system that is currently running as a web-hosted system. The new functionality is intended to introduce a new module that allows applicants to connect their social media accounts, such as Facebook, for committee reviews during the acceptance or rejection process. With this

Brief description of the additional component, what is your recommended generic process model to use, and why?

Solution:

The connection to social media, including Facebook, Instagram, and Twitter, is substantial, and we must deal with many sub-phases. Therefore, the only model, which is helpful for large systems, is the waterfall. The separate identified phases in the waterfall model can help us to understand each stage better and finish each step, move forward to another location, partition our large project, and work on it very well. The first phase, requirements analysis, can help us know all the needs and expectations for connecting the website. We don't need to make any changes to our prospective model caused our model is independent, and the steps are clear and straightforward. This model can help us to go through all the other steps, including system and software design, implementation and unit testing, integration and system testing, and operation and maintenance. We don't need incremental development. Also, we don't choose the integration and configuration because this system is not assembled from existing configurable components in this model. Overall, the waterfall model can help the university easily access the scheme.