CS 311 - Introduction to Software Engineering

**Assignment 01: due (Friday, Sep 28, 2018)**

# Part 1: Software Process | Software Development Life Cycle

**Q1)-** The government is planning to develop a new **"cloud-based electronic voting system"** The project manager wants to choose a process model what do you think is the suitable one? The software requirements are clear, but some how-to tasks related to security and data privacy need some research and risk management. Which software engineering process model ( Software Development Life Cycle model) do you recommend for that project and why?

**Sample Answer (no need to answer Q1, it only serve as an example to show you how to answer the remaining questions in Part 1)**

Based on the given information it seems that the V-model is an appropriate software process model for the cloud-based electronic voting system. An electronic voting system is a critical system which needs an accuracy of data collection and privacy of data collected and how to manage fraud cases and detect them, which need deep business understanding and risk management as well as excellent testing cases.

This system cannot be operational in phases or iteration. For example, the voters can not start casting their votes to candidates if we do not have an identity management module or fraud detection and these modules will not operate until we have the vote casting module implemented. Therefore, the use of Agile or iterative/incremental models is not reasonable. In addition, the size of the development team for this system is expected to be large and possibly from different organizations. Finally, the requirements of an electronic voting system are unlikely to change (major change) during the project.

**Q1.2)-** Smart Apes is a software house that is currently working on an app to help seniors and elders living in retirement homes to manage their daily activities. Mainly the app will help them to schedule medical appointments, medication reminder, order grocery, and transportation services when needed. The company never developed apps for seniors and elders before. They are concern about the requirements and mainly the usability of the app. In the context of this above scenario as a project manager what will be the choice of the software lifecycle model? **[5 POINTS]**

**Q1.3)-** Suppose you are developing a software product in a new and growing market (e.g., cryptocurrencies ) with your competitors who are also developing a product will be the same product. Which software process model to select and why? **[5 POINTS]**

**Q1.4)-** We are creating an online system to manage and visualize security alerts generated by different open source security appliances such as intrusion detection system (e.g., Snort, Bro), firewalls (IP Tables, firewalld) and it is needed immediately, what kind of software- development-life-cycle model should be used and why? **[5 POINTS]**

# Part 2: Requirement Analysis and Engineering

**Q2.1)** You are building a highly interactive website to replace the current website of the school of computer science at the University of Far-Far-Away. Identify the different groups of primary and secondary users of the website. For each group describe between 3-5 functional requirements. How could you verify these requirements? In your opinion what are the possible non-functional requirements for this website and which ones are the most important? **[25 POINTS]**

# Part 3: Agile Software Development

Please read the paper **“Impact of Agile Methodology on Software Development Process”** by Gaurav Kumar, Pradeep Kumar Bhatia and answer the following questions [ there is a link on BlackBoard to download the paper]

Q3.1) What are the advantages and the limitations of the Agile methodology according to the authors. Do you agree or disagree with the authors?**[5 POINTS]**

Q3.2) Do you think the authors in this paper as a positive, negative, or neutral opinion of adopting Agile methodology in software development and why you think their view is positive, negative, or neutral? **[5 POINTS]**