CS555: Agile Methods for Software Development
Homework 07

1. **In the reading assignment this week Poppendieck and Cusumano point out that some of the principles of the lean philosophy have been practiced by software developers in the past, before agile methods like XP and Scrum were invented. Describe one of these "pre-agile" software development practices or methods that embraces one of the lean principles, and explain how it does that.**

   Answer: The one principle that embraces one of the lean principles is Building quality in. Building quality in principle aligns with the pre-agile practices such that it builds software in modules. The principle suggests to deliver the product in iterations by continuously integrating small units of software into larges systems.

   The Scrum and Extreme programming practice the same approach defined in the lean development principle. The software is divided into modules and these modules are developed in phases and are integrated into the system when modules are completed. Hence, we get the deliveries of the modules in iterations rather than the entire product at the end of the development in a single delivery.

2. **Describe a practice of XP that is consistent with one of the principles of the lean philosophy, and explain how it does that.**

   Answer: The Test-driven development practice is consistent with the principles of the lean philosophy. The Test Driven Development is a software development process that relies on the repetition of a very short development cycle: first the developer writes an (initially failing) automated test case that defines a desired improvement or new function, then produces the minimum amount of code to pass that test, and finally refactors the new code to acceptable standards. We insert our logic solution into the testing environment to check out if any bugs are present in the code. This makes the development process more efficient as the testing is automated making it faster to detect the bugs and solve them. Lean philosophy and XP also aligns with the approach of iterative development and delivery of the product.

3. **Describe a practice of Scrum that is consistent with one of the principles of the lean philosophy, and explain how it does that.**

   Answer: Scrum and Lean are consistent by iterative development. Scrum is practiced by having daily meetings where team decides the backlogs of the sprint they had like to develop and at end of the day they would review the development process.

   In each sprint, use cases are assigned to the team that must be delivered at the end of the sprint. The use cases of the sprint are decided together by customer and the development

team. The scrums are part of the sprint. The development is said to be done only after getting approval from the customer. Hence, this is the same as developing software in the modules where the product is divided into modules and the modules are delivered in the phases in Lean practices.

4. **Describe a practice of XP or Scrum that violates one of the principles of the lean philosophy, and explain how it does that.**

   Answer: Lean philosophy is violated by the role the development team plays in Scrum or XP. The software development team just writes the code and is not held responsible for the overall success of the work in Scrum or XP.

   Whereas in the Lean practices, the software development team is part of the larger team and the entire large team is responsible for the success or failure of the product. The agile team has roles of Customer, Product owner and developers while there are no roles in lean philosophy. The software development is completely a separate activity in Scrum or XP while it is placed as step in product value stream.