M7.B1: Assignment7: Lean Software Development

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Describe how Microsoft applied lean principles according to the Poppendieck paper.

Main goal of the lean is to minimize the waste and maximize the value. It was used in manufacturing in the beginning, but it is also now being used for software development.
Microsoft's synch and stabilize process seemed to be a dramatic departure from the prevailing process of waiting until the end of a development cycle before integrating small units of software into a large system. But, in fact, continuously integrating small units of software into larger systems has long been held to be best practice, even though it might not have been common practice. In 1990 Microsoft applied agile style development which were similar to lean production applied by Toyota.
Agile style Development by Microsoft:

- Microsoft were doing development by small scale features and they had short cycles and milestone intervals.
- Their geographic concentration was development instead of production.
- They used automated build tools and performed quick tests.
- Their teams were very small and multifunctional which focused on principles like design, coding and testing.
- They were building and performing continuous integration testing.
- They had overlapping responsibilities and used computer aided tools but never used code generators.

Describe Value Stream mapping.

Value stream mapping is an important tool used by the lean team. Value stream mapping is a Lean manufacturing technique that allows organizations to create a visual guide of all the components required to deliver a product or service, with the goal of analyzing and optimizing the entire process.

A value stream map is created by displaying all of the necessary people, processes, information, and inventory in a flowchart format. Organizations can use lean principles to reduce waste in specific areas of their processes by visualizing all elements that go into creating a product or service.

The purpose of value stream mapping is to maximize value and minimize waste in a number of different ways including:

- Facilitating clear communication and collaboration
- Encouraging continuous improvement of a process
- Enabling culture change within an organization
- Creating visualizations of delays, excess inventory and production constraints

Value stream maps can be created with flowchart software, and many products will have the core symbols necessary embedded within their symbol libraries.

A rope manufacturing company, for example, used value stream mapping to depict the layout of its manufacturing floor. They improved the material flow, saving six and a half minutes per rope order, or 33% of the material handling time. In another instance, executives from an IT services firm had never met in person before participating in a value stream mapping exercise. The value stream mapping exercise brought them together and revealed areas where formal collaboration processes would improve communication throughout the organization.

Describe your GEDCOM team's current process (you don't need to draw a diagram), including how you communicate, how you integrate code from each team member, how you test code from all test members, and how you package and submit the results.

During the sprint planning meeting, we as a team first understand the work that is expected of us that week by thoroughly reading the assignment. Then we decided how we would come up with solutions and ideas to finish the assignment as quickly as possible.
We divide our work and keep a record of who is assigned what work by adding the entries in an excel sheet once we know what is expected of us. We also try to think about the effort, the solution we have planned would require.
When we begin executing our individual work, we have a daily scrum meeting where we discuss whether the desired output was achieved and, if not, what we could do to solve it, as well as the work that would be completed the following day. When they begin working, everyone must pull the code from GitHub to get the most recent version of the solution so that they do not break the existing code. When they're finished and have run the automated unit Tests for which all of their tests passed, they'll push the code back to the repo.
Finally, at the end of the week, we meet one last time to run all of the automated tests for each individual component to ensure that the solution was built correctly. Then we update the excel sheet by adding actual numbers. After we've integrated the solutions from each team member, we write code to add the results to a text file so we can see if we're getting the desired results.

Evaluate your GEDCOM team's current process and identify waste in your process. Describe a new process for your team to follow to eliminate waste in your team's current process.

I believe there is very little waste in our development process. But, if I had to pick something, I would say that the code refactoring that we do at the end of the week adds no value to the customer and only helps us to maintain code that is understood by all members and that can be easily changed or updated whenever we want. Refactoring the code after each sprint seems redundant to me, but we're doing it right now because we're not having any scheduling issues. I believe that refactoring our code once every 3-4 sprints would make sense in order to save time, and the customer would understand that we are doing this to make the solution more future proof, and this would help us build a solution that would stay up to date for however long they require it to be.