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Module 1.3

CSD 380

**The Lean Movement**

**History and Summary**

The Lean Movement started in manufacturing, the common “originating” reference being the Totyoa company. This movement focuses on maximizing value all while minimizing waste. It emphasizes continual improvement, respect for others, and how important it is to bring value to a customer base.

**Applying Lean in Software Development**

1. Reduce Waste
   1. Get rid of any unnecessary processes and/or features that do not add any value to the customer base.
2. Deliver Fast
   1. Reduce lead times and cycle times so that companies can deliver software faster to customers and respond more quickly to customer needs or desires.
3. Empower the team
   1. Encourage strong collaboration and decision-making within teams, which will lead to fewer delays or hold-ups.
4. Build Quality
   1. Make sure that quality is prioritized at each stage of development *instead* of simply testing everything at the end, which will minimize waste by making sure problems are solved as they arrive.

**The Agile Manifesto**

**History and Summary**

The Agile Manifesto was created in 2001 by a small group of software developers who aimed to discuss the future of software development. It outlined key values and—more specifically—12 principles that aimed at improving the software development process. Overall, the shift to this sort of mindset helped to influence the creation of DevOps practices; they encourage cross-functional teams, continuing feedback, and the ability to response swiftly to a customer’s needs.

**The 12 Agile Manifesto Principles (summarized)**

1. Prioritize customer satisfaction
2. Welcome changes in requirements, even in late development
3. Deliver software on the shorter timescale possible
4. Business persons and developers should work in tandem daily
5. Build projects around motivated individuals; give them the tools and support they need and allow them to finish the job
6. Convey information in a development team face-to-face
7. Use *working* software to measure progress
8. Sponsors, developers, and users should maintain a constant, indefinite pace
9. Enhance agility by continuing attention to technical excellence and design
10. Simplicity is essential; maximize the amount of work *not* done
11. Have a self-organizing team to produce better design and architecture
12. Have the team reflect often on how to become more effective and implement those strategies

**The Continous Delivery Movement**

**History and Summary**

Continuous Delivery—also known simply as CD—is a software development practice that makes sure that any code changes are automatically prepared for release to production. This practice came about in the late 2000s as organizations started to realize the need for fast and reliable software delivery. It works—in the scope of DevOps—by pushing consistency and automation, which allows any given team to release software more reliably and quickly. \

**Key Practices of Continous Delivery**

1. Automate everything
   1. Use human time on things that actually need a human touch, therefore saving time. Automate as much as one can; tests, releases, and configuration changes are good starting examples.
2. Version Control
   1. This will enable a team to collaborate efficiently on a shared database, aka version control. Other items such as code, configuration, scripts, databases, and documentation, should also be version controlled.
3. Build in Quality
   1. Quality should be emphasized at every step of the release pipeline. All items should be constantly looked at—things like new features—and delivered with sets of automated tests that ensure code is bug-free.

**Sources**

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