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CSC 131
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Assignment 1

1. Software engineering, in other words, is the way we can utilize computers to solve modern day problems. Engineers can easily break down problems to make it more digestible, easy to understand, and maintainable. I believe that making it easy to understand is more important than the other aspects because software engineers typically have multiple projects that are independent of each other. Therefore, code switching between projects is usually the time consuming part.

2. DevOps and Lean are some other software engineering methodologies.
DevOps emphasizes the importance of integration between software development and operations. DevOps prides itself on its short development cycle with automation and typically a single source of truth for the codebase.
Lean is another software engineer methodology, where it's more domain focused. It's about only focusing on the important aspects of the software: a philosophy that is only concerned with adding value to the customer. If it doesn't add value, it is not considered. It makes decision making straightforward and it looks at the software as a whole.
DevOps will be my focus for today, because I like the automated integration and testing suite of this methodology. I am trying to deploy web applications, and looking at the DevOps Engineering Methodology, I found it fascinating that we can use automated tools to monitor, deploy, and integrate changes with a click of a button. The management suite has become much easier since you do not have to monitor the server personally and you can have contingency plans in place whenever an event, such as high CPU usage happens.

3. A Software Developer designs, creates, and maintains all aspects of the software from writing the code to testing and debugging.
A Programmer focuses on coding which is not particularly involved in the design of the entire software.
A Software Engineer is someone who applies engineering principles to the software creation side of things. They focus on the system as a whole, making sure the infrastructure is scalable, maintainable, and efficient.
A Tester is someone who looks for bugs within the software. They typically write tests to ensure function and performance are up to specification.
Quality Assurance Engineers are the people responsible to make sure people are following best practices and standards in the codebase and to create and maintain tests to make sure that the codebase is of high quality.
A System Analyst is someone who analyzes the design to bridge the gap between business requirements and technical requirements. They gather information from users to ensure system specifications are up to par.

Other roles such as Database Administrator and Project Manager are also important.
Database Administrators are the ones who optimize the database to make queries more maintainable, scalable, and ensure the integrity of the managed data.
The Project Manager is someone who interfaces between the stakeholders and the internal teams to keep the project on track and communicate and guide the project into a certain direction.

The role I am most interested in is the Software Engineer. I want to have the expertise to create viable pieces of code that adds value to people's lives. Making complex things easier is what I take joy in.

4. I think the major challenge facing software developers and software engineers these days is the battle between efficiency and innovation. Given software programmers propensity to make things efficient, typically, it's sometimes an afterthought because innovation and being ahead of the market is prioritized. And I think we forget that sometimes a working product is better than a "perfect" product because people want to use the product to see if it adds value to their lives. It doesn't have to be the fastest, it just has to work properly and sometimes that means efficiency is less valuable than the effectiveness of the code. I think this is a shame, because I think speed is part of the software's quality and having it less prioritized is something that hurts me inside.