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Exploration 1.1: What is Software Engineering?

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CS 361

Here in Canvas, please submit your answers to the following questions.

1. Historically, what was the problem in software, that gave rise to the need for "software engineering?"

The problem that gave rise to software engineering was the software crises projects ran over deadlines and budget, needed extensive debugging, or simply never completed.

1. What are the steps in creating software does Royce suggest in *Managing the Development of Large Software Systems*?

The basic water fall model from Royce were

* 1. System requirements
  2. Software requirements
  3. Analysis
  4. Program design
  5. Coding
  6. Testing
  7. Operation

Each one of these major steps have break off points where you may have to go back up the ladder to make changes in the code but for the most part this is the back bone of managing the development of large scale software systems.

1. Ian Bogost, *Programmers: Stop Calling Yourselves Engineers*, makes a strong argument regarding the difference between traditional engineering fields and software engineering. What are two main attributes of "real engineering" that are different from "software engineering?"

That traditional engineers build physical structures while software engineers do not.

And that engineering is not just a term used to describe technical workers and the it is more about the ridged structure of their job.

1. *The Coming Software Apocalypse* describes how critical software systems can be in the modern world, and describes different facets of programming. What arguments does Lamport make, and what is the goal of TLA+

That programs are ridged and do exactly what the programmer told it to do so if the programmer is lazy/ does not care there could be catastrophic consequences.

That “software engineers don’t understand the problem they are trying to solve, and don’t care”

“if the software malfunctions and the same program that crashed is supposed to save the day, it cant”

“computers had doubled in power every 18 months for the last 40 years. Why hadn’t programming changed?”

There are many more arguments that Lamport had made.

To me the goal of the TLA+ goal was to raise awareness of the possible oversites that can be made in the development and use of software in our society as well as raise people fear in it so they read more of their articles.

1. *Software Engineering, The Telephone Game and the Whippersnappers*, and *Leprechauns of Software Engineering* and *Revisiting the Facts and Fallacies of Software Engineering* describe misperceptions about software engineering and software engineering methodologies. What is the "telephone game" and problem has it led to, regarding our understanding of how to properly conduct software engineering?

The telephone game is where one person says a phrase to another person and that person repeats that phrase to another person this repeated multiple times until the phrase is then repeated to the original person. Usually when this happens the phrase had been mutated and is nothing like the original phrase causing people to laugh. The problem with this is that this also happens with how to properly conduct software engineering and the conduct has been mutating the more people it touches.