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Prioritizing Safety Above Success

The computer science field presents many ethical dilemmas we must prepare for. In the case of the Therac-25, multiple violations of the ACM Code of ethics were committed, resulting in the death of multiple patients. The two main violations were to “avoid harm” and “be honest and trustworthy.” (ACM Code of Ethics). While most will be quick to side with either the programmer or the company, I believe this is a dangerous approach. “Most previous accounts of the Therac-25 accidents blamed them on a software error and stopped there. This is not very useful . . . If we are to prevent such accidents in the future, we must dig deeper.” (Leveson, Nancy, and Clark S Turner). This quote summarizes the real issue about this debate today: people are more concerned about justice than safety. I believe it is both the programmer’s and the company’s fault for what happened. The programmer is responsible for not avoiding harmful events while the company is held to this same standard as well as not being honest and trustworthy about their product. We will explore these details further to determine what kind of testing is needed and if a software certification process will help.

First, how do we determine how much testing for a machine is needed? Technology capable of destroying a human’s life should be thoroughly tested and improved, regardless of businesses’ financial incentives. Leveson states that the Therac-25 did the complete opposite, violating multiple guidelines: “Documentation should not be an afterthought, software quality assurance standards and practices should be established, the software should be subject to

extensive testing and formal analysis” (Leveson, Nancy, and Clark S Turner). Since these engineering requirements are in the hands of the institution paying for the software the amount of testing performed is dependent on the amount of money the institution supplies it. So how much testing is enough? While this is not an easy situation to put a number on, when the programmer is confident in the code, you have likely tested enough.

Lastly, the US has a state certification process for engineers that could be implemented similarly for software engineers. “All states and territories have laws and regulations covering engineering practice and they have licensing boards that ensure the laws and regulations are followed.” (Licensure of Federal Engineers). A system similar to this can be very tricky for computer science since there are so many branches. Having a US state certification for programs in the medical field will be a beneficial start. What makes computer science amazing is how versatile it is, so enforcing a certification process for software design could cause many issues. However, I believe the bare minimum should be for medical software designers to have a certification process similar to the engineering process. An important requirement would be to require a group to work on these dangerous projects rather than alone. This machinery is not to be taken lightly since one slip up can cost one’s life.

As Christian computer scientists, we should learn from this event that we should always prioritize the safety of others over our opportunities and success. Luke 6:31 says “Do to others as you would have them do to you.” (Bible Gateway). I believe this applies because as software developers for dangerous technology, we need to prioritize the safety of others over our success. If a company is pushing you to finish their software before it’s ready, make it very clear that you won’t use code that can hurt someone. Taking a stance and risking your career is the right thing to do.

Works Cited

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