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Ethics Paper

With computers' vital role in our day-to-day lives, one may question who is responsible when one of these technologies causes a severe injury or death. For example, in the Therac-25 accidents, the blame may be on the programmer of the software used by the machine. However, it was not the only root cause of the accidents that seriously injured or killed six people. In the Therac-25 investigation, it was discovered that there was a substantial lack of testing and documentation of the software used by the machine (N. G. Leveson and C. S. Turner). Aside from the other causes of the accident, software testing was a serious issue.

The amount of testing needed for software entirely depends on what the software will be used for. If the software being created is for a calculator, it should be tested to ensure it works for its designed use; once that is accomplished and it passes the requirements in need, it can be used. However, suppose the software being developed could have life-altering or possibly life-ending consequences. In that case, it should be thoroughly tested, and that testing should be a top priority for the developer. As a computing professional, you should be designing software that avoids harming individuals (ACM Code of Ethics) and productively using criticism of technical work to produce better software for use in any industry (IEEE Code of Ethics). I would argue that the testing required for a machine such as the Therac-25 should be substantial and documented. I do not believe there is justification to lessen or skip testing for such important

software. I would not want a machine with limited testing like the Therac-25 used on me, and as a Christian, I would not use a machine like this on others either (*NIV*, Luke 6:31).

Proper testing of software, especially software that may lead to injury or death, is essential. This type of testing is valid from a safety perspective and a functionality perspective. Other career fields, such as those employed in various engineering fields, must pass a state-level certification exam to practice their profession. Something similar to these certification tests would be an acceptable approach for ensuring proper software design and testing for computing professionals. For those professionals developing software that may contribute to an injury or death of a person, I believe they should be certified, but not by a state or federal government. I believe that a reputable organization such as the IEEE or ACM should be leading the development of a proper certification and testing program for professionals in their industry. This would work similarly to the National Institute for Automotive Service Excellence, known as ASE for automotive repair professionals. They could arrange it so that software developers could be tested from an entry-level to an expert level of proficiency, helping companies ensure that they hire the right person to design potentially life-threatening software.

Computers are integrated with almost everything we do each day in the United States. The software being developed today can have a lasting impact on people's lives, and it needs to be taken seriously. I think a certification process such as the one I just described will help ensure proper software is being developed. However, it comes down to the person's moral integrity in designing the software at the end of the day. It is the duty of those designing the software and their colleagues to ensure that high-quality software is developed and adequately tested (ACM Code of Ethics).

Works Cited

N. G. Leveson and C. S. Turner, "An investigation of the Therac-25 accidents," in Computer, vol. 26, no. 7, pp. 18-41, July 1993, doi: 10.1109/MC.1993.274940.

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