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CSCI Data Structures

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Necessary Testing

The situation that happened with THERAC-25 helped to bring attention to the question of how we as Software developers determine how much testing is necessary. First, I believe that we should have a certification process before the software can be developed. With the requirement of certification, we can determine how much testing is necessary by the IEEE and ACM Codes of ethics and through the bible.

The IEEE codes of ethics develops a framework to determine if testing is necessary. The requirement of certification stems from II.9 from the IEEE Code of Ethics which states,” to avoid injuring others, their property, reputation, or employment by false or malicious actions, rumors or any other verbal or physical abuses.” If a product is made without thoroughly testing it then it directly violates II.9 of the IEEE Code of Ethics. Leading to the injury the developer’s reputation and the company’s reputation just like it did with THERAC-25. The need for certification makes sure that the employee is extremely well trained so the chance of injury is low.

Next, the bible has a passage that makes a great indicator to how much testing needs to be done. The bible passage that really helps to determine required testing is, "if you build a new house, make a railing around your roof, so that you don't bring bloodguilt on your house if someone falls from it." (Deuteronomy 22:8). This helps indicate how much testing is necessary because it means in terms of the argument, to make sure the software is thoroughly tested before

it releases, so it will not reflect badly on the software developer. The certified software developers is going to have a higher chance of following the bible verse and make sure that the software will not hurt people and poorly reflect on the company.

Morally the need for testing is further established with the ACM code of ethics. The main code that shows this is 2.1, which states, "Strive to achieve high quality in both the processes and products of professional work." This means that a worker should prioritize quality over speed when making a product. Because of the code, it shows that testing should be done more to highlight the high needs of quality of the product, so if the software developer knows that they did not test for everything then it is the software developer's responsibility to notify the boss. It may be more expensive to continue the testing, but it will dramatically decrease the costs in the future, and it will keep the high quality of the product.

Testing is necessary not only to avoid harm highlighted in IEEE Code of Ethics and the Bible, but also to make sure the product is in high quality. That means that testing is determined necessary if the software developers is violating the Codes of Ethics and going against the Bible as shown with the evidence of the sources. Having a Software Developer be certified makes sure that the Code of Ethics is going to be followed most of the time even though a non-certified Software Developer can still follow the Code of Ethics. Going back to the situation that happened with THERAC-25, the programmer was at fault which meant that they did not follow the code of ethics and did not notify the boss for more testing which resulted in a huge loss of lives. With the established criteria of testing, we should use the criteria more often to avoid situations like the THERAC-25 situation and make sure products live up to the standards.

Work Cited

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