

Automated Ethics

The role of automated unit testing is very significant these days, especially when working with data structures, which include stacks, queues, trees, and graphs, etc. These tests are very helpful when it comes to helping developers in making sure their program works the way they want it to. Just because the software works, it does not mean it is necessarily safe and ethical. From a Christian point of view, software developers are required to be responsible, honest, and empathetic.

The Boeing 737 MAX accidents of 2018 and 2019 showed that the plane's software system, known as the MCAS, had some grave problems. It relied on data from a single sensor and assumed the information it received was correct. Unfortunately, the developers did not fully test the software and when the sensor failed it caused the crashes and resulted in killing hundreds of people. This is an example of improper testing that can give developers false confidence in their software.

As professional developers, they have a responsibility to create tests on the actual usage of the system and are fully tested. The ACM Computing Code of Ethics states that we should avoid harm, be honest, and uphold the highest standards of quality. "To minimize the possibility of indirectly or unintentionally harming others, computing professionals should follow generally accepted best practices unless there is a compelling ethical reason to do otherwise. Additionally, the consequences of data aggregation and emergent properties of systems should be carefully analyzed." (ACM, 2018).

Christian principles reinforce this responsibility. In Proverbs 10:9, followers are called to walk in integrity, and their path will be secured. If they have crooked ways, then their ways will be found

out and revealed. “Whoever walks in integrity walks securely, but he who makes his ways crooked will be found out.” (Proverbs 10:9). Another example of a Christian principle that would help or lessen the causalities of the Boeing incident, Proverbs chapter 11, verse 3, tells us that integrity will them, while not having integrity will destroy them. "The integrity of the upright guides them, but the crookedness of the treacherous destroys them". (Proverbs 11 3) This can reflect the incident by if the developers were walking integrity and were fully aware of the ethical codes then the situation could have been avoided and less people could have died.

There are also legal and professional risks posed when the testing of the software is not up to standard. Boeing suffered billions of dollars and huge damage to its reputation. To developers, responsibility is owed to guarantee their application or software is safe enough. When developers fail in their testing phase, they are considered negligent and engage in professional misconduct.

In our data structure class, we implement many test cases so we can cover all the flaws and bugs in our code so that we can find a solution for each possibility. Test cases are a good learning lesson that all coders should have because it makes sure you are ethically testing and make sure it does not fail in real emergencies. This proves that ethical testing requires careful and critical thinking and attention to detail.

I strongly believe that depending on incomplete automated tests for critical systems is morally wrong. Although automated tests make development faster, they should not supersede responsibility. As we have seen, although technology has been beneficial in many areas, such as easier transport and communication, when profit and time are more important than safety, technology becomes a source of danger.

Cited Sources

<https://www.acm.org/code-of-ethics>

The Holy Bible, English Standard Version