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CS 414

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October 28, 2022

## Software Engineers have Ethical Obligations when Programming

*The code I'm still ashamed of*, by Bill Sourour, is an article about Sourour's experience as a new full-time software engineer at a marketing firm in Canada. Sourour states that the marketing firm he was working for was founded by a medical doctor and most of the clients they worked for were large pharmaceutical companies. He goes on to explain that, although Canada has strict laws limiting pharmaceutical companies' advertisements of prescriptions, many companies have found ways to bypass the restrictions. The pharmaceutical companies would create websites that present very generalized information about basic symptoms that their prescriptions were meant to address. When a visitor on the site can prove they have a prescription for the drug, they are given full patient access with more specifics. Sourour was assigned to the task of creating a quiz on one of these websites with the goal for girls to answer a series of questions to then be recommended a prescription. However, regardless of how the questions were answered, unless allergic, the quiz taker would be recommended the client's drug.

Sourour's article was written in 2016 and it is safe to assume the story he is discussing was years before. The *ACM Code of Ethics and Professional Conduct* was first created and adopted by the ACM Council in 2018. The Code helps computing professionals' by serving as a basis for ethical decision-making. By comparing Sourour's *The code I'm still ashamed of* and inspecting the *ACM Code of Ethics and Professional Conduct*, it is clear that Sourour broke the Code within multiple principles, the general ethical principles, professional leadership principles, and compliance with the Code.

Before discussing how the *ACM Code of Ethics and Professional Conduct* was broken by Sourour, it may be worth mentioning that this occurred before the Code and the program built was not intentionally malicious or inspected on an ethical level by Sourour. Now that that is said, the first principle Sourour broke based on the Code was the general ethical principles. To be more specific, as a computing professional he did not contribute to human well-being and acknowledge that all people are stakeholders in computing. When Sourour was programming the quiz he did not consider if the quiz would have any negative consequences that may include threats to patients' health. This means he also broke the principle of avoiding harm, which means negative consequences according to the *ACM Code of Ethics and Professional Conduct*. In his article, Sourour states that a colleague sent him a new report about a young girl who had taken the prescription and had

committed suicide. Sourour had not known that some of the significant side effects of the marketed prescription were severe depression and suicidal thoughts. While creating the quiz, Sourour did not take a moment to consider if the end result would contribute to human well-being and avoid potential negative consequences.

On top of the general ethical principles, Sourour did not follow the professional leadership principles. In this instance, 'leader' is referring to Sourour as being a part of an organization that has influence in the pharmaceutical industry. When Sourour was given the requirements and began programming the quiz, he did not ensure or even consider that the public good was the central concern. He was more concerned with completing his assignment and following the requirements he was given; this meant that the final product had a central concern around the marketing company's client, not the users and potential patients of the client's drug. Even when Sourour's project manager tested his program she raised concern about the quiz results leading to the same prescription (except in cases of allergy). However, when Sourour stated those were the requirements of their client, his manager did not question him or the requirements further. So although some of the public's good was the central concern during the computing work, it did not consider the public good of the users themselves which would be affected negatively indirectly. In both the case of Sourour and his project manager, they also failed to follow the professional leadership principle of articulating and encouraging

the acceptance of the fulfillment of social responsibilities of the marketing firm and their client. They failed to bring up their concerns and have an open and transparent discussion with their client about the ethicality of the product they were asking for.

As a result of failing to uphold the general ethical principles and professional leadership principles, Sourour did not uphold, promote, and respect the principles of the Code. This means that he did not comply with the Code, breaking the final principle. Not only did Sourour and his project manager not uphold and respect the principle of the Code, but they also did not promote it and try to improve the program that broke these principles. A few people in *The code I'm still ashamed of* did not take action to attempt to resolve and improve the ethical issues of the client's requirements and either simply ignored them or resigned from the marketing company. As previously mentioned, after Sourour told his project manager that the requirements of their client were to lead to the recommendation of the client's drug, she did not question Sourour or the client any further. Sourour's team member, who sent the news article about the young girl who committed suicide to Sourour, did not seem to take any further actions, other than not attending the clients 'fancy steak dinner.' Lastly, rather than facing any concerns, Sourour simply resigned from the marketing company a little after the dinner.

After inspecting the *ACM Code of Ethics and Professional Conduct* and reading Sourour's *The code I'm still ashamed of*, it can be seen that Sourour broke the Code within the general ethical principles, professional leadership principles, and compliance of the Code. When Sourour received the requirements from the client to program the quiz, he should have considered the *ACM Code of Ethics and Professional Conduct*. He could have resolved the contribution to society and human well-being principle by considering the health and safety of the users taking the quiz. By looking at the Code, he should have also considered the potential negative consequences of his clients' drug that was being marketed. Considering these general ethical principles would have lead Sourour to face his client and closely consider the potential harm toward future users, such as severe depression and suicidal thoughts. Furthermore, by bringing up concerns to the client themselves, Sourour would have had a more meaningful interaction with his project manager when she was testing the program. They would have been able to solve the professional leadership principles through conversation and transparency. Therefore, the compliance with the Code would be resolved itself, and the other principles would have been upheld and would have been promoted and encouraged. Transparent discussions, with genuine care and effort, is an ethical tool software engineers should be encouraged to develop within a personal and professional setting.