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Career Paper

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Software Development and the Social Sciences

Within the cyber field there are a myriad of career paths that one could choose. One of which I am most interested in is software development. A software developer "designs, creates, and maintains software for applications and systems" (Sartore, 2023). They translate what a user or business requires into a functional program. In order for a software developer to understand the needs of a user they work hand-in-hand with the social sciences.

The social sciences are disciplines which study how society functions and how humans interact with each other. Examples of these disciplines include sociology, psychology, environmental studies, or even economics. As the Social Science Institute explains, "In all of these fields we question the world we are given: How do we live? How do we organize? What do we believe? What is just and right? And who gets to decide" (What is Social Science, 2023)?

A key concept from the social sciences that software developers use is ethics. Ethics deals with what humans believe are right and wrong. It gives a basis for humans to make decisions. Ethics interacts with software development by ensuring user data is

secure. They implement security measures that comply with regulations and communicate to the user how their data is being used. One specific way software engineers implement ethical security practices is by inviting ethical hackers (white-hat hackers) to find security vulnerabilities in their system. These white-hat's are given a specific scope as well as rules for what where they are allowed to research. They are further incentivized by often receiving a reward for their discoveries. Once a vulnerability is found, the organization is able to implement a fix and strengthen their security posture. In addition to enhancing the organization, the collaboration benefits the hacker by allowing them to use their skills in a positive way versus a malicious one.

Objectivity is important when software developers work through their day-to-day security practices. As the 8allocate blog states, "When a software development team has neither proper tools nor methodology to measure developer performance, managers and team leads make a subjective evaluation, which, in turn, can lead to many mistakes"(8allocate, 2023). Developers utilize methods to objectively evaluate the security of their application, this could include penetration testing and analyzing their code. By staying objective, developers can better make informed decisions and respond to threats in a systematic way.

Software developers play a crucial role in allowing marginalized groups to have their needs met while also working hand in hand with the social sciences. Concepts such as user-centered design, cultural sensitivity and accessibility are considered when developing this software. First, surveys and studies can be conducted to analyze how

users interact with specific software. This gives an idea to developers of how they can develop software to better suit the users needs. User-centered design is a framework that focuses strictly on developing a better product based on experiences and preferences and less on a biased algorithm. Cultural sensitivity is used to highlight marginalized communities that have distinct languages and perspectives. Software such as Google Maps caters to diverse cultures by adapting its interface to different languages and highlighting cultural landmarks- giving users information about significant places. The application allowing for users to download maps enables those who live in remote areas to have access when the internet is limited, which accommodates geographic diversity. Finally, one of the most well known and used concepts is accessibility. Accessibility gives those users with disabilities the tools they need to access the digital world without barriers. Microsoft Office utilizes accessibility tools such as screen readers, keyboard navigation, high contrast mode, and speech recognition in their applications.

In conclusion the collaboration between software development and the social sciences is a transformative one. As technology advances, these fields work together to create a landscape that addresses societal needs and ensures equal access for everyone.

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