ICS4U Unit 1 Activity 9 - Code Maintenance Reading and Worksheet

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Ethics

1. Analyze an ethical issue related to the use of computers.

Ethical issues related to the use of computers are not lot but they are integral to the security and the everyday lives of people who rely on these computers. From all of these, the most talked about and the most feared is Computer Crime. Computer Crimes or hacks are the act of stealing or trying to break in to systems which are not your own. Since hacks can be done off-site, with little or no equipment and is almost untracable if done by a skilled person. There is another very sensitive ethic which is Privacy. Private data can be used to identify a person through internet and target advertistments. Big tech companies collect these personal data and with the use of data science, make useful predictments and make profit. Sometimes these can be a breach of online privacy and the user cannot do anything about it.

2. Describe the essential elements of a code of ethics for computer programmers and why there is a need for such a code

Code of ethics are really important to programmers because they hold great power and responsibility for people using their code. Their code are relied on, and used everyday and if they abuse the power to invade privacy or break confidentiaity, it is bad for all of us. Not only the programmer should not write malicious code, they should also make sure that their code is secure enough using protocols or guidelines set by international communities. By following these ethical guidelines, the programmer will be acknowledged for their honest work and gove credit to other people's code.

3. Outline strategies to encourage ethical computing practices at home, at school and at work

To encourage ethical computer programming practices, they should be teaching the theory of ethical programming along with the theory of computers so that when the programmers can code, they can implement these guidelines as they start to code. The mentor should also be checking the student's code for unethical functions which could do harm or invade other's privacy. For people who are learning to code from homes, the video tutorials should include a section dedicated to just ethical concerns and educate new programmers about ethics.

Emerging Technologies

1. Explain the impact of one emerging technology on members of society around the world, and on the economy

The emergence of new technologies are accelerating year by year since the industrial revolution. Every year newer and bleeding edge tech is taking over the markets and researchers' minds. One of these technologies are Artificial Intelligence and Machine Learning. These technologies are affecting our everyday lives already, we just don't notice it. They are in the search engines we use, in the social media platforms suggesting the people we might know based on the available data. The impact is huge in all the sectors imaginable. Economy for example, the stock markets are all run by these very technology to decide and predict the outcome of stock prices and to handle the sales of company stocks in real time.

2. Investigate and explain an emerging technology

Computational Photography

Computational photography is the use of a camera's computer processing power to create an image that is better than what the lens and sensor can capture in a single shot. This is made possible by the carefully coded algorithms and some machine learning models to improve the resolution and all the other aspects of the photo such as the contrast, dynamic range, and the sense of depth without using extra lens. This technology has helped us humans to take better photographs as well as in low light and night time photography. This means that we can take more photos and remember memories more clearly.