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Ethic Paper

Computer Science has become a field with many possible ethical issues. This is because there is a lot of information online regarding popular computer science topics online. Examples of this are pieces of code and sometimes complete programs that are available for free online. This can tempt computer scientists to plagiarize others’ work. Plagiarism is the stealing of another’s intellectual property, such as an idea or code. Intellectual property can be defined as any idea that was developed by someone, by taking someone’s intellectual property you are taking credit for someone else’s work. A component of plagiarism is dishonesty, this is because when someone plagiarizes, they are presenting work as if it is their own when it is not, also known as a lie. The ACM has this to say about honesty, “Honesty is an essential component of trustworthiness. A computing professional should be transparent and provide full disclosure of all pertinent system capabilities, limitations, and potential problems to the appropriate parties. Making deliberately false or misleading claims, fabricating or falsifying data, offering or accepting bribes, and other dishonest conduct are violations of the Code.” (ACM Code of Ethics and Professional Conduct). As you can see dishonesty in the computer science field is not only related to plagiarism. Dishonesty such as stretching your program’s capabilities or downplaying the limitations of your work is unethical. It could also cause big problems later. Imagine you are developing medical software that calculates dosages for specific medications based on a patient’s previous medical history and the weight. If you were to lie about the software’s capabilities in terms of how many different medications it can accurately calculate, it could miscalculate and cause a nurse to give too much of a medication to a patient, which could result in injury or death of the patient. Had you been honest with your software to the hospitals that purchased it, no one would have gotten hurt, as well as it is likely you will be jailed, and your company sued by the family of the patient. Intellectual property should be respected because of the time and hard work it takes to develop an idea. Plagiarizing is like cheating on an assignment, the person who worked hard studying the problem and spending time not understanding deserves the reward of doing well on the assignment and the cheater bypasses the effort and time put into a task. The Association for Computing Machinery has this to say about intellectual property, “Developing new ideas, inventions, creative works, and computing artifacts creates value for society, and those who expend this effort should expect to gain value from their work. Computing professionals should therefore credit the creators of ideas, inventions, work, and artifacts, and respect copyrights, patents, trade secrets, license agreements, and other methods of protecting authors’ works.” (ACM Code of Ethics and Professional Conduct). This shows that we as computer scientists need to respect intellectual property. However, there is a fine line between making sure we respect the ideas of other computer scientists and going overboard. If we go overboard and add copyrights to everything, we can that will have a negative effect on the computer science environment. It would discourage to development of new ideas because if most things have a patent or copyright it would be too expensive for new companies to develop new software. For example, if a company has a copyright on a particular algorithm used to sort data, that could be problematic because it is too general. A new company that wants to develop software may need to sort data and to use the best algorithm for the job they would have to pay the company that copyrighted the algorithm, which would cause the smaller company to develop an inferior product because they cannot sort data as efficiently as they would like to or they would have to pay the copyright and sacrifice their already small financial resources. The Association of Computer Machinery also recognizes this potential problem when it comes to giving intellectual property too much respect. The ACM says this about intellectual property, “Both custom and the law recognize that some exceptions to a creator’s control of a work are necessary for the public good. Computing professionals should not unduly oppose reasonable uses of their intellectual works. Efforts to help others by contributing time and energy to projects that help society illustrate a positive aspect of this principle. Such efforts include free and open source software and work put into the public domain. Computing professionals should not claim private ownership of work that they or others have shared as public resources.” (ACM Code of Ethics and Professional Conduct). As you can see ethical issues can be quite complicated, in terms of intellectual property for example, it requires some respect to encourage people to work hard to develop new ideas, but not too much respect as it slows down technological development and can possibly help contribute to only a few technological monopolies by getting rid of competition through copyright and patents that smaller companies have to pay to be able to compete with the bigger companies. A way we can prevent plagiarism is by not searching for code online and if we do only use the code to learn about how the problem was solved through the individual’s code, then you can use what you learned to solve your particular problem. In general though, the best way to avoid plagiarism is to spend time thinking about your problem and working hard to develop a solution by yourself.

Plagiarism still occurs in many different computer science environments. Most prevalently plagiarism occurs in undergraduate programs. While students can be enticed to steal code from online and turn it in, they are only hurting themselves by failing to prepare themselves for their career where they will have to struggle on their own problems. Most likely their problems won’t have programs already written somewhere on the internet, so they will be forced to confront the problem by themselves. Even students at prestigious ivy league schools are not exempt from the temptation to plagiarize, “This spring, a cheating scandal permeated the computer science department at Harvard University. About 10 percent of the students in the school’s renowned Computer Science 50 course – around 60 out of a little over 630 – were suspected of cheating, referred to the school’s honor council for review, and exposed to the possibility that they could be expelled for their actions. This isn’t the first dilemma of its kind at a prestigious Ivy League school, but it still says something important about higher education and computer science: that either students are pursuing STEM-related fields without having any real interest or skills in them, or that the pressure to get good grades is pushing even the highest academic achievers to cut corners. Maybe both.” (Hartel). As you can see even the stronger students in prestigious ivy league schools have been caught plagiarizing on their assignments. Plagiarism is not exclusive to students though. It can happen to billion-dollar companies such as Google. For example, “the software industry’s ability to easily create new products that are compatible with existing ones hangs on the outcome of a closely watched federal court case. The U.S. Court of Appeals for the Federal Circuit will weigh whether copying bits of code from Oracle America Corp.’s Java programming language by Alphabet Inc.’s Google was a fair use under copyright law, or whether it infringed Oracle’s copyright to the tune of $9 billion. Fair use allows limited copying from protected works that would otherwise be infringing. Following a Dec. 7 oral argument, a ruling is likely in the first half of 2018.” (Mazumdar). As you can see computer science plagiarism even happens within companies like Google. The previous article adds, “The case pits software developers’ ability to make products that work together against creators’ rights to control how their software is used. The decision will impact companies beyond the two tech giants. It may affect the speed and variety of technological products available to consumers, businesses, and developers (*Oracle AM., Inc. v. Google, Inc.,* Fed. Cir., No. 17-118, argument scheduled 12/7/17).” (Mazumdar). The quote above summarizes the problem when you respect intellectual property too much, it can slow down the speed of technology.

Plagiarism is a complex ethical issue in Computer Science, so the best way to conclude what to do about plagiarism is to turn to the word of God. The bible says, “You shall not steal” (Exodus 20:15, ESV Bible). Above is one of the ten commandments so this means God quite clearly does not approve of stealing. What we can take away from this is any blatant copying of code is wrong and we should not do it because it is a sin and because it harms your ability as a programmer. Part of plagiarism involves jealousy because you may be jealous of the student who is able to more easily solve problems with less time invested as you, this can be another reason why plagiarism may occur. The bible says this, “You shall not covet your neighbor’s house; you shall not covet your neighbor’s wife, or his male servant, or his female servant, or his ox, or his donkey, or anything that is your neighbor’s.” (Exodus 20:17, ESV Bible). The above quote is another one of the ten commandments, which lets us know that it is especially important in Christianity. We can take away from this that it is good to progress at your natural rate when it comes to programming, some people may get better quicker than you with less effort put it, but that is ok because you just have to do the best with what you are able to. A verse that helps clarify the punishment of stealing or plagiarizing says this, “The integrity of the upright guides them, but the crookedness of the treacherous destroys them.” (Proverbs 11:3, ESV Bible). This tells us that even if your software is not as efficient as someone who cheated, you are righteous in God’s eyes and those who are treacherous can destroy themselves by their crookedness. By committing these bible verses to memory, we can remind ourselves of the trouble of plagiarizing and prevent it from occurring because we know that God does not approve. There are plenty more examples of cheating in the bible and how it destroys the spirit, so by getting involved in the word of God we protect ourselves from the temptation of plagiarism.

In conclusion, plagiarism is a very complex issue within Computer Science. It is important that we respect intellectual property, but not too much because it slows down development of technology and because it fosters monopolies and drives down competition. The best ways to prevent plagiarism is having a good foundation in the bible and by working hard and spending time on assignments without looking up solutions.

Works Cited

ACM Code of Ethics and Professional Conduct. Retrieved from https://www.acm.org/code-of-ethics. October 24, 2019.

English Standard Version*.* Bible Gateway, www.biblegateway.com. Accessed 23 October 2019.

Hartel, E. (2017, July 24). Computer Science Cheating Scandals Infect Colleges: Cracking the Code Behind Why They're Happening. Retrieved October 24, 2019, from https://edtechtimes.com/2017/07/24/computer-science-cheating-scandals-infect-colleges/.

Mazumdar, A. (2017, December 6). Is Copying Ever OK? Software Practices on Line in Copyright Case. Retrieved October 24, 2019, from https://biglawbusiness.com/is-copying-ever-ok-software-practices-on-line-in-copyright-case.