Homework 2

Due Date: 02/14/2020, 11:59PM
100 pts

Read the instructions carefully before starting the assignment. Make sure your code follows the stated guidelines to ensure full credit for your work.

Overview

Engineers as "professionals" design systems and processes that affect the public in many ways (power systems, heart pacemakers, electronic spying equipment, file-sharing tools, etc.). Almost every element of design work can have a public consequence, design trade-offs may affect reliability or safety, and social context of a design project is too often ignored in the excitement and pressure of design details and deadlines. The public must trust that engineers design products that are well-designed and safe, therefore, design decisions must be based on sound engineering principles. This non-coding assignment will introduce you to some fundamental aspects to being a professional. Your program is accredited by the Board for Engineering and Technology, which means students must be familiar with the elements of a professional code of ethics.

Instructions:

The ACM (Association of Computing Machinery) and the IEEE (Institute of Electrical and Electronic Engineer) have a code of ethics and professionalism that outlines how computer scientists should strive to conduct their professional lives.

✓ Follow the links below and read the ACM and IEEE Code of Ethics:

ACM Code of Ethics:
https://www.acm.org/about-acm/acm-code-of-ethics-and-professional-conduct#CONTENTS

IEEE Code of Ethics:
https://www.ieee.org/about/corporate/governance/p7-8.html

✓ After you are done reading both codes, answer the following questions using your own words (no more than 400 words per question, and no less than 100 words). If you are referring to online sources, don't forget to reference them (for example, using IEEE reference format):

1. Which guidelines do they have in common? [15 pts]

2. Which guidelines apply to you as a student? Explain how they apply (there are more than one that apply). Do not take ACM Section 1. General Ethical Principles into consideration, since those guidelines apply to all people in general. [15 pts]

3. Identify one example from current events over the last few years where the guidelines of the code of ethics have been violated. **Explain which guideline** was violated and **how the event violated the guideline**. [35 pts]

✓ **Case Analysis:** The two cases below present a "conflict problem" in which a professional seems to be caught between conflicting obligations to his company and to the public. As engineers in a technological age, many of you will become involved in the development of products that are used by the public. Even in routine product development there are choices that involve the safety of the customer and the public. Although the present case is fictitious, it illustrates one kind of issue that can arise. Choose only ONE of the cases presented below and answer the question (150-350 words). *When referring to a principle, you can simply use 'IEEE principle 1' or 'ACM principle 2.4'* [35 pts]

Case #1
The change request Stewart received was simple enough: replace the web site's rounded rectangle buttons with arrows and adjust the color palette to one that mixes red and green text. But when Steward looked at the prototype, he found it confusing. The left arrow suggested that the web site would go back to a previous page or cancel some action; instead, this arrow replaced the button for accepting the company's default product. The right arrow, on the other hand, upgraded the user to the more expensive category; it also silently added a protection warranty without asking for confirmation. Stewart suggested to his manager that this confusing design would probably trick users into more expensive options that they didn't want. The response was that these were the changes requested by the client.

Shortly after the updates were released into their production system, Stewart's team was invited to a celebration. As a result of these changes, revenues at their client had increased significantly over the previous quarter. At the celebration, Stewart overheard some of the client's managers discussing the small increase for refunds by users who claimed that they didn't want the protection plan, but there weren't many. One manager noted several complaints from visually impaired users, who noted that the mixture of red and green text obscured important disclaimers about the product. "So what you're saying, then, is that the changes worked as planned," quipped one of the managers.

Based upon this information, what principles from the IEEE or ACM Code of Ethics were violated by the company? Did Stewart fail to follow the principles? Explain why

Case #2
The U.S. Children's Internet Protection Act (CIPA) mandates that public schools and libraries employ mechanisms to block inappropriate matter on the grounds that it is deemed harmful to minors. Blocker Plus is an automated Internet content filter designed to help these institutions comply with CIPA's requirements. To accomplish this task, Blocker Plus was designed with a centrally controlled blacklist maintained by the software maker. In addition, Blocker Plus provided a user-friendly interface that made it a popular product for home use by parents.

Due to the challenge of continually updating the blacklist, the makers of Blocker Plus have begun to explore machine learning techniques to automate the identification of inappropriate content. During the development of these changes, Blocker Plus combined input from both home and library users to aid in the classification of content. Pleased with their initial results, Blocker Plus deployed these techniques in their production system. Furthermore, Blocker Plus continued to collect input from users to refine their learned models.

During a recent review session, the development team reviewed a number of recent complaints about content being blocked inappropriately. An increasing amount of content regarding gay and lesbian marriage, vaccination, climate change, and other topics not covered by CIPA, had been added to the blacklist. Initial investigations into these incidents suggested that there were a number of activist groups that had exploited Blocker Plus's feedback mechanism to provide input that corrupted the classification model. Determining that there was no easy way to correct the model, Blocker Plus's leadership chose to disable accounts linked to the activist groups, while keeping the existing model intact in the hope that a correction could eventually be made. The legal and business risk, they determined, would be greater by switching to an outdated model that failed to block known bad content.

Based on this information, explain under what circumstances Blocker Plus consistently followed the code of ethics principles and where the failed to follow the principles (ACM or IEEE)? (Include the principles that were followed/violated and why)

Deliverables:
- Submit your answers as a PDF file to the HW2 Gradescope assignment before the due date