United International University (UIU)
Dept. of Computer Science & Engineering (CSE)
Final Exam | Trimester: Fall 2022

Course Code: SOC 101, Course Title: Society, Technology and Engineering Ethics

Total Marks: **25** Duration: 2 hours

There are FIVE questions. Answer all the questions. Each Question Carries 05 Marks

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1. Quinn is a member of a machine learning research team studying the role of genetic factors in psychological disorders, particularly focusing on how different variants influence social behavior using Machine Learning. To facilitate training model, Quinn built a tool that linked multiple anonymized data sets: an anonymized set of genetic test results accessible only by medical researchers, a publicly available anonymized database of clinical diagnoses, and a custom database of public social networking posts. To preserve anonymity, the tool replaced all personally identifiable information in the social networking posts with quasi-identifiers. Quinn's team was granted approval for a study by their ethics review board (ERB), on the grounds that all data was anonymous and/or public, and all users had opted in to the data collection.

While testing the tool, Quinn discovered a bug that incorrectly linked some records of multiple individuals as a single person. Given that the data sets were all anonymized, the team had accepted that such erroneous matches were likely to occur. The bug increased the expected number of such matches, but only slightly; as such, the bug was classified as low priority. Quinn raised concerns that there may be other such bugs and suggested that the source code be released under an open-source license to facilitate peer review of both the tool and the overall research. However, Quinn's Team Lead, Mr. Heckles denied to do so by mentioning the existence of such bugs to be very common in the prevailing models.

Identify the IEEE and ACM code of ethics that are violated in the above incident and Explain Briefly.

2. Monica recently started a new software analyst job, joining the SQA team. In graduate school, her supervisor had introduced with several members of the team on a number of projects, involving and mentioning Monica's works when he finds necessary. The team had been fascinated by Monica's work and recruited her as she is nearly graduating.

Albus, the team's developer lead, had built a name as a brilliant yet impulsive expert in software architecture. His team's contributions were highly mentioning within the domain, with Albus typically claiming main authorship as the lead developer. Their work was also published frequently in popular news media, always with speech only from Albus. Despite the team's repeated achievements, Albus becomes intolerable with strong words for even silly mistakes. He screams at the person and demean them in internal discussion. On some day, female team members have found their names discarded from research manuscript submissions as punishment.

Monica soon realizes herself to be the next person as a target when she made a code modification that faces a bit delay the prototype shortly before the main presentation. Albus refused Monica to join the team during presentation. Realizing Albus's attitude was unprofessional and unacceptable. Mr. Lucifer is the manager of the company agreed that the experience was unpleasant to Monica and shameful to the company's reputation.

Identify the IEEE and ACM code of ethics that are violated in the above incident and Explain Briefly.

3. Mr. Ortega is a very young garbage-picker. He picks garbage near an industrial area which is currently used for dumping industrial garbage and recently electrical wastes. Ortega started to pick more electrical waste as it pays more for copper wire and other thing. He has gotten a type of rash recently which he thinks is caused by the electric wastes.

One day while picking up trash he heard sound coming from the trash which later exploded. Ortega got hurt from the explosion. Later a news reports that the explosion was caused by some electric waste. X company that uses the area for garbage disposal claimed it wasn't from their waste as a quality control organization has approved their waste to harmless.

How do you consider the action of company X from the engineering ethics perspective? Do you think E-waste can be better managed to avoid such accidents? Briefly discuss your points aligning with the concept of Green Technology.

4. Sudo is New social media (a fictional social media) which allow a massive amount of people to post their various day to day activities and pictures. It also allows them to share their locations. Sudo has virtual currency S-bucks. Sudo gives a small amount for S-bucks for daily logins, sharing shopping posts, locations and also for reaching certain amount of likes and shares which addicts people in their loop.

Sudo also uses many methods to maximize dopamine loop while using their application. Sudo earns most of its revenue from advertising and selling meta-data of their users without mentioning that explicitly in the Terms and Conditions of Data privacy. It also recently released a press briefing that say how it helps many government organizations by providing information to help keep miscreants at check. It also boasts to have minimum 2 hour online-time for 50% of its user base.

How Ethical do you consider the Revenue Model of Sudo? If you think it as unethical, what should be an ethical policy for Sudo? Discuss with specific logical arguments.

5. Mr. Ross Geller is a Final year Undergraduate student doing his thesis in the domain of Natural Language Processing and Social Media Analytics. His topic is "Identify Cyberbullying and Offensive posts from Social Networking Sites (SNS)". He wants to collect Social Media data of 10,000 Facebook users and utilise it to train the model. To collect the Data, He needs to prepare a consent form for the participants mentioning the necessary information of the research and assuring the anonymity of their data along with maintaining few other ethical issues.

Your task is to prepare the consent form for Mr. Ross to start the data collection process. (The Form must not be more than two-pages long)

We, the members of the IEEE, in recognition of the importance of our technologies in affecting the quality of life throughout the world, and in accepting a personal obligation to our profession, its members and the communities we serve, do hereby commit ourselves to the highest ethical and professional conduct and agree:

I. To uphold the highest standards of integrity, responsible behavior, and ethical conduct in professional activities.

1. to hold paramount the safety, health, and welfare of the public, to strive to comply with ethical design and sustainable development practices, to protect the privacy of others, and to disclose promptly factors that might endanger the public or the environment;
2. to improve the understanding by individuals and society of the capabilities and societal implications of conventional and emerging technologies, including intelligent systems;
3. to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;
4. to avoid unlawful conduct in professional activities, and to reject bribery in all its forms;
5. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, to be honest and realistic in stating claims or estimates based on available data, and to credit properly the contributions of others;
6. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations;

II. To treat all persons fairly and with respect, to not engage in harassment or discrimination, and to avoid injuring others.

7. to treat all persons fairly and with respect, and to not engage in discrimination based on characteristics such as race, religion, gender, disability, age, national origin, sexual orientation, gender identity, or gender expression;
8. to not engage in harassment of any kind, including sexual harassment or bullying behavior;
9. to avoid injuring others, their property, reputation, or employment by false or malicious actions, rumors or any other verbal or physical abuses;

III. To strive to ensure this code is upheld by colleagues and co-workers.

10. to support colleagues and co-workers in following this code of ethics, to strive to ensure the code is upheld, and to not retaliate against individuals reporting a violation.

Adopted by the IEEE Board of Directors and incorporating revisions through June 2020.

Changes to the IEEE Code of Ethics will be made only after the following conditions are met:

- Proposed changes shall have been published in THE INSTITUTE at least three (3) months in advance of final consideration by the Board of Directors, with a request for comment, and
- All IEEE Major Boards shall have the opportunity to discuss proposed changes prior to final action by the Board of Directors, and

- An affirmative vote of two-thirds of the votes of the members of the Board of Directors present at the time of the vote, provided a quorum is present, shall be required for changes to be made.

1. GENERAL ETHICAL PRINCIPLES.

A computing professional should...

1.1 Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.

1.2 Avoid harm.

1.3 Be honest and trustworthy.

1.4 Be fair and take action not to discriminate.

1.5 Respect the work required to produce new ideas, inventions, creative works, and computing artifacts.

1.6 Respect privacy.

1.7 Honor confidentiality.

2. PROFESSIONAL RESPONSIBILITIES.

A computing professional should...

2.1 Strive to achieve high quality in both the processes and products of professional work.

2.2 Maintain high standards of professional competence, conduct, and ethical practice.

2.3 Know and respect existing rules pertaining to professional work.

2.4 Accept and provide appropriate professional review.

2.5 Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.

2.6 Perform work only in areas of competence.

2.7 Foster public awareness and understanding of computing, related technologies, and their consequences.

2.8 Access computing and communication resources only when authorized or when compelled by the public good.

2.9 Design and implement systems that are robustly and usably secure.

3. PROFESSIONAL LEADERSHIP PRINCIPLES.

A computing professional, especially one acting as a leader, should...

3.1 Ensure that the public good is the central concern during all professional computing work.

3.2 Articulate, encourage acceptance of, and evaluate fulfillment of social responsibilities by members of the organization or group.

3.3 Manage personnel and resources to enhance the quality of working life.

3.4 Articulate, apply, and support policies and processes that reflect the principles of the Code.

3.5 Create opportunities for members of the organization or group to grow as professionals.

3.6 Use care when modifying or retiring systems.

3.7 Recognize and take special care of systems that become integrated into the infrastructure of society.

4. **COMPLIANCE WITH THE CODE.**

A computing professional should...

4.1 Uphold, promote, and respect the principles of the Code.

4.2 Treat violations of the Code as inconsistent with membership in the ACM.