SE 372: Assignment 2

**Due: Sunday, February 26th, 11:59pm.**

**Submit via Moodle.**

**Weight: 3%**

**General guidelines:**

**What to Submit?**

You will submit the assignment on Moodle (<https://lms.osoufan.me>) before the due date. Only submit the following:

* You need to supply a written or typed answer in a (.TXT, .DOC, .DOCX, .PDF, or any readable format).

**Submission guidelines:**

* Make sure your Name, Student Number, and UPM Email are included in the cover page.

**Regarding the use of generative AI (aka ChatGPT)**

* For the purposes of this class, generative AI is allowed, provided the student understands and acknowledges the following statements:
  + You are not required to use generative AI
  + No matter your choice, you will not be graded differently.
  + Treat all generative AI content as a source.
    - Just like academic sources, you are **expected to cite** your usage of generative AI.
  + If generative AI is used, you are required to add an appendix to any/all assignments where it is used.
    - The appendix entry must contain:
      * Description of which generative AI was used and its version.
      * The entire prompt used to generate the content.
      * An explanation of how it was used (e.g., to generate ideas).
      * A justification for why generative AI was used.
    - **Copy and paste the solution as is can be heavily penalized (i.e., up to 50% based on the case). Again, you are expected to develop your own implementation and come up with your own solution. Yet, using generative AI is fine if it is intended to you figure the next step instead of just providing a full solution that you do not understand.**
  + This policy is dependent on goodwill. If at any time a single student is found to abuse generative AI during the course, all generative AI privileges for the class will be retracted.

**Scenario Question - 1 (Marks: 100 - Weight: 1.5%)**

**Scenario:** Privacy Concerns with a Popular Health Tracking App

**Background:** A team of data privacy analysts at a digital rights advocacy group discovers that a popular health tracking app, widely used by millions worldwide for monitoring fitness, diet, and health metrics, is collecting and storing user data in ways that may not fully comply with global data protection regulations. This data includes highly sensitive health information, personal identifiers, and location tracking details. The app's privacy policy is vague about the specifics of data usage, sharing practices, and user rights regarding their data. The company behind the app has not publicly acknowledged these potential privacy issues.

**Ethical Consideration:** The primary ethical dilemma involves deciding how to responsibly address these privacy concerns. The team must balance the importance of protecting individual privacy against potential repercussions, including legal battles and damage to their organization's reputation. They need to consider the users' right to know and control their personal data against the possibility of causing undue alarm or unfairly damaging the app company's reputation without giving them an opportunity to address the issues.

**Assignment Description:**

Students are tasked with analyzing this scenario through the lens of the Software Engineering Codes of Ethics and Professional Practice (SECEPP) by ACM. They should:

1. **Explore the SECEPP guidelines**, focusing on how these principles apply to privacy and data protection issues. Students can find the SECEPP at ACM's official website at <https://ethics.acm.org/code-of-ethics/software-engineering-code/>
2. **Identify relevant fundamental principles from SECEPP** that apply to this scenario. This includes principles related to the public interest, client and employer, product, judgment, management, profession, colleagues, and self. Basically, as you examine the preamble, list the most related principles.
3. For each of the relevant fundamental principles you listed, identify the list of clauses that speak most directly to the issue (e.g. Be impartial: Supports clauses 1.02, 1.03, 1.05, 1.07, 3.03, 3.12, 4.01, 6.05)
4. **Finally,** determine whether the considered action **aligns with** or **contradicts** the statements in the clauses.
5. **(BONUS – OPTIONAL) Apply the five-decision making process to show how you would handle the challenge in this scenario. (Marks: 50, Weight: 0.5%)**

**Scenario Question - 2 (Marks: 100 - Weight: 1.5%)**

**Scenario**: Development of a Sensitive Operating System (OS) by an IT Team

**Background**: An IT development team at a technology firm has been tasked with creating a new operating system (OS) designed for use in sensitive government operations. This OS will handle classified information, including national security data and personal details of individuals in protective programs. Due to the sensitive nature of the project, there is a critical need for strict adherence to security protocols and ethical guidelines to prevent unauthorized access, data breaches, and potential misuse of information.

**Ethical Consideration**: The primary ethical challenge involves ensuring that all members of the IT development team understand and commit to the highest standards of data protection, privacy, and security. The team must navigate the complexities of developing software that could be a target for cyberattacks, while also respecting the privacy and rights of individuals whose information may be processed by the OS. There is a need for a comprehensive Acceptable Use Policy (AUP) that outlines the ethical and secure use of the OS, both during its development and after its deployment.

**Assignment Description**:

Students are tasked with developing an Acceptable Use Policy (AUP) for the IT development team working on the sensitive OS project. This AUP should:

1. **Outline the purpose of the AUP**, explaining its importance in the context of developing an OS for sensitive government operations. The introduction should emphasize the need for security, privacy, and ethical conduct.
2. **Define the scope of the AUP**, specifying who is covered by the policy (e.g., developers, testers, administrators) and in what contexts it applies (e.g., during development, testing, deployment, maintenance).
3. **Detail acceptable and prohibited uses of the OS**, including guidelines on how to handle classified information, restrictions on unauthorized access, and rules against the modification of security features.
4. **Specify security protocols and requirements**, such as mandatory encryption standards, authentication procedures, and regular security audits. This section should also cover the secure development practices that team members must follow.
5. **Include guidelines on reporting security vulnerabilities and incidents**, outlining the steps team members should take if they discover a potential security issue or if a breach occurs.
6. **Address privacy considerations**, detailing how personal data should be protected in accordance with relevant data protection laws and regulations. This includes requirements for data minimization, consent where applicable, and the rights of individuals to access and control their data.
7. **Establish consequences for AUP violations**, ranging from disciplinary actions within the company to legal consequences, depending on the severity of the breach.

**FAQs:**

* **Q:** How evaluation for the scenario questions will be made?
  + **A:** I will follow in general the following rubric to grade your answers to the scenario questions.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Excellent (20-25 points)** | **Good (15-19 points)** | **Satisfactory (10-14 points)** | **Needs Improvement (0-9 points)** |
| **Understanding of Ethical Principles** | Demonstrates a deep understanding and accurately applies them to the scenario. Clearly identifies ethical dilemmas and the significance of each principle. | Shows solid understanding with minor inaccuracies. Identifies main ethical dilemmas with minor errors. | Demonstrates basic understanding but may miss significant aspects. Identifies some ethical dilemmas but lacks depth. | Shows limited or incorrect understanding. Struggles to identify ethical dilemmas or applies principles incorrectly. |
| **Analytical Thinking** | Comprehensive analysis considering multiple perspectives. Demonstrates critical thinking in evaluating dilemmas and solutions. | Thorough analysis with minor gaps. Shows ability to think critically about most aspects and proposes viable solutions. | Basic analysis that may overlook important factors. Some critical thinking but relies on simplistic solutions. | Analysis is superficial or missing. Lacks critical thinking and fails to engage with the scenario’s complexity. |
| **Practicality of Proposed Solutions** | Proposes realistic, well-considered solutions that are feasible and ethical. Demonstrates understanding of potential challenges. | Solutions are practical and ethical with minor oversights. Good understanding of context but may not fully address challenges. | Solutions somewhat practical and ethical but lack detail or consideration of challenges. May be simplistic or idealistic. | Solutions are impractical, unethical, or fail to address challenges. Lacks understanding of context or ethical considerations. |
| **Clarity of Communication** | Clear, concise, and well-organized communication. Free of grammatical and spelling errors. | Mostly clear and organized with minor errors. Few grammatical or spelling errors. | Understandable but may lack clarity or organization. Some grammatical or spelling errors. | Unclear, disorganized, or significantly flawed communication. Frequent grammatical or spelling errors hinder understanding. |

**Total Score: \_\_\_ / 100**

**Additional Comments: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* **Q:** I don’t know where to start.
  + **A:** Join the office hour or send me a message on MS Teams and I will do my best to address your questions.
* **Q:** I don’t know how to do X?
  + **A:** Approach me and I will try to guide how to do it. I may end up myself searching with you some of the questions.
* **Q:** You’re asking us to do a bunch of things you haven’t taught us!
  + **A:** I know. This is because some real-life cases will require extensive search to find a solution for. Let me know if you feel that this is overwhelming.
* **Q:** Can I email the professor with questions?
  + **A:** Of course, anytime!
* **Q:** If I submit it at 12:00am, you’ll still mark it, right?
  + **A:** 11:59pm and earlier is on time. Anything after 11:59pm is late. Anything late will not be probably marked. If I find you have a legitimate cause, you will be graded according to the following rules (24 hours after deadline 🡪 assignment is marked out of 75% only, 48 hours after deadline 🡪 assignment is marked out of 50% only, 74 hours after deadline 🡪 assignment is marked out of 25% only).

**Public Interest:**

1.02.

1.04.

1.05.

**Client and Employer:**

2.01.

2.03.

2.04.

2.05.

2.06

2.07.

2.08.

2.09.

**Product:**

3.01.

3.02.

3.03.

3.04.

3.05.

3.06.

3.11.

3.13.

3.14.

**Judgment:**

4.01.

4.02

4.03.

4.04.

**Management:**

5.01

5.02.

5.03.

5.05.

5.12.

**Profession:**

6.04.

6.06.

6.08.

6.09.

6.10

**Colleagues:**

7.01.

7.04.

7.05.

7.08.

**Self:**

8.01.

8.03.

8.04.