**Software Engineering Computer Science Department FALL 2024**

**Assignment 1 Due: 09/13/2024**

**Q1. (30 Points) Select Four Principles of the ACM/IEEE Code of Ethics and Suggest Cases Demonstrating Compliance**

1. **Public Interest**  
   Example: A software engineer working on public health software ensures that the product is thoroughly tested and meets all safety standards before release, prioritizing public safety.
2. **Client and Employer Interests**  
   Example: A developer meets deadlines and delivers a functional product, aligning the project outcomes with client specifications. For instance, software developed for a banking system meets security and efficiency requirements to avoid data breaches.
3. **Product**  
   Example: A company that develops an AI algorithm ensures its transparency and fairness, preventing bias in its results. For instance, a facial recognition system must not disproportionately misidentify individuals based on race.
4. **Professional Judgment**  
   Example: A software developer refuses to implement a security backdoor in a communication application, despite employer pressure, to ensure data privacy for users.

**Q2. (30 Points) Select Four Principles of the ACM/IEEE Code of Ethics and Suggest Cases Demonstrating Violations**

1. **Public Interest Violation**  
   Example: A software company releases an untested version of a medical app that results in incorrect diagnoses, compromising patient safety.
2. **Client and Employer Interest Violation**  
   Example: A developer purposefully delays delivering a project in order to bill the client for more hours, violating the client's trust and harming the employer’s reputation.
3. **Product Violation**  
   Example: A developer creates a flawed e-commerce platform with significant security holes, exposing customer data to hackers.
4. **Professional Judgment Violation**  
   Example: A software engineer agrees to add a hidden feature allowing unauthorized surveillance, sacrificing their professional integrity for financial gain.

**Q3. (20 Points) Real Industry Examples for Two ACM/IEEE Code Principles**

1. **Public Interest**: The release of a COVID-19 tracking app that follows strict data privacy laws and avoids using user data for anything other than public health measures.
2. **Client and Employer Interest**: A cybersecurity firm develops a robust firewall for a financial institution, ensuring that it meets all client expectations for safeguarding financial transactions.

**Q4. (20 Points) Project Idea for Software Engineering Ethics Application**

I propose to work on a **Healthcare Management System** that ensures compliance with ethical principles, including confidentiality, data security, and transparency. The project will include the following features:

* **Confidentiality**: Ensuring that patient data is encrypted and accessible only by authorized personnel.
* **Accountability**: Tracking and auditing all system access to maintain transparency.
* **Client Trust**: Adhering to client expectations by implementing robust security protocols to protect sensitive patient information.

The development will strictly follow the ACM/IEEE Code of Ethics to ensure public safety and client satisfaction.