

BSc (Hons) in Software Engineering

Course Code: GS3207
Lecture 02
Ethics & Professionalism

Objectives

- Introduction to ethics
- Ethical Theories
- Functional Definition of Ethics
- Codes of Ethics
- Reflections on Computer Ethics
- ACM/IEEE Ethics



Definition of Ethics

- Ethics comes from a Greek word ethe' which means character.
- It is a set of **theories of value, goodness or of right action**
- It is a set of theories
 - o **that provide general rules or principles to be used in making moral decisions.**
 - o **provides a justification for those rules.**
- Every human action is **judged to be good/bad based on these theories**

Understanding Ethical Theories

- Ethics involves evaluating human actions as good or bad, right or wrong, guided by various ethical theories developed by philosophers and societies.
- These theories form the foundation for codes of ethics and provide frameworks for reasoning and decision-making.

Understanding Ethical Theories

Common Ethical Theories:

- ❑ Consequentialism
- ❑ Deontology
- ❑ Human nature
- ❑ Relativism
- ❑ Emotivism
- ❑ Hedonism

Ethical Theories

(1) Consequentialism

- o Actions are judged good/bad **depending on the outcome/ results of such actions.**
- o Most common view, an act is right if it brings about the best future. This means that there is no alternative course of action that has better consequences
- o For instance, most people would agree that lying is wrong. But if telling a lie would help save a person's life, consequentialism says it's the right thing to do.



Ethical Theories

(1) Consequentialism

- o There are three types of Consequentialism:
 - Egoism- putting an individual's interests and happiness above everyone else's.
 - Utilitarianism – putting a group's interests and happiness above self.
 - Altruism – actions are judged good if the consequences are favorable to all except the actor



Scenario- Egoism

If Michael and Jim were both about to get promoted but only one of them got the desired raise, Michael being an egoist would want to hurt Jim, or even kill him, in order to get that raise



Scenario- Utilitarianism

Assume a hospital has four people whose lives depend upon receiving organ transplants: a heart, lungs, a kidney, and a liver. If a healthy person wanders into the hospital, his organs could be harvested to save four lives at the expense of one life.



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Scenario- Altruism

Giving lunch money to a friend with no expectation of or desire for repayment.

Not asking parents or caregivers for an allowance because their money is running low.

Pushing a pedestrian away from an oncoming vehicle.

Sharing lunch with a coworker, even though there is not much food to share.



Scenario- Consequentialism

A company is developing a new software program and is facing a tight deadline. The team discovers a critical bug that could potentially compromise user data.

They have two options: either delay the release to fix the bug, ensuring data security, or release the software as-is to meet the deadline.

What do you think?



Consequentialism- Solution

Consequentialist perspective:

The team decides to release the software despite the bug, believing that the potential negative consequences of delaying the release (such as financial loss or reputation damage) outweigh the potential harm caused by the bug.



Prisoner's Dilemma

This is a hypothetical situation described in game theory. You and a comrade, (call him X) are being held in prison. You are both asked to confess. The terms of the deal you are offered are as follows:

If you confess and X doesn't, you get six months and he gets 10 years.

If X confesses and you don't, he gets six months and you get 10 years.

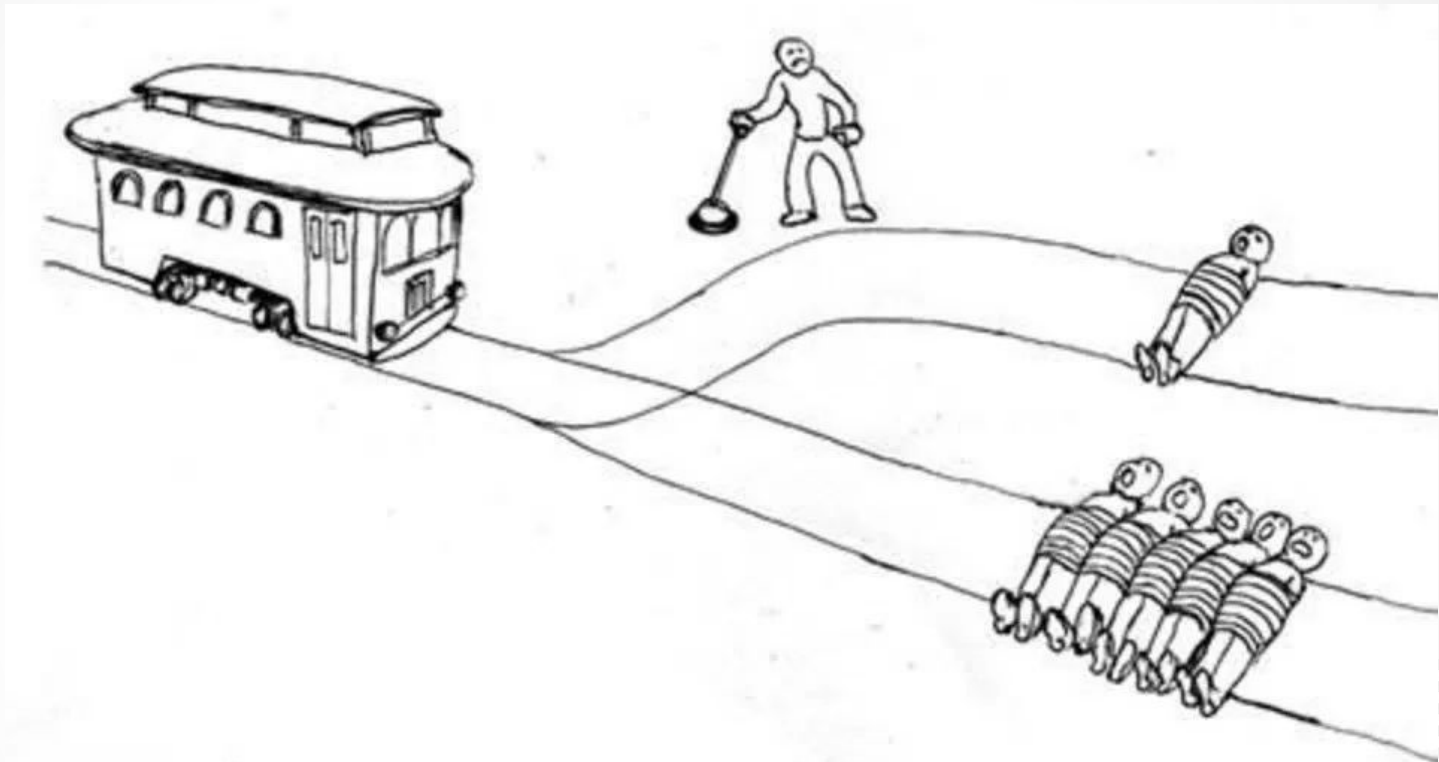
If you both confess, you both get five years.

If neither of you confesses, you both get two years.

What will you do?



Scenario - Consequentialism



You find yourself at a lever. A runaway trolley approaches five people who are tied to a set of tracks. Pulling the lever will divert the trolley to a different set of tracks, where only one person is tied down.

Do you pull the lever?

Deontology

- An action is good if it is done as a duty regardless of outcomes .
(duty theory - militaristic)
- Deontology uses rules to distinguish right from wrong.
- According to deontology, ethical actions follow universal moral laws, such as “Don’t lie. Don’t steal. Don’t cheat.”
- Deontology doesn’t require weighing the costs and benefits of a situation.
- This avoids subjectivity and uncertainty because you only have to follow set rules.
- So deontology can produce results that many people find unacceptable.



Scenario- Deontology

For example, suppose you're a software engineer and learn that a nuclear missile is about to launch that might start a war. You can hack the network and cancel the launch.

But it's against your professional code of ethics to break into any software system without permission. And, it's a form of lying and cheating. Deontology advises not to violate this rule. However, in letting the missile launch, thousands of people will die.



Scenario- Deontology

An IT professional working for a government agency is tasked with creating a surveillance system to monitor citizens' online activities without their knowledge or consent.

What do you think?



Scenario- Deontology

Deontological

perspective:

The IT professional adheres to a deontological perspective and believes in principles such as privacy, autonomy, and individual rights. They refuse to develop the surveillance system, as it violates these ethical principles, regardless of the potential benefits it may bring to national security.



Human nature

Actions are judged good based on the capabilities of the actor (individual committing an evil action is lacking in some capabilities)



Scenario: Human nature

An IT company is facing financial difficulties and needs to reduce its workforce. The management decides to lay off employees without any notice, severance packages, or support.

What do you do?



Scenario: Human nature

Human nature perspective:

Taking into account human nature, the company recognizes that individuals have a need for stability, fairness, and dignity. Instead of abrupt layoffs(firing), the company decides to communicate openly with employees, provide adequate notice, offer severance packages, and help with job placement to minimize the negative impact on the employees' lives.



Relativism

This takes right and wrong to be relative to society, culture, or the individual (hence no universal norms).

For instance, bribery is okay in some cultures , but it doesn't mean that other cultures cannot rightfully condemn it.

Moral relativism would say, *“When in Rome, do as the Romans do.”*



Scenario: Relativism

An IT consultant is asked to create a website for a controversial political organization. The organization promotes views that the consultant strongly disagrees with.

What do you do?



Scenario: Relativism

Relativistic perspective:

The IT consultant follows a relativistic approach, acknowledging that ethical judgments may vary based on cultural, personal, and contextual factors. The consultant decides to fulfill the job, considering that their personal beliefs should not interfere with providing services to clients with differing viewpoints.



Hedonism

Hedonism is the belief that pleasure, or the absence of pain.

This seeks maximum pleasure (/happiness) for all.

Hedonism ignores all other values, such as freedom or fairness, when evaluating right and wrong.

For instance, Working hard towards achieving goals within one's area of expertise can often come with great satisfaction once the desired result is achieved.



Scenario: Hedonism

An IT company is developing a mobile game that includes in-app purchases. They design the game in a way that encourages addictive behavior and manipulates players into spending more money.



Scenario: Hedonism

Hedonistic perspective:

The company adopts a hedonistic approach, prioritizing the pursuit of pleasure and avoiding pain. They intentionally design the game to maximize revenue and player engagement, disregarding potential negative consequences on players' mental well-being and financial situations.



Emotivism

Ethical statements are not expressions of objective facts or truths but rather expressions of personal emotions, attitudes, or preferences.

For instance, the statement, "murder is bad" would only be a reflection of the speaker's feelings about murder.



Scenario: Emotivism

An IT team is working on a project that involves developing software for a financial institution. During a team meeting, one team member argues against implementing strong security measures, stating that "nobody cares about security anyway."



Scenario: Emotivism

Emotivist perspective:

Emotivism suggests that ethical statements are expressions of personal emotions and attitudes. In this case, the team member's statement reflects their personal attitude rather than an objective ethical claim. Other team members might respond by discussing the importance of security and the potential risks associated with negligence.



Ethical Theories

- These theories are used as engines to help understand and justify human actions
- Theories have not changed with time and technology although the premises for human actions have changed
- Theories are used in layers of reasoning (/several steps) to justify all human actions.

Functional definition of Ethics

$$f(A,B) = \begin{cases} 1 & \text{if good/right} \\ 0 & \text{if bad/wrong} \end{cases}$$

where $a \in A = \{ \text{set of all human actions} \}$

$b \in B = \{ \text{set of all ethical theories} \}$

- The function f is an ethical decision function that assigns to every pair (a,b) a unique binary value of 1 for good or 0 for bad.

Codes of Ethics

- The main domains in which ethics is defined are governed by a particular set of rules called “**codes of ethics.**”
- Code of ethics definition in business:
 - o A written set of guidelines issued by an organization to its workers and management to help them conduct their actions in accordance with its primary values and ethical standards.



Codes of Ethics

Ethical codes forms:

- **Principles**, which may act as guidelines, references, or bases for some document.
- **Public policies**, which may include aspects of acceptable behavior, norms, and practices of a society or group.
- **Codes of conduct**, which may include ethical principles of business.
- **Legal instruments**, which enforce good conduct through courts.

Codes of Ethics vs Code of Conduct

CODE OF ETHICS	CODE OF CONDUCT
<ul style="list-style-type: none">• It is set of principles based on values and morals which tells us what is right /wrong.• It explains how decisions are made.• It focuses on values• It has a narrower scope	<ul style="list-style-type: none">• It is set of rules and regulations that explains appropriate behavior in specific situations .• Dictates how employees must act.• It focus on rules and compliance• Has a broader scope

Objectives of Codes of Ethics

- **Disciplinary:** By instilling discipline, the group or profession ensures professionalism and integrity of its members.
- **Advisory:** The codes are usually a good source of tips to members and offer advice and guidance in areas where there are fuzzy moral issues.
- **Educational:** Ethical codes are good educational tools for members of the domain, especially the new ones who have to learn the do's and don'ts of the new profession. These codes are also a good source of renewal for the older members needing to refresh and polish their possibly waning morals.
- **Inspirational:** Besides being disciplinary, advisory, and educational, the codes should also carry subliminal messages to those using them to inspire them to be “good.”
- **Publicity:** One way for professions to create a good clientele is to show that they have a strong code of ethics and, therefore, their members are committed to basic values and are responsible.

ACM code of Ethics

“As an ACM member I will...”

- Contribute to society and human well-being.
- Avoid harm to others.
- Be honest and trustworthy.
- Be fair and take action not to discriminate.
- Honor property rights including copyrights and patents.
- Give proper credit for intellectual property.
- Respect the privacy of others.
- Honor confidentiality.

Group Work

You will delve into the IEEE (Institute of Electrical and Electronics Engineers) Code of Ethics and discuss with the team members. The purpose of this assignment is to familiarize yourself with the ethical principles outlined by IEEE and effectively communicate their significance within a limited presentation time.

Computer Ethics

What Is Computer Ethics?

Computer ethics is the analysis of the nature and social impact of computer technology and the formulation and justification of policies for its ethical use. (by James H Moore)

Focus of Computer Ethics:

- Human actions rooted in or influenced by computer technology.
- Analysis of values in human actions influenced by computer technology.

Computer Influence on Human Actions:

- Widespread throughout the decision-making process preceding an action.
- Many problems faced today due to computer technology.

The Case for Computer Ethics Education

Dealing with Problems:

- Education as a possible solution.
- Moore's definition of computer ethics provides a starting point.

Key Takeaways:

- Computer ethics examines the ethical implications of computer technology.
- It seeks to understand the impact on society and formulate ethical policies.
- Education plays a crucial role in addressing the challenges posed by computer technology.

Why You Should Study Computer Ethics

Policy Vacuums and Confusion:

- Decision-making processes involving computer technology can create policy vacuums.
- Confusion arises between known policies and what is presented.

Muddles and Ethical Issues:

- Multiplicity of choices presented by computer technology can result in policy vacuums.
- Computer users, including professionals, may be unprepared to handle ethical issues.

Why You Should Study Computer Ethics

Need for Action:

- We cannot stop computer technology but need a plan to address ethical issues.
- Computer ethics education becomes crucial.

Why You Should Study Computer Ethics

Justifications for Studying Computer Ethics:

- Responsible Professional Behavior.
- Avoiding Computer Abuse and Catastrophes.
- Temporary Policy Vacuums.
- Transformation of Ethical Issues.
- Creation of Novel Ethical Issues.
- Defining a New Field.

Case 1

Ravidu's company has been hired by a client to build a security system. Because of cost overruns, client has decided to opt for a less secure system.

Ravidu believes information they will store is extremely sensitive.

With weak security:

Employees on workstations could figure out how to access this data.

Online intruders would also have access

Ravidu feels strongly that system should be much more secure.

He has tried to explain the risk.

What should Ravidu do ? Should he refuse to build the system as they request?

Case 1-Applying the Code

This case highlights issues involving privacy.

Company officials:

Have an obligation to protect privacy of their employees. Therefore they should not accept inadequate security.

Ravidu's first responsibility:

Attempt to educate company officials

If that fails, he needs to consider his contractual obligations in honoring assigned responsibilities.

We don't have Ravidu's contract, but he may have to choose between his contract and his obligation to honor privacy and security.

Assignment 1

In this individual assignment, you will delve into the Code of Ethics of Computer Society on Sri Lanka (CSSL) and prepare a concise presentation. The purpose of this assignment is to familiarize yourself with the ethical principles outlined by CSSL and effectively communicate their significance within a limited presentation time.

Deadline for submission- 2 Weeks from the given date.

Brief of the Next Lecture

Professionalism

Introduction to professions

The making of an ethical professional

The professional decision-making process

Professionalism and ethical responsibilities

ACM/IEEE Ethics and professionalism

Q & A

Thank You.