

BSc. Computer Science Year 4
BEd. Comp./Math Year 4

**SCS B403: Legal and ethical
issues in computing**



Lesson 1: ICT and ethics

29th January 2025



Overview

- Purpose of the course
- Expected Learning Outcomes
- Course Content
- Course Assessment
- Introduction
- Principles of ethics
- Ethical theories
- Ethical Decision Making Models
- Ethical impact of ICT
- Other ethical issues arising from IT



Purpose of the course

- To integrate computer technology and human values in such a way that technological advances protect those values rather than damaging to them.



Expected Learning Outcomes

- By the end of this course, the learner should be able to:
 - i. Demonstrate basic understanding of ethics, ethical theories and ethical decision-making.
 - ii. Identify ethical issues that arise in ICT development and implementation and determine how to address them.
 - iii. Analyse the social impacts of ICT on society
 - iv. Discuss the impacts of ICTs on society.



Course Content

- ICT and ethics: Principles of ethics, Introduction to ethical theories, Principles of ethical decision making, Ethical impacts of ICTs, Professional code of ethics; ICTs and legal issues: Confidentiality and privacy, Intellectual property, Copyright and software protection, Software piracy; Other social impacts of ICTs; ICTs and national development: Policy framework, Legal framework, Institutional framework, e-government planning and implementation.



Course Assessment

- One sit-in End of Semester written exam: 70%
- Continuous Assessment = 30%



Introduction



Introduction

- Consider the following scenarios:

Scenario 1: Should I copy software?

- Peter invests a small amounts on the stock market. Last year he bought and successfully employed a software package to help him with his investments. Recently, he met John who was also interested in using the software. John borrowed the package, copied it and then returns it. Both vaguely knew that the software was proprietary but did not read up the details. Did John and Peter do anything wrong, if so what?

Something to consider:

- Should software package be lent?
- When is it justifiable to break the law? Bad law, inappropriate law or if the law is easy to break?



Introduction cont ...

Scenario 2: Should a company data mine?

- Mike sells hardware and software to over 100 000 customers per year. He has 10 years' experience. As part of the billing process he keeps information on customers. He buys and uses a data mining tool to derive useful information about his client's information such as zip codes, credit card numbers, ID numbers etc. Most of this information identifies groups and not individuals. He can then use the information to market his wares more efficiently.
- Is this ethical since customers did not give him the information for this purpose?



Introduction cont ...

Note: What is data mining?

- Data mining is a process of exploration and analysis of large quantities of data, by automatic or semi-automatic means. This is done in order to discover meaningful patterns and rules. In many cases, the data was not collected primarily for the purpose of Data Mining.

Something to consider:

- Should customer be notified?
- Is there a need for establishment of a policy? What should this policy look like.
- Professional responsibility (professional Ethics): Do professionals have a responsibility to ensure computing serves humanity well?



Introduction cont ...

- Every society forms a set of rules that establishes the boundaries of generally accepted behavior, which are often expressed in statements about how people should behave, and the individual rules fit together to form the moral code by which a society lives.
- Unfortunately, the different rules often have contradictions, and people are sometimes uncertain about which rule to follow.
- Sometimes the rules do not seem to cover new situations, and an individual must determine how to apply existing rules or develop new ones.



Introduction cont ...

- The increased use of ICT and computers has greatly impacted our lives and opened up new possibilities, e.g.: using e-commerce, consumers are able to buy goods on and offline using computers, using search engines, we have a wide access to data and information etc.
- These new possibilities have been achieved due to efficiency of computers, such as: improved computer speed, storage and accessibility of data etc.



Introduction cont ...

- In the rapidly changing technological environment in which we live; ethical issues are increasingly being raised, demanding attention and efforts towards resolution and often, there are many points of view to consider when dealing with ethical issues especially in computing.



Introduction cont ...

- **Morality** refers to the social conventions about right and wrong that are so widely shared they become the basis for an established consensus.
- However, individual views of what is moral may vary by: Age, Cultural group, Ethnic background, Religion, Life experiences, Education , Gender,
- There is widespread agreement on the immorality of: Murder, Theft, Arson



Introduction cont ...

- Note that other behaviors that are accepted in one culture might be unacceptable in another and sometimes even within the same society, people can have strong disagreements over important moral issues.



Class activity

- Discuss in small groups:
 - 1) Ethical issues that are involved in your day to day activities. Are there any ethical guidelines for doing your activities?
 - 2) With the advent of new technologies every day, what ethical issues arise from the use of such technology and what might be the cause of these ethical concerns?



Ethics



What is ethics?

- **Ethics** is a set of beliefs about right and wrong behavior within a society, i.e. it defines what is good for an individual as well as for the society and establishes the nature of duties that people owe themselves and one another.
- According to Spinello (1995) the purpose of ethics is to help us behave honourably and attain those basic goods that make us more fully human.
- Ethical behavior conforms to generally accepted norms, many of which are almost universal.
- However, although nearly everyone would agree that lying and cheating are unethical, opinions about what constitutes ethical behavior can vary dramatically.



The Importance of Integrity

- A person's **moral principles** are statements of what they believe to be rules of right conduct.
- If a person acts with **integrity**, then that individual in accordance with a personal code of principles.
- One approach to acting with integrity, which is one of the cornerstones of ethical behavior is to extend to all people the same respect and consideration that you expect to receive from others.
- Unfortunately, consistency can be difficult to achieve, particularly when you are in a situation that conflicts with your moral standards.



Difference between morals, ethics, and laws

- **Morals** are one's personal beliefs about right and wrong
- **Ethics** describes standards or codes of behavior expected of an individual by a group (nation, organization, profession) to which an individual belongs.
- **Law** is a system of rules that tells us what we can and cannot do and are enforced by a set of institutions e.g., the police, courts and law-making bodies. Laws can proclaim an act as legal, although many people may consider the act immoral, e.g., abortion.
- **Legal acts** are acts that conform to the law.
- **Moral acts** conform to what an individual believes to be the right thing to do.



What is computer ethics?

- **Computer ethics** refers to the analysis of the nature and the social impact of computer technology and the corresponding formulation and justification of policies for the ethical use of such technology (Moor, 1985).



Principles of ethics



Principles of ethics

- There are four fundamental ethical principles:

1) The Principle of Respect for autonomy

- Autonomy is Latin word for "self-rule" , i.e., we have an obligation to respect the autonomy of other individuals, i.e., to respect the decisions made by other people concerning their own lives.
- This is also called the principle of human dignity which gives us a negative duty not to interfere with the decisions of competent adults, and a positive duty to empower others for whom we're responsible.



Principles of ethics cont ...

2) The Principle of Beneficence

- In this principle, we have an obligation to bring about good in all our actions, i.e., we must take positive steps to prevent harm.



Principles of ethics cont ...

3) The principle of nonmaleficence

- According to this principle, we have an obligation not to harm others: "Above all, do no harm."
- In this principle, needless injury to others ought to be avoided whenever possible.



Principles of ethics cont ...

4) The Principle of justice

- According to this principle, we have an obligation to provide others with whatever they are owed or deserve.
- In public life, we have an obligation to treat all people equally, fairly, and impartially and impose no unfair burdens.



Ethical theories



Ethical theories

1) Deontology

- This theory states that people should adhere to their obligations and duties when engaged in decision making when ethics are in play.
- Moreover, according to this theory, actions are essentially right or wrong regardless of the consequences they produce, where an ethical action might be deduced from a duty or a basic human right but it never depends on its projected outcome.
- One flaw of deontology is that there is no rationale or logical basis for deciding an individual's duties.

Ethical theories cont ...

2) Utilitarianism

- These are based on one's ability to predict the consequences of an action.
- To a utilitarian, the choice that yields the greatest benefit to the most people is the one that is ethically correct.
- There are two types of utilitarianism, namely:

a) Act utilitarianism:

- Subscribes precisely to the definition of utilitarianism. A person performs the acts that benefit the most people, regardless of personal feelings or the societal constraints such as laws.
- An act utilitarian decision maker is concerned with achieving the maximum good. Thus, one individual's rights may be infringed upon in order to benefit a greater number of people.
- Another challenge with act utilitarian decision makers occurs when an individual faces one set of variable conditions and then suddenly experiences changes in those conditions. The change in conditions may lead to a change in the original decision: being nice to someone one moment and then dislike them the next moment because the situation has changed, and liking the person is no longer beneficial to the most people.



Ethical theories cont ...

2. Utilitarianism cont ...

b) Rule utilitarianism

- Takes into account the law and is concerned with fairness.
- A rule utilitarian seeks to benefit the most people but through the fairest and most just means available.
Therefore, added benefits of rule utilitarianism are that it values justice and includes beneficence at the same time.
- In rule utilitarianism, there is the possibility of conflicting rules.

Ethical theories cont ...

3. Rights

- A **right** can be defined as entitlement to something.
- In ethical theories based on rights, the rights established by a society are protected and given the highest priority.
- There are three specific rights related to IT, namely:
 - a) The right to know
 - b) The right to privacy
 - c) The right to property



Ethical theories cont ...

3. Rights cont ...

- A major complication of this theory on a larger scale is that one must decipher what the characteristics of a right in a society.
- The society has to determine what rights it wants to uphold and give to its citizens and it must decide what the society's goals and ethical priorities are.
- Therefore, in order for the rights theory to be useful, it must be used in conjunction with another ethical theory that will consistently explain the goals of the society.
- For example in Kenya, people have the right to choose their religion because this right is upheld in the Constitution, i.e., to uphold this right to freedom of religion.



Ethical theories cont ...

4. Virtue

- The virtue ethical theory judges a person by his/her character rather than by an action that may deviate from his/her normal behavior.
- It takes the person's morals, reputation, and motivation into account when rating an unusual and irregular behavior that is considered unethical.



Ethical Decision Making Models



Introduction

- In many ways, ethics may feel like a soft subject, a conversation that can wait when compared to other more seemingly pressing issues. However, putting ethics on the backburner can spell trouble for any organization.
- Much like the process of businesses creating the company mission, vision, and principles; the topic of ethics has to enter the conversation.
- Ethics is far more than someone doing the right thing; it is many times tied to legal procedures and policies that if breached can put an organization in the midst of trouble.



Ethical Decision Making Models

- **Business ethics** is a tool an organization uses to make sure that managers, employees, and senior leadership always act responsibly in the workplace with internal and external stakeholders.
- An **ethical decision-making model** is a framework that leaders use to bring these principles to the company and ensure they are followed.
- Leaders have to develop ethical standards that employees in their company will be required to adhere to, in order to help move the conversation toward using a model to decide when someone is in violation of ethics. Many of these standards can lead to a cohesive ethical decision-making model.



Sources of ethical standards

- **Rights:** Leaders who decide to go with a rights' approach are looking to protect and respect the rights and morals of anyone who could be impacted by ethical decisions. The intent is for people to be treated fairly and with dignity and not as a means to an end.
- **Utilitarian:** This one is all about balance, and this approach tries to produce the greatest good with the least amount of harm to those involved. It deals with consequences and practitioners who use this method are trying to find the best ethical approach for the most people.
- **Fairness:** This one touches on the fact that everyone should be treated equally regardless of their position or influence in a company.



Sources of ethical standards cont ...

- **Common Good:** Leaders should strive to protect the wellbeing of those around them. This ethical standard puts a lot of emphasis on relationships, and how compassion for the fellow man should drive people to do good by others.
- **Virtue:** A virtue approach requires leaders to base ethical standards on universal virtues such as honesty, courage, compassion, tolerance, and many others. Principles that are chosen should cause people to strive to be their better selves and wonder if an inappropriate action will negatively impact their inherent desire to be kind to others.



Empirical approach to an ethical decision-making model

- The empirical approach to an ethical decision-making model is based on a set of **four principles**:
 - a) Self-interest
 - b) Rationality
 - c) Honesty
 - d) Justice



Steps of Ethical Decision Making Process

- Before a model can be utilized, leaders need to work through a set of steps to be sure they are bringing a comprehensive lens to handling ethical disputes or problems. The following steps are undertaken in the ethical decision making process:

1. Take Time to Define the Problem

- Some initial analysis has to happen for leaders to truly understand where they need to bring in ethical principles. Leaders need to decide why an ethical decision needs to be made and the outcomes that are desired for the decision.

2. Consult Resources and Seek Assistance

- Leaders then need to work on developing a strategy using the resources and people around them in order to gain clarity from other sources when creating a strategy to tackle the issue.



Steps of Ethical Decision Making Process cont ...

3. Think About the Lasting Effects

- While identifying the problem and seeking viable resources to help is the way to go, any advice for how to handle an issue should be filtered through the lens of how it will affect others,

4. Consider Regulations in Other Industries

- Regulations and standards that other companies have established can be a good starting point for developing ethical strategies. Leaders should take a look at how they handle specific issues that have come their way.



Steps of Ethical Decision Making Process cont ...

5. Decide on a Decision

- After consulting others and doing a bit of extra research, it is time for a final decision. Since the choice will likely impact many it is a good idea to create a proposal of what the issue is and how leaders plan to work with the team to solve it.
- If the problem is more personal and involves harassment of some kind, it is more appropriate to only deal with those involved and establish a plan of action to handle that particular situation.
- However, for widespread ethical issues that have become a problem in the workplace, it is a good practice to bring decisions to the team at large.



Steps of Ethical Decision Making Process cont ...

6. Implement and Evaluate

- It is easy for people to research and create solutions to a problem, but when dealing with morality and ethics, it can be challenging to put it into action finally.
- No one benefits from a plan that is not put into practice, so at some point, leaders need to facilitate the implementation of the ethical decision.
- Evaluation allows everyone to see how the approach is working out, and if there were some unintended consequences leaders did not foresee.
- Analysis of this issue can help those involved figure out if the implementation was the appropriate response.



Ethical impact of ICT



Introduction

- Initially, business success was built on the ability to move goods and services with speed and accuracy.
- However, today, information has become the fuel that propels business success.
- **Information technology** has been defined as the processing and distribution of data using computer hardware, software, telecommunications and digital electronics.
- In the workplace for instance, new kinds of jobs are being created such as data miners, web-counselors etc, but these opportunities are also endangered by problems of unemployment from computer replacing humans. A wide range of new laws, regulations, rules and practices are therefore needed if society is to manage these workplace and other changes and development brought about by ICT.



Ethical and social challenges related to ICT use

- Recognition for personal and corporate ethics associated with ICT.
- Striking a balance between ethical, economic and technological as well as political considerations.
- Intellectual property rights issue (trademarks, patents, copyright and trade secrets).
- Non violation of privacy and associated rights amidst electronic information data mining.
- The opportunity to commit crime with ICT (computer crime).
- Legal issues and limitations.
- Consequence of using ICT.
- Professional responsibilities



The concept of ethical issues

- The explosive growth of ICT and the use of its enabling technologies have had major impacts on society and thus raise serious ethical questions for individuals and organisations.
- These issues have been raised to a new and often perplexing level which has greatly affected the society in various ways.



Pressing issues raised by ICT

- The invasion of individual and corporate privacy
- Intellectual property rights
- Individual and societal rights
- Values preservation
- Accountability for the consequences arising from the use of ICT
- These issues have thrown up important challenges in the area of employment; working conditions and individuality. However, not much progress has been made in addressing these issues and challenges associated with ICT.



Types of ethical issues related to IT

- Unlike other technologies, IT has problematic implications, and some negative impacts on our society as it poses and creates some problems related to ethics.
- There are **three main types of ethical issues**:
 - 1) Personal privacy
 - 2) Access right
 - 3) Harmful actions.



Types of ethical issues related to IT cont ...

1. Personal privacy

- In terms of personal privacy, IT enables data exchange of information on a large scale from anybody, on any locations or parts of the world, at any times.
- In this situation, there is increased potential for disclosing information and violating the privacy of any individuals and groups of people due to its widespread disseminations worldwide.
- It is our challenge and responsibility to maintain the privacy and integrity of data regarding individuals. This also includes taking precautions to ensure the accuracy of data, as well as protecting it from unauthorized access or accidental disclosure to inappropriate individuals.



Types of ethical issues related to IT cont ...

2. Access right

- Due to the current popularity of international commerce on the Internet, the topic of computer security and access right has moved quickly from being a low priority for corporations and government agencies to a high priority.



Types of ethical issues related to IT cont ...

3. Harmful action

- Grimes et. al. (2009) notes that in computer ethics, harmful action means injury or negative consequences, such as undesirable loss of information, loss of property, property damage, or unwanted environmental impacts.
- Harmful actions include intentional destruction or modification of files and programs leading to serious loss of resources or unnecessary expenditure of human resources such as the time and effort required to purge systems from "computer viruses."



Other ethical issues arising from IT

1. Hacking
2. Piracy
3. Computer crime
4. Malicious code
5. Ergonomics/health issues
6. Job displacement/work pressures imposed on computer professionals
7. Digital divide
8. Computer/cyber fraud
9. Identity theft and invasion of privacy

References

- Roy S. et. al., (2023) Chapter 17 Ethical issues in information technology. Fundamentals of information technology: Textbook – English. 16.
https://digitalcommons.usf.edu/dit_tb_eng/16?utm_source=digitalcommons.usf.edu%2Fdit_tb_eng%2F16&utm_medium=PDF&utm_campaign=PDFCoverPages
- Baase, S. (2012). *A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Kizza, J.M (2013). *Ethical and Social Issues in the Information Age* (5th ed.). New York: Springer-Verlag.
- Tavani, H.T. (2010). *Ethics and Technology: Controversies, Questions, and Strategies for Ethical Computing* (3rd ed.). Hoboken, NJ: John Wiley and Sons.
- Moor J. H. (1985). What is computer ethics? *Metaphilosophy*, vol. 16, no. 4.

References cont ...

- Himma, K.E. and Tavani, H.T. (2008). *The Handbook of Information and Computer Ethics*. Hoboken, NJ: John Wiley and Sons.
- Subramanian, R. (2008). *Computer Security, Privacy and Politics: Current Issues, Challenges and Solutions*. Hershey, PA: IIR Press.
- Johnson, D.G. and Nissenbaum, H. (1995). *Computers, Ethics and Social Values*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Hongladaram, S. and Ess, C. (2006). *Information Technology Ethics: Cultural Perspectives*. IGI Global. ISBN: 1599043106.
- Yoong, P. (2006). *Managing IT Professionals in the Internet Age*. Hershey, PA: IGI Global.
- Spinello, R. (2006). *Cyberethics: Morality and Law in Cyberspace* (3rd ed.). Sudbury, Mass.: Jones and Bartlett Publishers.
- Bynum, T. W. and Rogerson, S. (2003). *Computer Ethics and Professional Responsibility*. Hoboken, NJ: John Wiley and Sons.
- Northcutt, S., Madden, C. and Welti, C. (2004). *IT Ethics Handbook: right and wrong for IT professionals*. Rockland, MA.: Syngress Publishers.

BSc. Computer Science Year 4
BEd. Comp./Math Year 4

**SCS B403: Legal and ethical
issues in computing**



Lesson 2: Professional Ethics

6th February 2025



Overview

- Introduction
- Profession
- Professional relationships
- Professional code of ethics
- Examples of Code of Ethics



Introduction



Introduction

- A professional role is special because it carries special rights and responsibilities.
- Some occupational roles are said to be strongly differentiated where by professionals are granted privileges exceptional to ordinary morality e.g., in the medical field.
- On the other hand, computer professionals do not acquire special privilege by virtue of being in the profession. However, this may not always be the case since when hired to do a job, professionals do acquire powers and hence obligations that come with them.



Profession



Characteristics of a Profession

- Members are autonomous in their work, i.e., they make decisions and not take orders from others, regulate themselves and set their own admission standards and also have standards of practice.
- There is often one unifying organisation which is recognised by the State. The organisation: controls admissions, accredits educational institution, sets up and administrates disciplinary procedures and has the power to expel members.



Characteristics of a Profession

- Code of Ethics: This sets standards of the organisation and is used to maintain its autonomy and members must adhere to this irrespective of their employment contexts.
- A professional must be seen to fulfil some useful and important social functions.
- Master of a specialized knowledge, which is usually acquired by a higher degree, where, the discipline embraces a division between researchers and practitioners.



System of Professions

- For a group to be considered professional, they must:
- Show that important social functions are at stake.
- Convince the public to trust the group e.g., using the code of ethics.
- Convince the public of their special knowledge.



Is Computing a Profession?

- The field of computing is very wide and it is applied in many domains such as medicine, engineering, teaching etc.
- To prove that computing is a professional, we need to compare it with the five characteristics of a profession (as previously described):
- Autonomy: This is not strongly differentiated i.e. there are no jobs that only professionals can do that others can not.

Is Computing a Profession?

Cont ...

- Formal organisation: There are many such organisations in many countries such as Computer Society of Kenya (CSK), CSSA (Computing Society of South Africa) and the BCS (British Computing society) etc.
- Code of ethics: There is no single code worldwide but they do exist, e.g. ICT Association of Kenya has such a code.
- Computing is a crucial part of society, and supports a variety of social functions but is not one in itself.



Is Computing a Profession?

Cont ...

- Many do acquire knowledge through higher educational institutions and there also exists a division between researchers and practitioners.



Professional relationships



Introduction

- The professional relationships concerns with how professionals deal with other people, e.g.: employer-employee, client-professional, society-professional and professional-professional.



Employer - Employee Relationships

- This often involve the conditions of employment, which can be explicit in the contracts (e.g., responsibilities and salary), sick and annual leaves, retrenchment rules etc.
- The moral foundation for this relationship:
- Is contractual
- Individuals should be treated with respects and not merely as a means.
- Neither party should take advantage of the other.
- The employee owes: Loyalty



Client – Professional Relationships

- There are different models for this kind of relationships:
- Agency: A Professional is the agent and does exactly what client tells him to do
- Paternalistic: A Professional makes all the decisions and the client abrogates all decision making.
- Fiduciary: Both parties play a role by working together, where the professional offers options while the client decides which one to take.



Society – Professional Relationship

- This relationship is usually shaped by law, however, sometimes the law can not foresee everything.
- A professional society:
- Must serve the interests of Society in general.
- Must not harm Society.



Professional – Professional Relationships

- This relationship is self-serving and members have an obligation to other members.
- Members must consider what they owe to each other to maintain standards of conduct.
- There is a need for disciplinary hearing procedure.
- Members have important obligation such as not take bribes.



Professional code of ethics



Introduction

- Many professions create and expect their members to operate under a code of ethics specific to their field.
- A **code of ethics** is a statement of collective wisdom of the members of the profession that expresses experience and consensus of many members.
- Professions design and implement these codes in the hope that they will ensure that their members professional actions follow traditional ethical guidelines.
- Ethical codes fill gaps in laws and regulation that fail to reach or simply can not be applied. It is a guide of principles designed to help professionals conduct their business ethically.



Introduction cont ...

- This code of ethics can also describe ethical values of a company or organization and reflect its mission, how employees are to approach different issues, and how these standards should be enforced.
- Most professions have ethical codes in which they must follow which often signify or state what they hold most dear.



Roles of code of ethics

- Statement of shared commitment of members of the profession.
- Statement of agreed values.
- Statement of agreed rules.
- Sensitises members to important issues.
- Mechanism for educating for those entering the profession, companies and clients.
- Serve the interests of the Public.
- Protects the Public.
- Promotes worthy practices.
- Ensures collective responsibility



IT Professional code of ethics

- Most IT Professionals, unlike other professionals, do not have a general rule making body, but they may have many professional organizations specialized to specific groups, for instance:
- Association of Information Technology Professionals (AITP)
- CyberSecurity Institute (CSI)
- Independent Computer Consultants (ICCA)
- Information Systems Security Association (ISSA) etc.



IT Professional code of ethics cont ...

- The existence of these bodies is made necessary due to the lack of respect for ethics in society in general, requiring not only the validation of this types of bodies but also their power to enforce sanctions when ethical violations are made evident.
- These bodies should promote the exertion of corporate influence toward their specific groups interests..
- Computing professionals' actions change the world and for them to act responsibly, they should reflect upon the wider impacts of their work, consistently supporting the public good.



Roles of IT Professional code of ethics cont ...

- The Code is designed to inspire and guide the ethical conduct of all computing professionals.
- The Code serves as a basis for remediation when violations occur.



Examples of Code of Ethics



ICT Association of Kenya

- The members of the ICT Association of Kenya share a dedication to ethical behavior and adopt this code to declare the Association's principles and standards of practice.
- The standards of conduct set out explain how the Code of Ethics applies to a member's professional work.
- Note that, the list of standards is not necessarily exhaustive and should not be read as definitively demarking the acceptable from the unacceptable in professional conduct in all practical situations faced by a member.



ICT Association of Kenya


cont ...

- The intention of the standards of conduct is to illustrate, and to explain in more detail, the meaning of the Code of Ethics in terms of specific behavior and the fact that a member engages in, or does not engage in, these standards does not in itself guarantee that a member is acting ethically, or unethically, as applicable.
- A member is expected to take into account the spirit of the Code of Ethics in order to resolve ambiguous or contentious issues concerning ethical conduct.

ICT Association of Kenya

cont ...

- To uphold and advance the honor, dignity and effectiveness of the profession of information communication technology and in keeping with high standards of competence and ethical conduct.
- To act with professional responsibility and integrity in all dealings with the community and clients, employers and employees.
- To place the interests of the community above those of personal or sectional interests.
- To work competently and diligently for clients and employers.
- To be honest in representation of skills, knowledge, services and products.
- To strive to enhance the quality of life of those affected by my work.
- To enhance my own professional development, and that of my colleagues and employees.
- To enhance the integrity of the information communication technology profession and the respect of its members for each other.
- To endeavor to preserve continuity of communication technology services and information flow in my care.
- To endeavor to preserve the integrity and security of the information of others.



Association for Computing Machinery (ACM)

Professional code of ethics

- A computing professional should...
- Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.
- Avoid harm.
- Be honest and trustworthy.
- Be fair and take action not to discriminate.
- Respect the work required to produce new ideas, inventions, creative works, and computing artifacts.
- Respect privacy.
- Honor confidentiality.

References

- Baase, S. (2012). *A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Kizza, J.M (2013). *Ethical and Social Issues in the Information Age* (5th ed.). New York: Springer-Verlag.
- Tavani, H.T. (2010). *Ethics and Technology: Controversies, Questions, and Strategies for Ethical Computing* (3rd ed.). Hoboken, NJ: John Wiley and Sons.
- Hongladaram, S. and Ess, C. (2006). *Information Technology Ethics: Cultural Perspectives*. IGI Global. ISBN: 1599043106.
- Yoong, P. (2006). *Managing IT Professionals in the Internet Age*. Hershey, PA: IGI Global.
- Spinello, R. (2006). *Cyberethics: Morality and Law in Cyberspace* (3rd ed.). Sudbury, Mass.: Jones and Bartlett Publishers.

References

- Bynum, T, W. and Rogerson, S. (2003). *Computer Ethics and Professional Responsibility*. Hoboken, NJ: John Wiley and Sons.
- Northcutt, S., Madden, C. and Welti, C. (2004). *IT Ethics Handbook: right and wrong for IT professionals*. Rockland, MA.: Syngress Publishers.
- Himma, K.E. and Tavani, H.T. (2008). *The Handbook of Information and Computer Ethics*. Hoboken, NJ: John Wiley and Sons.
- Subramanian, R. (2008). *Computer Security, Privacy and Politics: Current Issues, Challenges and Solutions*. Hershey, PA: IRM Press.
- Johnson, D.G. and Nissenbaum, H. (1995). *Computers, Ethics and Social Values*. Upper Saddle River, NJ: Pearson Prentice Hall
- ACM code of ethics and Professional conduct. Available from: <https://www.acm.org/code-of-ethics>. Retrieved on: 06/02/2024

BSc. Computer Science Year 4
BEd. Comp./Math Year 4

**SCS B403: Legal and ethical
issues in computing**



Lesson 3: ICT and legal issues

Date: 12th February 2025



Overview

- Privacy
- The Kenya Data Protection Act of 2019
- Intellectual property



Privacy



Introduction

Consider the following scenario:

- Joseph works for a credit card company, developing new products. He read about data mining and convinces his supervisor to buy this tool. With this tool Joseph can get information on customers' buying habits, as well as finds out postal codes correlation to loan defaults. Based on this new information a new policy can be formulated resulting in his company refusing credits to clients in 'bad' postal code areas. Doing this could reduce his company's exposure to bad loans.

Questions

- Is Joseph's recommendation wrong?
- What about the way Joseph use these information?
- Is Joseph's company wrong by implementing these policies? Discuss.



Introduction cont ...

- In the aforementioned scenario, the issue revolves around:
 - 1) Collection and use of data.
 - 2) Information obtained from data versus loss of privacy.
 - 3) The needs of the company collecting and using the information versus individuals' right of privacy.



Introduction cont ...

- Many people are getting more interested on the impacts of IT on individuals, organizations and communities. The challenge is to ensure that the benefits of IT far outweigh the real and serious threats brought about by the technological advancement.



How can governments ensure user privacy

- Can come up with legislation:
 - 1) To safeguard user privacy
 - 2) Increase education on the proper use of the Internet
 - 3) Technological control that can be implemented based on user discretion.



Personal Privacy

- Most people expect privacy in their personal space such as home as privacy is often seen as intrinsic good.
- Privacy is essential to autonomy and that autonomy is inconceivable without privacy.
- However, technological advancements has not only changed how business is conducted, but also has a huge impact on personal and community privacy, e.g.:
- Personal information can be captured at certain sites through the information you have provided when you make an on-line transaction, or by tracking the user by using cookies.
- Data may be captured and analyzed without either the user's knowledge or consent. Their surfing patterns are collected and analyzed to classify them into marketing categories.



Why Personal data protection is important?

- Data privacy is crucial to:
 - 1) Protect personal information
 - 2) Maintain individual rights
 - 3) Prevent potential harm
 - 4) It is an important aspect of building trust and maintaining positive relationships with individuals and other stakeholders



Impacts of privacy invasion

- It can lead to identity theft.
- It can lead to financial fraud and other forms of abuse.
- It can damage an individual's reputation
- It can result in a loss of trust and confidence in an organization.



How can we improve privacy?


- Appreciate that privacy is a social good.
- Need for a comprehensive approach on global exchange of data
- Control collection of personal data
- Design rules for personal data collection.



Class activity

Discuss the following scenarios:

- How would you like to portray yourself to others?
- Can this be achieved if contact is online?
- What aspect of yourself might others regard as 'detrimental'?
- Can this be hidden if contact is online?
- What online feature allows this type of privacy?



Privacy Issues in the workplace in relation to computer monitoring of employees

Pros	Cons
Help eliminate rampant waste	Challenge of restricting employees and denying them job satisfaction
Can assist in troubleshooting and fine tuning of a system	Can create room for other invasive practices
Used to provide incentives for employees and effectively rewards individuals for true merit and reward.	
Streamline job design	



How to protect your online privacy

- Do not reveal personal information inadvertently
- Turn on cookie notices in your Web browser, and/or use cookie management software
- Don't reveal personal details to strangers
- Beware sites that offer some sort of reward or prize in exchange for your contact or other information
- Do not reply to spammers
- Be conscious of Web security
- Be conscious of home computer security
- Examine privacy policies and seals
- Use encryption



The Kenya Data Protection Act of 2019



Kenya Data Protection Act of 2019

- Personal Data protection in Kenya is governed by the **Data Protection Act of 2019**.
- The Act gives effect to Article 31(c) and (d) of the Constitution of Kenya that contains the **right to privacy** which is a fundamental human right.
- It provides for the protection of personal data by requiring organizations to obtain consent from individuals before collecting, using, or disclosing their personal information.
- It is important for individuals to be mindful of their own personal data privacy and to take steps to protect their information.



Principles of Personal Data Protection in Kenya

- Personal data is:
 - a) Processed in accordance with the right to privacy of the data subject
 - b) Processed lawfully, fairly and in a transparent manner in relation to any data subject
 - c) Collected for explicit, specified and legitimate purposes and not further processed in a manner incompatible with those purposes
 - d) Adequate, relevant, limited to what is necessary in relation to the purposes for which it is processed



Principles of Personal Data Protection in Kenya cont ...

(e) Collected only where a valid explanation is provided whenever information relating to family or private affairs is required

(f) Accurate and, where necessary, kept up to date, with every reasonable step being taken to ensure that any inaccurate personal data is erased or rectified without delay

(g) Kept in a form which identifies the data subjects for no longer than is necessary for the purposes which it was collected

(h) Not transferred outside Kenya, unless there is proof of adequate data protection safeguards or consent from the data subject.



Rights of a data subject

- A data subject has a right to:
 - (a) Informed of the use to which their personal data is to be put
 - (b) Access their personal data in custody of data controller or data processor
 - (c) Object to the processing of all or part of their personal data
 - (d) Correction of false or misleading data;
 - (e) Deletion of false or misleading data about them



Intellectual property

Introduction

Consider the following scenario:

- John works for a consulting company. When he was on holiday in India, he found a Wolfram language kit that looks identical to the Wolfram suite but at a cheaper price. John knew that the seller does not honor US copyright law. Despite the documentation looking like it has been photocopied, he decided to buy it and returned home with it.

Question

- Do you think John has done anything wrong?
***** (The Wolfram Language is a proprietary, general-purpose, very high-level multi-paradigm programming language)



Types of property

1) Real property

- e.g., land

2) Personal property

- e.g., cars, bank accounts, furniture, insurance policies, jewelry etc

3) Intellectual property

- Any intangible asset that consists of human knowledge and ideas, e.g., software, novels, sound recordings, a cure for a disease, data etc.



Intellectual property

- Intellectual property is among the most important and complicated issues in computer ethics and one of the most volatile, in terms both of the speed with which the law changes and the intensity with which those changes are debated (Hull, 2000).



Infringement

- This is the invasion of the rights secured by:
 - 1) Copyrights e.g., unauthorized use
 - 2) Trade secrets e.g., Unauthorized use or colorable imitation
 - 3) Patents e.g., Unauthorized making, using or selling



Terminologies

Source Code

- Step by step solution to a problem, usually in high level programming language, created by a programmer employing one or more algorithms.

Algorithm

- Abstract method of solution

Object Code

- Actuates the setting of switches to enable the computer to perform the underlying algorithm



Types of Intellectual Property

- 1) Copyright
- 2) Trade secrecy
- 3) Patent



1) Copyright

- This is a form of ownership which excludes others, for a limited amount of time, from copying without permission.
- Copyright law protects the tangible or fixed expression of an idea, not the idea itself.
- In computing, both source and object codes are thought of as 'literary works' and are copyrightable because they are expressions of ideas.
- However, the issue which arise in computing is that, a minor change to a piece of software can lead to the creation of a new application.



Conditions to be fulfilled for a creator to claim copyright

- The proposed work is original.
- The creator has put this original idea into a concrete form, e.g., hard copy, software, or multimedia form.



Examples of items that may be copyrighted

- Software-related works
- Literary works
- Musical works
- Dramatic works
- Pantomimes and choreographic work
- Pictorial, graphic, and sculptural works
- Motion pictures and other audiovisual work
- Sound recordings
- Architectural works



Protection against infringement using copyright

- Reproduction right
- Modification right
- Distribution right
- Public-performance right
- Public-display right



2) Trade Secrecy

- Laws governing trade secrecy vary from country to country, but generally, the idea is to grant companies the right to keep certain kinds of information secret (e.g. a secret recipe), with the aim of allowing them to keep a competitive edge.
- Note that, the laws were not designed with computer technology in mind.



Difference between trademark and servicemark

- A **trademark** is a word, name, symbol, or device that is used in trade with goods to indicate the source of the goods and to distinguish them from the goods of others.
- A **servicemark** is the same as a trademark except that it identifies and distinguishes the source of a service rather than a product.



What makes a piece of information a trade secret?

- It is novel.
- Represents an economic investment to the claimant.
- Have involved some effort in development
- The claimant has made some effort to keep it secret.



How can trade secrecy laws applied to software?

- Using non disclosure clauses, where the employees sign an agreement that they will not reveal secrets learnt at work even after they have left.
- Using licensing agreements, i.e., the software is licensed out and not sold, since the source code is in effect a trade secret.



3) Patent

- The main aim of the patents is not only to ensure inventor, but to advance useful arts and science as well.
- Note that patent does not guarantee financial success as this is only achieved if the product is accepted by the market.



Benefits of patent

- Foster inventions and encourage others to learn from and build on inventions.
- Gives inventor monopoly on use of the invention and even if someone else makes the same product in a different way; they are excluded from using it.
- Grants patent owner the right to licence others to make, sell or use the invention.
- Legitimise a monopoly
- Is granted for a limited number of years, e.g., 17 in the USA
- Promotes disclosure of inventions and assures that ideas already in the public domain remain there.



Types of patents

1) Utility patents

- Granted to anyone who invents or discovers any new and useful process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof;

2) Design patents

- Granted to anyone who invents a new, original, and ornamental design for an article of manufacture

3) Plant patents

- Granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant.



Items that cannot be patented

- An abstract idea
- An algorithm
- A scientific principle.



Software and Patents

- There is concern that patents must not be granted for building blocks of science and technology, e.g., patents for software for fear of the mental process and patenting a mathematical algorithm.



Class activity

- Watch Japan's master inventor with 3, 500 patents!

<https://www.youtube.com/watch?v=AnjSjJOEfSc>



Intellectual Property Relevant to Computing

- Software
- Databases
- Digital content
- Algorithms



Software as Property

- There have been arguments against software ownership, as it is view that ownership of a program leads to ownership of the mental steps that make up the program which means that others can not use them and this might interferes with freedom of thoughts.
- However, the absence of ownership might cause bad consequences, such as lack of incentive to produce software. Nonetheless, software writers are not always in it for the money.



Class activity

Discuss:

- Whether it is right/wrong to copy proprietary software
- Impacts of social media
- Impacts of privacy



Legal issues in computing

- Technology intrusion e.g., employee monitoring, hacking
- Ownership issues e.g., proprietary rights, theft of data, software, or hardware
- Legal Issues and social responsibilities e.g., embezzlement, fraud and abuse, over-rated system capabilities and “smart” computers
- Personnel issues e.g., employee sabotage, ergonomics and human factors



References

- Hull G. (2000) An introduction to issues in computers, ethics and policy.
- Hongladaram, S. and Ess, C. (2006). Information Technology Ethics: Cultural Perspectives. IGI Global. ISBN: 1599043106.
- Yoong, P. (2006). Managing IT Professionals in the Internet Age. Hershey, PA: IGI Global.
- Spinello, R. (2006). Cyberethics: Morality and Law in Cyberspace (3rd ed.). Sudbury, Mass.: Jones and Bartlett Publishers.
- Bynum, T, W. and Rogerson, S. (2003). Computer Ethics and Professional Responsibility. Hoboken, NJ: John Wiley and Sons.
- Northcutt, S., Madden, C. and Welti, C. (2004). IT Ethics Handbook: right and wrong for IT professionals. Rockland, MA.: Syngress Publishers.



References

- Johnson, D.G. and Nissenbaum, H. (1995). Computers, Ethics and Social Values. Upper Saddle River, NJ: Pearson Prentice Hall.
- Baase, S. (2012). A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Himma, K.E. and Tavani, H.T. (2008). The Handbook of Information and Computer Ethics. Hoboken, NJ: John Wiley and Sons.
- Subramanian, R. (2008). Computer Security, Privacy and Politics: Current Issues, Challenges and Solutions. Hershey, PA: IIRM Press.
- Kizza, J.M (2013). Ethical and Social Issues in the Information Age (5th ed.). New York: Springer-Verlag.
- Tavani, H.T. (2010). Ethics and Technology: Controversies, Questions, and Strategies for Ethical Computing (3rd ed.). Hoboken, NJ: John Wiley and Sons.

BSc. Computer Science Year 4
Bed. Comp./Math Year 4

SCS B403: Legal and ethical
issues in computing

*Challenges of ICT in national
development*

Review from previous Lesson

- *Issues on Ethical Challenges of Information Technology : Security, Copyright Infringement, digital divide,*
- *ACM Professional code of ethics: Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing, avoid harm, be honest and trustworthy, be fair and take action not to discriminate, Respect the work required to produce new ideas, inventions, creative works, and computing artifacts, respect privacy, honor confidentiality*
- *ICT and national development: Kenya has witnessed significant growth in the ICT sector as demonstrated by the number of telephone lines, Internet Service Providers (ISPs), the number of Internet users, broadcasting stations, and market share of each one of them*
- *Policy, legal and regulatory framework: There is need for a comprehensive policy, legal and regulatory framework to:*
 - *Support ICT development, investment and application;*
 - *Promote competition in the industry where appropriate;*
 - *Ensure affordability and access to ICT nationally;*
 - *Address issues of privacy, e-security, ICT legislation, cyber crimes, ethical and moral conduct, copyrights, intellectual property rights and piracy;*
 - *Support research and development in ICT;*
 - *Develop an institutional framework for policy development and review.*

Review from previous Lesson

- *Policy objectives: The broad-objectives of the IT policy include:*
 - *Ensuring that IT plays a key role as an empowerment tool, addressing gaps relating to gender, youth, people with special needs, rural and urban and disadvantaged groups, and as a literacy tool for the population and potential users;*
 - *Fostering the use of IT to promote tourism and protect Kenyan social values, culture, and environment;*
 - *Using IT to achieve the objectives of alleviating poverty, improving healthcare, and general welfare of the population;*
 - *Using e-Government as a tool to improve internal efficiency and quality of public service delivery and help in the fight against corruption;*
 - *Encouraging the use of IT in schools, colleges, universities and other educational institutions in the country so as to improve the quality of teaching and learning;*
 - *Using IT to generate additional employment and promoting entrepreneurship for the new digital economy;*
 - *Encouraging and accelerating investments and growth in IT hardware, software, Internet training, IT enabled services, telecommunications and electronic commerce*
 - *Providing adequate infrastructure in the country for IT sector to flourish;*
 - *Using IT to improve security;*
 - *Using IT to promote inter alia, labour, health, social welfare, sports, culture, water and natural resources;*
 - *Facilitating the development of sectoral IT policies and strategies e.g. e-education, e-water, e-health, e-agriculture.*
- *Government's strategies to realize the policy objectives: IT infrastructure, e-commerce, government services, e-learning, IT in health services, local content*

Content

- Challenges of ICT in national development
- Principles and obligations of personal data protection

Challenges of ICT in national development

- The following are challenges of ICT in the national development:

ICT infrastructure

- The lack of adequate ICT infrastructure has hampered provision of efficient and affordable ICT services in the country. Emphasis will be placed on:
 - Provision of support infrastructure, such as, energy and roads;
 - Supporting software development;
 - Promotion of local manufacture and assembly of ICT equipment and accessories;
 - Provision of incentives for the provision of ICT infrastructure.

Challenges of ICT in national development

- The following are challenges of ICT in the national development:

E-government

- The major challenge facing Government is to provide services in an efficient and effective way.
- E-Government provides a framework for improved service delivery and enhanced communication and information provision within Government, with the citizenry and the business community.
- There will be a need to develop adequate capacity within the government to implement e-Government and realise the benefits of e-service delivery.

Challenges of ICT in national development

- The following are challenges of ICT in the national development:

Electronic commerce

- The main challenge affecting the application of e-commerce in Kenya is the inadequate policy, legal and regulatory framework.
- Therefore, there is need, for a conducive policy framework and adequate legislation to support e-commerce.

Challenges of ICT in national development

- The following are challenges of ICT in the national development:

Content development

- The main challenge is the underdevelopment of local content.
- ICT is a conveyor of information, providing opportunities for local people to interact with each other expressing their own ideas, knowledge, heritage and culture in their own languages.
- Improving local content will entail:
 - Developing content in local languages;
 - Rallying all stakeholders and development partners' support in creating local content;
 - Identifying, selecting and capturing information and knowledge available in various formats.

Challenges of ICT in national development

- The following are challenges of ICT in the national development:

Electronic security

- The challenge is for the country to establish an adequate legal framework and capacity to deal with national security, network security, cyber-crime and terrorism; and to establish mechanisms for international cooperation to combat cross-border crimes.
- An e-security structure will be developed in collaboration with the relevant institutions.

Challenges of ICT in national development

- The following are challenges of ICT in the national development:

ICT leadership

- There is need for sustained high level ICT leadership and championship at national level to provide oversight, inspiration and political goodwill.
- Effective leadership should facilitate the mobilization of resources needed to develop an ICT environment that is conducive to investments in the country.

Challenges of ICT in national development

- The following are challenges of ICT in the national development:

Engendering ICT

- Gender issues touch on all aspects of ICTs in development.
- Therefore, there's a need to:
 - Ensure the participation of women in ICT policy formulation and implementation at all levels.
 - Ensure that ICT policies at all levels are engendered and geared towards meeting specific developmental needs of women.

Challenges of ICT in national development

- The following are challenges of ICT in the national development:

Youth and ICT

- Youth are the largest population of potential ICT users, and they need to have access to affordable and appropriate ICTs.

PRINCIPLES AND OBLIGATIONS OF PERSONAL DATA PROTECTION

- These principles are adopted from the national Data Protection Act, 2019 whose aims are to:
 - Establish the Office of the Data Protection Commissioner
 - Make provision for the regulation of the processing of personal data
 - Provide for the rights of data subjects and obligations of data controllers and processors; and for connected purposes

PRINCIPLES AND OBLIGATIONS OF PERSONAL DATA PROTECTION

- Every data controller or data processor shall ensure that personal data is:
 - (a) processed in accordance with the right to privacy of the data subject;
 - (b) processed lawfully, fairly and in a transparent manner in relation to any data subject;
 - (c) collected for explicit, specified and legitimate purposes and not further processed in a manner incompatible with those purposes;

PRINCIPLES AND OBLIGATIONS OF PERSONAL DATA PROTECTION

- Every data controller or data processor shall ensure that personal data is:

- (d) adequate, relevant, limited to what is necessary in relation to the purposes for which it is processed;

- (e) collected only where a valid explanation is provided whenever information relating to family or private affairs is required;

- (f) accurate and, where necessary, kept up to date, with every reasonable step being taken to ensure that any inaccurate personal data is erased or rectified without delay;

PRINCIPLES AND OBLIGATIONS OF PERSONAL DATA PROTECTION

- Every data controller or data processor shall ensure that personal data is:
 - (g) kept in a form which identifies the data subjects for no longer than is necessary for the purposes which it was collected;
 - (h) not transferred outside Kenya, unless there is proof of adequate data protection safeguards or consent from the data subject.

Rights of a data subject

- A data subject has a right to:
 - (a) Be informed of the use to which their personal data is to be put;
 - (b) Access their personal data in custody of data controller or data processor;
 - (c) Object to the processing of all or part of their personal data;
 - (d) Correction of false or misleading data;
 - (e) Deletion of false or misleading data about them.

References

- Baase, S. (2012). *A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Kizza, J.M (2013). *Ethical and Social Issues in the Information Age* (5th ed.). New York: Springer-Verlag.
- Tavani, H.T. (2010). *Ethics and Technology: Controversies, Questions, and Strategies for Ethical Computing* (3rd ed.). Hoboken, NJ: John Wiley and Sons.
- Hongladaram, S. and Ess, C. (2006). *Information Technology Ethics: Cultural Perspectives*. IGI Global. ISBN: 1599043106.
- Yoong, P. (2006). *Managing IT Professionals in the Internet Age*. Hershey, PA: IGI Global.
- Spinello, R. (2006). *Cyberethics: Morality and Law in Cyberspace* (3rd ed.). Sudbury, Mass.: Jones and Bartlett Publishers.

References

- Bynum, T, W. and Rogerson, S. (2003). *Computer Ethics and Professional Responsibility*. Hoboken, NJ: John Wiley and Sons.
- Northcutt, S., Madden, C. and Welti, C. (2004). *IT Ethics Handbook: right and wrong for IT professionals*. Rockland, MA.: Syngress Publishers.
- Himma, K.E. and Tavani, H.T. (2008). *The Handbook of Information and Computer Ethics*. Hoboken, NJ: John Wiley and Sons.
- Subramanian, R. (2008). *Computer Security, Privacy and Politics: Current Issues, Challenges and Solutions*. Hershey, PA: IIRM Press.
- Johnson, D.G. and Nissenbaum, H. (1995). *Computers, Ethics and Social Values*. Upper Saddle River, NJ: Pearson Prentice Hall
- ACM code of ethics and Professional conduct. Available from: <https://www.acm.org/code-of-ethics>. Retrieved on: 06/02/2024