



# PROFESSIONAL ETHICS

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# Computer Ethics

- In November of 2007, the United Kingdom's tax agency reported a major security breach to the police.
- Tax information, including personal information and bank account numbers, for some 25 million British citizens—almost half the country's population—had been loaded onto two disks and sent by mail courier to an audit office.
- To the astonishment of all, the disks had gone missing.
- Worse, the information on them was unencrypted.

# Computer Ethics

- Computers raise many moral issues, such as free speech, privacy, respect for property, intellectual property rights, informed consent, and harm.
- To evaluate and deal with these issues, a new area of applied ethics called computer ethics has sprung up.

# The Internet and Free Speech

- Free speech, including hate speech, spam (unwanted commercial speech), and libel are a serious concern.
- Hate speech is not forbidden constitutionally.
- The Internet has become a powerful resource for racist and anti-Semitic groups to spread their messages.
- Eric Harris and Dylan Klebold, massacred their fellow students at Columbine High School in 1999.
- And there is no question that this most powerful medium makes it much easier for hate groups to organize and expand.

# The Internet and Free Speech

- Two types of control of hate speech have been attempted:
- Top-down control by governments, and bottom-up controls by individuals and groups in the marketplace.
- For example, Congress passed the Communications Decency Act, signed by President Clinton in 1996.
- A year later the Supreme Court declared the act unconstitutional.
- In contrast, a 2001 federal statute passed the Children's Internet Protection Act.
- In 2003 the statute was upheld as constitutional by the Supreme Court in United States.

# The Internet and Free Speech

- Parents who purchase blocking or filtering software exemplify bottom-up controls.
- If those controls are extended from homes to schools and other public settings, then certain procedures should be followed.
- Legislatures and courts continue to seek reasonable balance between protecting free speech and advancing other important values.



# Embezzlement

- Some of the most commonly discussed cases of computer abuse are instances of outright theft and fraud, of which there are many forms:
  - (1) stealing or cheating by employees at work;
  - (2) stealing by nonemployees or former employees;
  - (3) stealing from or cheating clients and consumers;
  - (4) violating contracts for computer sales or service;
  - (5) conspiring to use computer networks to engage in widespread fraud.

# Embezzlement

- Two factors make computers especially troublesome:
- Their speed and geographic coverage, which allows large numbers of people to be victimized, and
- The difficulty of tracing the underlying transactions to apprehend the thieves.



# Data And Software

- In the United States, computer hardware is protected by patent laws.
- Software can be protected by trade secret laws or by copyrights.
- Trade secret laws permit employers to require their employees not to share proprietary information.
- Trade secrets are useless once software is made publicly available as a marketed product.
- Then copyright laws offer the best protection.

# Data And Software

- Programs have several aspects:
  - An algorithm, which explicitly states the steps in solving a problem;
  - A source code, which expresses the algorithm in a general computer language (such as C,C++ , Java, Python); and
  - An object code, which translates a source code into the specific machine language of ones and zeros.
- Which of these aspects of computers are property, which can be privately owned, and which can be protected?
- Laws stipulate that copyrighted material must be “intelligible.”

# Privacy

- Computers poses moral threats to the right to privacy.
- By making more data available to more people with more ease, computers make privacy more difficult to protect.
  - Inappropriate Access
  - Hackers

# Protect your Privacy

- Just as you would in the real world, be aware of risks, fraud and false information which exists on the Internet.
- Don't trust or spread further any information about which you are in doubt. Always try to obtain reliable information.
- Protect your personal information to keep someone from using it in an unethical way.

# Ethical Standards

- Various national and international professional societies and organizations have produced code of ethics documents to give basic behavioral guidelines to computing professionals and users.
- They include:
- Association for Computing Machinery: ACM Code of Ethics and Professional Conduct
- British Computer Society: BCS Code of Conduct & Code of Good Practice
- IEEE: IEEE Code of Ethics

# Intellectual Property

- Intellectual property refers to creations of the intellect (hence, the name): inventions, literary and artistic works, symbols, names, images, and designs used in commerce are a part of it.
- Intellectual property is usually divided into two branches:
- Industrial property which broadly speaking protects inventions, and copyright, which protects literary and artistic works.

# Intellectual Property

- **Industrial Property** includes inventions (patents), trademarks, industrial designs, commercial names, designations and geographic indications (location specific brands) etc.
- **Copyright**, which includes literary and artistic works such as novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs, sculptures, and architectural designs.



# Patents

- Patent is an exclusive right given by a country to the owner of an invention to make, use, manufacture and market the invention.
- Patents are granted by a government for a novel invention for a limited period of time.
- The patent law in Pakistan is presently governed by the Patents (Amendment) Act, 2010 along with the Patent Rules, 2003.
- <https://ipo.gov.pk/patent>

# Characteristics of Patents

1. Invention must be “NEW/NOVEL”-Invention must never have been made public in anyway, anywhere before the date on which the application for a patent is filled.
2. An invention must involved an “Invention Steps”- The invention must be non-obvious to person skilled in that particular art, i.e, it must not follow plainly or logically from what is already known.

# Characteristics of Patents

- 3. Invention must be having “Industrial Application”- For the patentable , the invention has to be capable of industrial application.
- 4. Pertains to patentable subject matter. Invention must not be excluded.

# Trademark

- A trademark is a distinctive sign or indicator of some kind which is used by an individual, business organization or other legal entity to uniquely identify the source of its products and/or services to consumers, and to distinguish its products or services from those of other entities.
- A trademark is a device which can take almost any form, as long as it is capable of identifying and distinguishing specific goods or services.

# Trademark

- A trademark is typically a name, word, phrase, logo, symbol, design, image, sound or a combination of these elements. There is also a range of non-conventional trademark comprising marks which do not fall into these standard categories.



# Purpose of Trademark

- Trademarks perform two critical functions in the marketplace:
- They provide assurance that goods are of a certain quality and consistency, and
- They assist consumers in making decisions about the purchase of goods. The main purpose of trademark is to show the difference about the quality of goods and service.

# Purpose of Trademark

- For example: If a trademark such as NIKE could be counterfeited (imitating) and used by another on inferior merchandise (goods), there would be no incentive for the owners of the NIKE mark to produce high-quality shoes and to expend money establishing consumer recognition of the products offered under the NIKE marks.



# Trademark Registration

- Trade Marks Registry (TMR) is premier body of Intellectual Property Organization of Pakistan (IPO-Pakistan) working for the registration of trade and services marks under the Trademarks Ordinance, 2001.
- It is a federal government body and its jurisdiction for trade and services marks lies within the geographical boundary of Pakistan.
- [https://ipo.gov.pk/trademark\\_intro](https://ipo.gov.pk/trademark_intro)

# Trade Secret

- Trade secrets are intellectual property (IP) rights on any confidential business information which provides an enterprise a competitive edge and is unknown to others.
- Examples of Trade Secret:
  - Coca-Cola's recipe for their signature drink.
  - Google's search algorithm.
  - McDonald's Big Mac “special sauce.”

# Copyright

- Copyright is a legal concept, enacted by most governments, giving the creator of an original work exclusive rights to it, usually for a limited time.
- The intent of copyright is to advance the progress of knowledge by giving an author of a work an economic incentive to create new works.

# Copyright

- Copyright includes the following creative works:
- **Literary works** which includes Books, Magazines, Journals, Lectures, Dramas, Novels, Computer programs/Software and compilation of data etc.
- **Artistic works** like paintings, Maps, photographs, drawings, Charts, Calligraphies, Sculptures, Architectural Works, Label Designs, Logos, Monograms and other works alike.
- **Cinematographic works** which includes movies, audio-visual works, documentaries etc; and
- **Record works** which include sound recordings, musical works etc.

# Copyright Laws in Pakistan

- After independence in 1947, Pakistan adopted the British Copyright Act, 1911;
- The British Copyright Act, 1911 was replaced by the Copyright Ordinance, 1962;
- Registration started in 1967;
- The International Copyright Order, 1968;
- The Copyright Board (Procedure) Regulations 1981;
- Part of IPO-Pakistan since 2005.
- <https://ipo.gov.pk/copyrights>

# Requirements for Copyright Protection

- There are three basic elements that a work must possess in order to be protected by copyright.
- **Originality:**
- The work must be original. This does not mean the work must be novel or unique but the work must not be a copy of another work.
- The work must be the product of the author's independent skill and effort.
- Copyright protects original works of authorship, while a patent protects inventions or discoveries.

# Requirements for Copyright Protection

- **Minimal Creativity:**
- At least minimal creativity is also required. For example, A list of parts for a child's toy is probably not subject to copyright, But a sheet of instructions for assembling a toy from its parts may be subject to copyright.
- **Fixation:**
- The work must be reduced to material form. An idea itself will not receive copyright protection. The idea must be reduced to material form (whether it is written, recorded (including in musical or dance notation), filmed, painted, etc) before it is capable of copyright protection.
- The idea will only receive protection in the form in which it is expressed.



# Copyright on Internet

- What about the works made available to the public on the Internet? Are they at all protected by copyright?
- Once again, yes! the copyright protects original authorship.
- But, according to the Copyright Law, it does not protect ideas, procedures, systems, or methods of operation.
- This means that once such an online work has been made public, nothing in the copyright laws prevents others from developing another work based on similar principles, or ideas.

# Copyright on Internet

- Situations regarding the copyright infringement of software, music, movies, are widely becoming discussed, with the rise of file sharing programs such as Napster, Kazaa, and the BitTorrent (protocol).
- The ethical questions that arise from software piracy are : is it immoral or wrong to copy software, music, or movies?

# References

- Mike Martin and Ronald Schinzinger, “Introduction To Engineering Ethics”, McGraw Hill, New York, 2010
- Miscellaneous Journals and Internet Resources.