M.Sc. in Computer Science
Department of Computer Science
Faculty of Applied Sciences
University of Sri Jayewardenepura

CSC 540 2.0 Software Engineering

Presented By:
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Ethics and Professional Practice

This is a property of Department of Computer Science, Faculty of Applied Science, University of Sri Jayewardenepura.

Objectives

- To improve long term existence in computing by increasing knowledge, thinking and awareness about non-technical problems of computing professionals
- To support to act better when faced with difficult choices in non-technical problems
- To gain experience of identifying and applying appropriate ethical and professional knowledge to deal with real world situations.

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Learning Outcomes

- After completing this course and the essential reading and activities, you will be able to,
- Recognize intellectual property rights, copyrights and patents.
- Compare methods and tools of analysis to identify and evaluate ethical choices.
- Recognize professional and ethical responsibilities which include in the ACM/IEEE Professional Code of Ethics.
- Explain emerging issues related to ethics in cyberspace.

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Topic Covered

- Software Engineering Code of Ethics: ACM/IEEE standards
- Intellectual Property: Patents, Copyright, Open-source licenses
- Legal Issues: Software liability, Compliance, GDPR
- Ethical Dilemmas: Case studies and discussions

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integrity
principles
moral
value
honesty
honor
ETHICS
right
choice
fairness
conscience
responsibility

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
  - **that provide general rules or principles to be used in making moral decisions.**
  - **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.

Ethical Theories

(1) Consequentialism

- Actions are judged good/bad depending on the outcome/ results of such actions.
- 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
- 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

- 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.

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.

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.

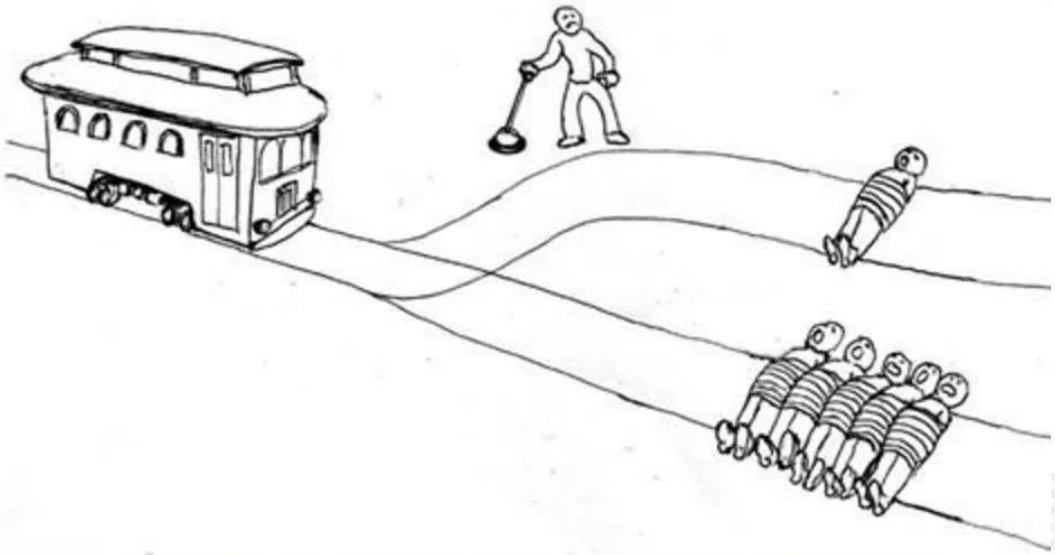
If X confesses and you don't, he gets six months and you get 10 years.

If you both confess, you both get five years.

If neither of you confesses, you both get two

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 pec 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 thi ver, in letting the missile launch, thousands of people

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, 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 risk h 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 $a \in A$ = { set of all human actions }

$b \in B$ = { 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.

Are computer professionals special?

Do Computer Professionals Have Special Responsibilities?

Software engineers and their teams have significant opportunities to:

(i) do good or cause harm

(ii) enable others to do good or cause harm

(iii) influence others to do good or cause harm.

Critical-Safety Software

- Roles and responsibilities involved in the development of safety-critical systems is a *differentiating* factor.
- A "safety-critical system" = computer system that can have a direct life-threatening impact.
  - ❑ aircraft and air traffic control systems
  - ❑ mass transportation systems
  - ❑ nuclear reactors missile systems

    and
  - ❑ medical treatment systems.
  - ❑ design of bridges and buildings;
  - ❑ election of water disposal sites;
  - ❑ development of analytical models for medical treatment.

Professional Codes of Ethics

- Many professions have established professional societies, which have adopted codes of conduct.
  - AMA (American Medical Association)
  - ABA (American Bar Association).

- Two computing professional societies
  - The Association for Computing Machinery (ACM)
  - The Institute for Electrical and Electronics Engineers – Computer Society (IEEE-CS)

ACM Code of Ethics and Conduct

- 1.1 Contribute to society and human well-being.
- 1.2 Avoid harm to others.
- 1.3 Be honest and trustworthy.
- 1.4 Be fair and take action not to discriminate.
- 1.5 Honor property rights including copyrights and patent.
- 1.6 Give proper credit for intellectual property.
- 1.7 Respect the privacy of others.
- 1.8 Honor confidentiality.

2. MORE SPECIFIC PROFESSIONAL RESPONSIBILITIES.

As an ACM computing professional I will ....

- **2.1 Strive to achieve the highest quality, effectiveness and dignity in both the process and products of professional work.**
- **2.2 Acquire and maintain professional competence.**
- **2.3 Know and respect existing laws pertaining to professional work.**
- **2.4 Accept and provide appropriate professional review.**
- **2.5 Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.**
- **2.6 Honor contracts, agreements, and assigned responsibilities.**
- **2.7 Improve public understanding of computing and its consequences.**
- **2.8 Access computing and communication resources only when authorized to do so.**

ACM

3. ORGANIZATIONAL LEADERSHIP IMPERATIVES.

- **BACKGROUND NOTE**: This section draws extensively from the draft of IFIP (International Federation for Information Processing) Code of Ethics, especially its sections on organizational ethics and international concerns. The ethical obligations of organizations tend to be neglected in most codes of professional conduct, ***perhaps because these codes are written from the perspective of the individual member. This dilemma is addressed by stating these imperatives from the perspective of the organizational leader.*** In this context "leader" is viewed as any organizational member who has leadership or educational responsibilities. These imperatives generally may apply to organizations as well as their leaders. In this context "organizations" are corporations, government agencies, and other "employers," as well as volunteer professional organizations. *(emphasis added)*
- **Progress towards a World-Wide Code of Conduct**

by John A. N. Lee and Jacques Berleur

ACM

3. ORGANIZATIONAL LEADERSHIP IMPERATIVES.

As an ACM member and an organizational leader, I will ....

- **3.1 Articulate social responsibilities of members of an organizational unit and encourage full acceptance of those responsibilities.**
- **3.2 Manage personnel and resources to design and build information systems that enhance the quality of working life.**
- **3.3 Acknowledge and support proper and authorized uses of an organization's computing and communication resources.**
- **3.4 Ensure that users and those who will be affected by a system have their needs clearly articulated during the assessment and design of requirements; later the system must be validated to meet requirements.**
- **3.5 Articulate and support policies that protect the dignity of users and others affected by a computing system.**

ACM

4. COMPLIANCE WITH THE CODE.

As an ACM member I will ....

- **4.1 Uphold and promote the principles of this Code.**

- **4.2 Treat violations of this code as inconsistent with membership in the ACM.**

IEEE Code of Ethics

1. to accept responsibility in making engineering decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment;
2. to avoid real or perceived conflicts of interest whenever possible, and to disclose them to affected parties when they do exist;
3. to be honest and realistic in stating claims or estimates based on available data;
4. to reject bribery in all its forms;
5. to improve the understanding of technology, its appropriate application, and potential consequences;

IEEE Code of Ethics (continued)

6. to maintain and improve our technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations;
7. to seek, accept, and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others;
8. to treat fairly all persons regardless of such factors as race, religion, gender, disability, age, or national origin;
9. to avoid injuring others, their property, reputation, or employment by false or malicious action;
10. to assist colleagues and co-workers in their professional development and to support them in following this code of ethics.

In Defense of Professional Codes

- we need to distinguish between:
  - codes of *ethics*
  - codes of *conduct*
  - codes of *practice*

In Defense of Professional Codes

- *Codes of ethics* are "aspirational," because they often serve as mission statements for the profession and thus can provide vision and objectives.
- *Codes of conduct* are oriented more toward the professional and the professional's attitude and behavior.
- *Codes of practice* relate to operational activities within a profession.

Purpose of Professional Codes

- Professional codes of ethics are often designed to motivate members of an association to behave in certain ways.
- Four primary functions of codes are to:
  - *inspire*
  - *guide*
  - *educate*
  - *discipline* the members.

Table 4-1: Some Strengths and Weaknesses of Professional Codes

Strengths	Weaknesses
Codes inspire the members of a profession to behave ethically.	Directives included in many codes tend to be too general and too vague.
Codes guide the members of a profession in ethical choices.	Codes are not always helpful when two or more directives conflict.
Codes educate the members of a profession about their professional obligations.	A professional code's directives are never complete or exhaustive.
Codes discipline members when they violate one or more of the code's directives.	Codes are ineffective (have no "teeth") in disciplinary matters.
Codes "sensitize" members of a profession to ethical issues and alert them to ethical aspects they otherwise might overlook.	Codes do not help us distinguish between micro-ethics issues and macro-ethics issues.
Codes inform the public about the nature and roles of the profession.	Directives in codes are sometimes inconsistent with one another.
Codes enhance the profession in the eyes of the public.	Codes can be self-serving for the profession.

Intellectual Property

Intellectual Property

What Is Intellectual Property?

- Have you ever given a CD to a friend that contained a copy of a computer game or a program?
- Have you ever recorded a televised movie to watch later in the week?
- Have you downloaded music or a movie from the Web without paying for it?
- Have you e-mailed a copy of an online newspaper or magazine article to a dozen friends?
- Have you set up a Web site about your favorite band or actor, with short videos from performances?

Q: Do you know which of these actions are legal and which are illegal, and why?

Intellectual Property

- Intellectual Property means the rights resulting from the creations of the human mind.
- IP describes things that one can claim ownership to.
- Ownership to IP may result in economic gain.
- It is a set of legal rights which result from intellectual activity in the industrial, scientific, literary, and artistic fields.
  - Example Ideas, Inventions, Technologies, Artworks, Music ,Literature, others that one can claim ownership to

Intellectual Property rights (IPR)

Legal rights grants to an individual or a group that created, designed, or invented the activities that led to the intellectual property in domains such as science and technology, business, industry, and the arts

Why IPR law?

- Encourage innovators
- Protect innovators efforts and resources.

Laws have been enacted by different countries and groups of countries to protect those rights.

International Dimensions

- The World Intellectual Property Organization (WIPO), a specialized agency in the United Nation's System.
- It is mandated to promote the protection of Intellectual Property rights in all the member states.
- WIPO currently administers 26 international conventions on Intellectual property.
- By December 2018 WIPO has 191 member States.
- WIPO is based in Geneva, Switzerland and its website is http://www.wipo.int

Sri Lanka

- The current intellectual property legal regime in Sri Lanka is governed by the Intellectual Property Act, No. 36 of 2003
- It makes provisions for a variety of intellectual property rights and their acquisition, management and enforcement.
- The National Intellectual Property Office of Sri Lanka established under this law is the only Government Department, which is responsible for the administration and control of the intellectual property system in Sri Lanka.

Sri Lanka

Regulations made under the Intellectual Property Act have been published in,

- the Gazette Extraordinary No. 1415/18 of 10th October 2005
- the Gazette Extraordinary No. 1455/10 of 17th May 2006
- the Gazette Extraordinary No. 1527/18 of 13th December 2007

Why IPR law?

- The protection of creative efforts encourages further creations.
- Protection of intellectual property creates new industries and more employment opportunities.
- Protection of intellectual property enhancing the quality and enjoyment of life.
- An efficient and equitable intellectual property system can effectively contribute to the economic, technological, social and cultural development.
- The intellectual property system attempts to achieve a balance between the rights of the creators and the interest of society.

Intellectual Property

Intellectual property rights includes:

- **Copyrights**
- **Patents**
- Trademarks
- Protection of trade secrets
- Personal identity rights.

What is Copyright?

- The rights given by law to the creators for their literary and artistic works.
- The rights take two forms;
  - economic rights
    - The economic rights include the right to reproduce, sell, rent, distribute, communicate to the public, and translate etc.
  - moral rights.
    - whereas the moral rights cover the right to claim the authorship and right to oppose distortion or mutilation of the work.

What is covered?

Original literary and artistic works:

- Writings such as books
- Computer programs
- Articles
- Oral Works Such As Speeches And Lectures
- Stage Plays
- Teleplays
- Musical Works
- Films
- Drawings
- Paintings
- Photographs

What is covered?

- Registration of copyright is not required to obtain protection.
- The Protection is accorded without any formality such as registration in Sri Lanka.
- Copyright is protected from the day that the work is published and made available to the public.

Who owned?

Economic rights:

- The author
- Employer
- The economic rights can be assigned or licensed.

The moral rights:

- always belong to the author

Duration

Duration

- Copyright in Sri Lanka is generally protected during the life of the author and 70 years after his death.

Regulation

- Intellectual Property Act have been published in, Gazette Numbers; 1415/18 of 10th October 2005

Administration

- Individually
  - The owner of copyright can administer the rights individually.
- Collectively
  - Owners form an organization which acts on their behalf in licensing the rights, collecting fees, monitoring use and infringement of rights and enforcement of rights.

International Copyright Bodies

- Berne Convention (1886),
- Universal Copyright Convention (UCC)- 1952,
- Property Organization (WIPO) - 1967
- National Intellectual Property Office (NIPO)- Sri Lanka

Berne Convention - 1886

- The Berne Convention for the Protection of Literary and Artistic Works is an international agreement that establishes copyright protection for creative works.
- It was first adopted in 1886 and has been revised several times.
- It provides protection to the works of authors and creators in member countries without the need for formal registration.
- Today, the Berne Convention has over 180 member countries and city-states.

Universal Copyright Convention (UCC) - 1952

- This is another international treaty related to copyright
- It was established in 1952.
- It allows countries that are not part of the Berne Convention to provide copyright protection to works originating in other member countries.
- It offers a way for works to be protected internationally, even if a country is not a Berne Convention signatory.

World Intellectual Property Organization (WIPO)

- WIPO is a specialized agency of the United Nations responsible for promoting and protecting intellectual property worldwide.
- It provides a global forum for cooperation, information sharing, and the development of international intellectual property standards.

National Intellectual Property Office (NIPO) - Sri Lanka

- NIPOs are government agencies responsible for managing and regulating intellectual property within a specific country.
- In the case of Sri Lanka, the NIPO is responsible for issues related to copyrights, patents, trademarks, and other forms of intellectual property protection within the country.

Regulation for Copyright

- Regulations made under the Intellectual Property Act have been published in,
- Gazette Numbers; 1415/18 of 10th October 2005

https://www.nipo.gov.lk/web/images/pdf_downloads/other/1415_18_en.pdf

Protection abroad

The works of Sri Lankan authors are protected in all the member countries of the Berne Convention for the Protection of Literary and Artistic Works and the national law of the particular country is applicable.

What is patent?

- The State grants the inventor, by means of a patent, a monopoly, i.e. the right to exclude others from making, using and selling the patented invention for a period of 20 years from the date of application.
- The owner of the patent can use, or commercialize by selling or licensing the patented technology and derive financial benefits which will contribute to the growth of the economy.
- *An Invention is a practical solution to a problem in the field of technology.
- *An invention may relate to a product or a process.

Why patent?

- The right to exclude others from making, using and selling the patented invention for a period of 20 years from the date of application.
- Patents protect inventions and ensure the inventors the benefits resulting from the inventions thereby providing incentives for inventiveness, encouraging further inventions and promoting investment.
- This will spur the economic and technological development.

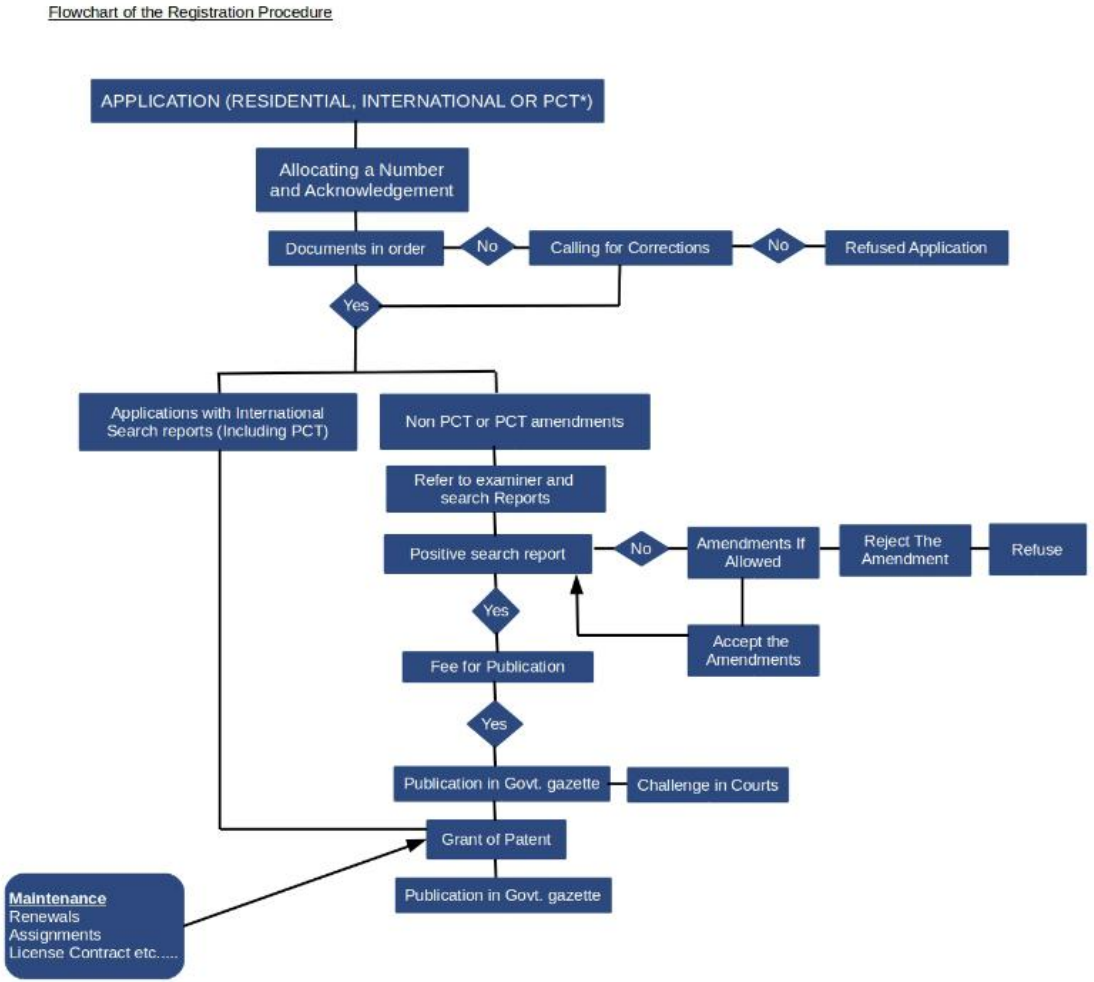
Why is patent?

- Patent applications already published disclose newly invented technologies and are available for anyone to refer to.
- They contain vital information for researchers, inventors and enterprises who want to keep up with new developments, carry out R&D activities and use new technologies.

What can be patented?

- An invention is patentable if it
  (a) is new (not known in the existing knowledge)
  (b) industrially applicable (functional and operative)
  (c)involves an inventive step (the development or improvement is not obvious to a person of average skill in the particular field.)
- A patent may be granted to an improvement of a valid patented invention.
- But when it is being used, there is a possibility of infringing the rights of the owner of the first patent.
- Therefore, it is advisable to negotiate with the holder of the first patent prior to use.

How a Patent is granted?



How to renew a patent?

- A patent is valid for 20 years from the date of filing.
- The patent must be renewed annually from the expiration of the second year from the date of grant by paying a fee.

What is not patentable?

- discoveries, scientific theories and mathematical methods;
- plants, animals micro organisms other than transgenic micro organisms and an essentially biological process for the production of plants and animals other than non biological and micro-biological processes;
- schemes, rules or methods for doing business, performing purely mental acts or playing games
- methods for treatment of human or animal body by surgery or therapy and diagnostic methods practiced on human or animal body
- inventions which are necessary to protect public order, morality including human animal or plant life, health, or to avoid serious prejudice to environment.

How to protect inventions abroad?

- A patent is valid only in the country where it is granted.
- As Sri Lanka is a member of the Paris Convention for the protection of industrial property, Sri Lankans can obtain patents for their inventions in any member country of the Paris Convention.
- All Sri Lankan nationals or residents can apply under the Patent Cooperation Treaty (PCT) administered by World Intellectual Property Organization (WIPO) in Geneva.

What is open source software?

- Open source software is software that is subject to an open source license.
- An open source licensor must give the licensee certain rights to be considered open source
- Basically, the licensee has the right to use, modify or distribute the software, and the right to access the source code.

Is it the same as free software?

- Generally yes
- Free software was the original name
- Open source began being used to allay the concerns of proprietary software companies that were thinking of utilizing or developing free software

Prominent Open Source Programs

- Apache Web Server
- Mozilla and Firefox web browsers
- Linux
- BIND
- MySQL

Prominent Open Source Vendors

- IBM
- Red Hat
- Sun Microsystems

What are the OSI and the OSD?

- The Open Source Initiative (OSI) is the de facto standards body for open source software. It determines what open source means, and approves licenses as being open source
- The Open Source Definition (OSD) is a set of criteria that a license must conform to to be considered open source. The OSI maintains the definition and changes it from time to time.

The Open Source Definition

- **1. Free Redistribution.** "The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources, The license shall not require royalty or other fee for such sale."

- **2. Source Code**. "The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well publicized means of obtaining the source code for no more than a reasonable reproduction cost, preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms s

- **3. Derived Works.** "The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software."

- **4. Integrity of the Author's Source Code.** "The license may restrict source-code from being distributed in modified form *only* if the license allows the distribution of 'patch files' with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software."

- **5. No Discrimination Against Persons or Groups.** "The license must not discriminate against any person or group of persons."
- **6. No Discrimination Against Fields of Endeavor.** "The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used in genetic research"

- **7. Distribution of License.** "The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties."

- **8. License Must Not Be Specific to a Product.** "The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution."

- **9. License Must Not Contaminate Other Software.** "The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software."

- **10. License Must Be Technology Neutral.** “No provision of the license may be predicated on any individual technology or style of interface.”

There are several types of software licenses:

- The GPL, or “copyleft” family of licenses
- The BSD/academic family of licenses
- The Mozilla/corporate type licenses
- Other open source licenses
- Traditional proprietary licenses
- Shareware/freeware
- Public domain (not a license, but a way of accessing software)

The GPL family of licenses

- Basic rights under the GPL – access to source code, right to make derivative works
- “Copyleft”
- The Library or Lesser General Public License

The BSD family of licenses

- Same basic rights as GPL
- No copyleft provisions, i.e. licensees can take software licensed under the BSD private
- Can re-release software under a different license

Mozilla/corporate licenses

- More expertly drafted
- Serve as a model for later commercial licenses
- Different provisions on relicensing
- No copyleft

Other Open Source Licenses

- There are over fifty (50) other open source licenses
- The IBM Common Public License, the MIT X license, and the Artistic License are examples
- The open source community discourages writing one's own license in order to prevent license proliferation

Shareware/Freeware

- May be free or may not
- Licensor does not provide the right to make derivative works or give access to source code

Public Domain

- Author retains no copyright rights if software is in the public domain
- Open source software authors retain copyright rights
- Open source licenses contain restrictions, just different ones than licensees may be used to
- The restrictions in open source licenses are based on copyright law and depend on it for their effectiveness.

Legal Risks

- Intellectual property infringement
- No warranties
- Copyleft
- Copyright attribution and notice requirements
- Enforcement
- Ambiguous license terms
- Consumer protection laws
- License management
- Licenses have not been construed by an American Court
- Licenses may be revocable
- Uncertain interpretation

Benefits

- Increased user base
- Longer useful life
- Increased stability
- Security
- Scalability
- Innovation
- Cost
- Adaptability

Data protection

What is Data Protection

Data protection is the process of protecting sensitive information from damage, loss, or corruption.

Why is it necessary?

- The implications of a data breach or data loss incident can bring organizations to their knees.
- Failure to protect data can cause financial losses, loss of reputation and customer trust, and legal liability,

Compliance Strategy

Organizations or specific business units may be subject to a variety of regulations or industry-specific compliance standards.

- GDPR
- Data protection laws in the Sri Lanka

European Union - General Data Protection Regulation (GDPR):

- GDPR is one of the most comprehensive privacy regulations globally.
- It grants individuals significant control over their personal data, including the right to know what data is collected, how it's used, and the right to have it deleted.
- It also imposes strict requirements on organizations handling personal data, whether they are located in the EU or processing data of EU residents.

Sri Lanka: The Personal Data Protection Act No. 9 of 2022 ('PDPA')

- This was passed in the Parliament of Sri Lanka ('the Parliament') in 2022.
- The PDPA provides for the mechanism and specific periods by and on

which the PDPA would gradually come into force.

Q & A

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