

# RMIT School of Computer Science and IT

Course Notes

COSC1147

Semester 2, 2017

Week 06



Ref: <http://ebusinesslawgroup.blogspot.com.au/>

## *Copyright, Patents and Trademark*

# Why Property Laws are Important

- ▶ Property Laws play a fundamental role in shaping a society and in preserving its order by establishing relationships between:
  - ▶ individuals,
  - ▶ different sorts of objects,
  - ▶ the state.

# Tangible Property

- ▶ When discussing *property*, we tend to think of tangible items.
- ▶ Originally, "property" referred to land.
- ▶ Property now also includes objects that one can own, such as:
  - ▶ a car,
  - ▶ clothes,
  - ▶ a stamp collection.

# Property as a “Relational” Concept

- ▶ Property should not be viewed simply in terms of items or things.
- ▶ Philosophers and legal theorists point out that property also describes *relationship between individuals in reference to things*.
  - ▶ They also note that three elements need to be considered:
    - ▶ (i) an individual ( $X$ ),
    - ▶ (ii) an object ( $Y$ ),
    - ▶ (iii)  $X$ 's relation to other individuals ( $A, B, C$ , etc.) in reference to  $Y$ .

# Property as a Form of “Control”

- ▶  $X$  (as the owner of property  $Y$ ) can control  $Y$  relative to persons  $A$ ,  $B$ ,  $C$ .
- ▶ If Harry owns a certain object (e.g. a Toshiba laptop computer), then Harry can control who has access to that object and how it is used.
  - ▶ For example, Harry has the right to exclude Sally from using the laptop computer; or he could grant her unlimited access to that computer.
- ▶ Ownership claims involving "intellectual objects" are both similar to and different from ownership of tangible objects.

# Intellectual Objects

- ▶ The expression *intellectual objects* refers to various forms of intellectual property.
- ▶ Intellectual property consists of “objects” that are not tangible.
- ▶ Non-tangible or “intellectual” objects represent creative works and inventions, i.e., the manifestations or expressions of ideas.

# Intellectual vs. Tangible Objects

- ▶ Tangible objects are *exclusionary* in nature.
  - ▶ If Harry owns a laptop computer (a physical object), then Sally cannot, and *vice versa*.
- ▶ Intellectual objects, such as software programs, are *non-exclusionary*.
  - ▶ If Sally makes a copy of a word-processing program (that resides in Harry's computer), then both Sally and Harry can possess copies of the same word-processing program.



# Intellectual vs. Tangible Objects

- ▶ The sense of *scarcity* that applies to tangible objects, which often causes competition and rivalry, need not exist for intellectual objects.
- ▶ There are practical limitations to the number of physical objects that one can own.
  - ▶ There are limitations (natural and political) to the amount of land that can be owned.
- ▶ Intellectual objects can be easily reproduced.
  - ▶ Countless copies of a software program can be produced - each at a relatively low cost.

# Ownership of Intellectual vs. Tangible Objects

- ▶ Legally, one cannot own an idea in the same sense that one can own a physical object.
- ▶ Governments do not grant ownership rights to individuals for ideas per se.
- ▶ Legal protection is given only to the tangible *expression* of an idea that is creative or original.

# Ideas vs. Expressions of Ideas

- ▶ If an idea is literary or artistic in nature, it must be expressed (or "fixed") in some tangible medium in order to be protected.
  - ▶ A "tangible medium" could be a physical book or a sheet of paper containing a musical score.
- ▶ If the idea is functional in nature, such as an invention, it must be expressed in terms of a machine or a process.
  - ▶ Authors are granted copyright protections for expressions of their literary ideas, while inventors are given patent protection for their inventions.

# Why Protect Intellectual Property?

- ▶ One answer is: Our current laws say that intellectual property should be protected.
- ▶ But why?

# Software as Intellectual Property

- ▶ Should computer programs be eligible for patent protection?
- ▶ Should they be protected by copyright law?
- ▶ Do they deserve both, or perhaps neither, kind of protection?
- ▶ Computer software consist of lines of programming code (or codified thought).
- ▶ It is not expressed or "fixed" in a tangible medium in a way that literary works are.

# Software as Intellectual Property (Continued)

- ▶ A program's *source code* consists of symbols.
- ▶ Its *object code* is made up of "executable images" that run on the computer's hardware after they have been converted from the original source code.
- ▶ Initially, it was not clear that software programs should be given copyright protection.
- ▶ Some argued that computer programs are more like inventions that can be patented.

# Software as Intellectual Property (continued)

- ▶ Software programs also resemble algorithms, which, like mathematical ideas or "mental steps," are not eligible for patent protection.
- ▶ Initially, computer programs were eligible for neither copyright nor patent protection.
- ▶ Eventually, both copyright and patent protections were given to software programs.

# Intellectual Property Protection Schemes

- ▶ Four schemes:
  - ▶ *Copyrights;*
  - ▶ *Patents;*
  - ▶ *Trademarks;*
  - ▶ *Trade secrets.*



# What Does Copyright Law Protect?

- ▶ A copyright is a legal form of protection given to a "person" or author.
- ▶ The author can be an entity such as organization or a corporation, such as Microsoft, as well as an individual.
- ▶ Copyright protection is given for the expression of an idea such as a book, poem, musical composition, photograph, dance movement, motion pictures, audiovisual works, or computer software.

# Copyright Protection

- ▶ For a work to be protected under copyright law, it must satisfy three conditions. It needs to be:
  - ▶ original;
  - ▶ non-functional;
  - ▶ fixed in a tangible medium.

# Copyright Protection

- ▶ Copyright holders have the exclusive right to:
  - ▶ make copies of the work;
  - ▶ produce derivative works, translations into other languages, movies based on the book,
  - ▶ distribute copies;
  - ▶ perform works in public (musicals, plays. etc.);
  - ▶ display works in public (e.g., art works).

# Copyright Protection in Australia

- ▶ You will find all answers here  
<http://www.copyright.org.au/find-an-answer/>
- ▶ Let us go through basis FAQ document on this website

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## Basic Information about Copyright

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### General

**An Introduction to Copyright in Australia (G010v18)**

 **210.54 KB PDF**



# The *Fair Use* Provision in Copyright Law

- ▶ The principle of *fair use* balances the exclusive controls given to copyright holders against the broader interests of society.
- ▶ Fair use means that an author or publisher may make limited use of another person's copyrighted work for purposes such as:
  - ▶ criticism,
  - ▶ comment,
  - ▶ teaching,
  - ▶ scholarship,
  - ▶ research.

# Fair Use (Continued)

- ▶ The fair-use principle has also supported the practice of "***reverse engineering***"
- ▶ Reverse engineering is very important in the computer industry in particular, and in engineering in general, because it allows someone to buy a product for the purpose of taking it apart to see how it works.

# The *First-Sale* Doctrine in Copyright Law

- ▶ The first-sale doctrine is another balancing scheme in copyright law.
  - ▶ It applies once the original work has been sold for the first time, when the original owner loses rights over the work of art.
  - ▶ Once you purchase a copy of a book, audio tape, painting, etc., you are free to give away, resell, or even destroy the copy of that work.
- ▶ It is not clear that one can even give away digital media.

# The Case Against Property Rights for Software

- ▶ Not everyone believes that property rights for software are justified.
- ▶ Some argue that while property rights for physical objects make sense, intellectual property rights for software does not.
- ▶ Richard Stallman has opposed copyright protection for software.



# GNU and the Free Software Foundation (FSF)

- ▶ FSF was formed in 1985 to support of Stallman's GNU project.
- ▶ According to FSF, four “freedoms” are essential for free software, i.e., the *freedom to*:
  1. run the program, for any purpose;
  2. study how the program works, and adapt it for your needs;
  3. redistribute copies so you can help your neighbor;
  4. improve the program, and release your improvements to the public so that the whole community benefits.

# Preserving the Intellectual Commons

- ▶ We have framed laws and policies to protect the *physical commons* (i.e., parks, natural resources, etc.).
- ▶ The *intellectual commons* (of ideas) is now threatened by strong intellectual property laws.
- ▶ Many believe that we need to act now to preserve the intellectual commons.

# The Public Domain of Ideas

- ▶ The public domain of ideas is shrinking.
- ▶ Eric Eldred's Web site of older, out of print books was forced to shut down.
- ▶ Books and information once easily available are now threatened as soon as they are converted into digital form.
- ▶ What will the status of digital books be for interlibrary-loan practices?

# Defending the Principle: *Information Wants to Be Shared*

- ▶ If we defend the principle that information wants to be shared (but not totally free), then it will be possible to frame reasonable intellectual property policies that both:
  - ▶ (a) encourage the flow of information in digital form;
  - ▶ (b) reward fairly the creators of intellectual objects, including software manufacturers.

# Be aware of Software Categories

- ▶ **Proprietary software** - does not permit changes to the source code or redistribution. Proprietary software usually requires you to pay for it.
- ▶ **Free Software** - comes with permission to redistribute and modify it. It can be free of charge (\$0), or for purchase: the word 'free' refers to its use, not its price. (See for example the GNU system, which is 'entirely free software': <http://www.gnu.org/gnu/gnu-history.html>)

*Free Software is not to be confused with Freeware, which can relate to a variety of software categories, none of which come with the full 'freedoms' associated with free software.*

- ▶ **Shareware** - comes with permission for people to redistribute copies, but requires that anyone who continues to use a copy pays a licence fee.

# Free Software vs Freeware

**Free software** is software that allows freedom of use:

- ▶ to run the program, for any purpose.
- ▶ to study how the program works, and adapt it to your needs.
- ▶ to redistribute copies
- ▶ To improve the program, and release your improvements (and modified versions in general) to the public
- ▶ Access to the source code is a precondition of software being 'free'

\*From: 'The GNU operating system - The Free Software Definition': <http://www.gnu.org/philosophy/free-sw.html>

## Freeware

- ▶ Usually used for software that allows free distribution (but not modification of source code)
- ▶ Often distributed by users' groups, or via email or other electronic media, and written by enthusiasts. E.g. Games, virus detection software, unix tools, mail. <http://www.tucows.com/>  
<http://www.freewarefiles.com/>

# Other terms commonly applied to software

- ▶ **Open Source** - source code distributed under licences to freely use, modify, and redistribute. ('Open source' is often used interchangeably with 'Free Software'). Open source and free software can both be licensed.
- ▶ **Public domain** – software not copyrighted and holding no licence (but not able to be freely modified or distributed)

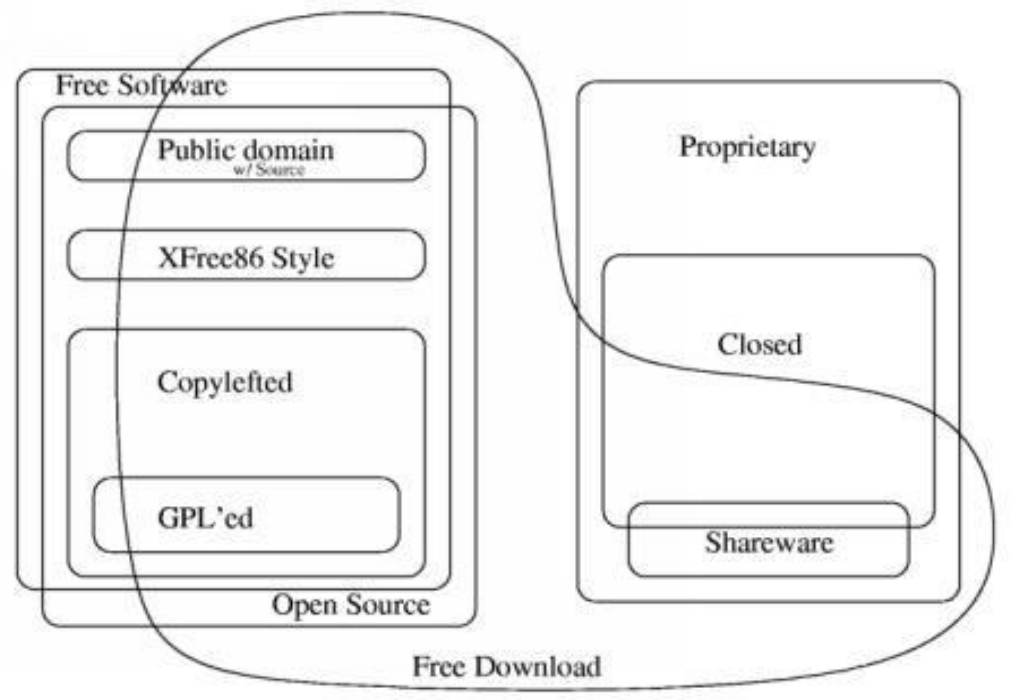
Different types of software may have conditions for their use or distribution placed upon them

- ▶ **Copyright** - a law protecting (the copyright owner) for the way software can be reproduced, published, adapted and communicated.
- ▶ **Copyleft** – (as opposed to copyright) is a licensing requirement placed on some free software, requiring all modifications and versions to remain free

# Software categories

How different software categories interrelate and overlap:

Diagram by Chao-Kuei: <http://www.gnu.org/philosophy/categories.html#freeware>



Margaret Hamilton- 2017



# What CAN you use as a student?

- Material provided by the course lecturer
- External programming libraries - unless the assignment states they are not allowed. E.g. you may use: JavaScript/Jquery plugins, C/C++ libraries, e.g. libcurl. Standard libraries (e.g. those that come with Visual Studio and the JDK) do not have to be acknowledged.
- Images, photos and sounds - as long as they are available under a 'free' license (e.g. the Creative Commons Licence)
- Works in the Public Domain - i.e. those not covered by copyright or any other patent/licence.

# Software Licensing

- ▶ A software **license** is a contract that allows one party (the end-user) to use the property of another (the programmer / developer / marketer) under certain conditions.
- ▶ A shrink-wrap license is sealed inside the s/w package. A notice warns the user that opening the package consents to the contract.
- ▶ A shareware license is usually in a doc. file; it says "using this software is consenting to the contract"

# Licensing Issues

- ▶ How can acceptance of the contract's offer be implied before all the terms are known ?
- ▶ The legal doctrine of privity of contract states a contract between two parties cannot be enforced by a 3rd party.
- ▶ If a contract is b/w programmer and end-user, how can the developer / marketer enforce it?

*Shareware licensing has further problems :*

- ▶ When shareware is downloaded / used, users do not furnish any consideration, so is there a contract? Is a user obliged to register / pay?
- ▶ If a shareware license is invalid, then any warranty disclaimer is invalid, so can the programmer be sued by a user if the s/w causes damage ?
- ▶ If no license (contract), can shareware distribution only be prevented / limited by copyright ?

# CASE STUDIES

- ▶ Google v/s Android code copyright  
<https://www.theguardian.com/technology/2016/may/26/google-wins-copyright-lawsuit-oracle-java-code>
- ▶ Photographers net thousands in compensation after spike in copyright infringement cases- a first of its kind case in AU <http://www.abc.net.au/news/2015-08-15/copyrightinfringement-nets-photographers-thousands-ofdollars/6695906>
- ▶ Apple v/s Samsung copyright wars  
[https://en.wikipedia.org/wiki/Apple\\_Inc.\\_v.\\_Samsung\\_Electronics\\_Co.](https://en.wikipedia.org/wiki/Apple_Inc._v._Samsung_Electronics_Co.)

# Textbook suggested reading

- ▶ Please read these-
  - ▶ Chapter 8: Intellectual Property ...
  - ▶ Pages 230-240, 242-245, 250-260

# Lecture Quiz 3

- ▶ Go to Blackboard for PCP COSC1147
- ▶ Find Assignments tab
- ▶ Select Quizzes and do quiz 3
  
- ▶ There are 10 questions in quiz 1 for 1 mark. The results will be rounded: If you get 5 or more right you get the full mark.
  
- ▶ You cannot go back and change an answer

# Lecture Component

## ► Copyright

# Overview of some legal tools

## Trade Secret Law

- ▶ unpublished works, source code => trade secret
- ▶ The strong legal remedies trade secret law provides when a secret is stolen, and the weaknesses of this protection are discussed later

**Nondisclosure agreement** is a contract that obligates the person signing it to keep your secret.

## Warranties

- ▶ ...protect consumers by requiring manufacturers & distributors to honour statements made about their products, (**express warranties**) and stand behind them if they don't work as they are supposed to (**implied warranties**).

## Warranty disclaimers

- ▶ protect programmers, developers, marketers... against certain legal requirements and unreasonable liability.



# Warranty Conditions

## Implied Warranty

- minimum implicit conditions of sale

The product must :

- ▶ fit intended purpose (a breach must prove seller knew product would not meet buyer's needs)
- ▶ be merchantable (ie. fit ordinary purposes) (a breach must prove product cannot satisfy the usual, general requirements)

## Express Warranty

- ▶ written agreement to cover quality, correction of errors, faults...
- ▶ seller may want **disclaimer** clauses
  - ▶ controversial, but lawful unless :
    - ▶ unconscionable (not guided by conscience)
    - ▶ unreasonable, excessive or unscrupulous

# However

- ▶ Obviously the ones mentioned on the previous slide are not sufficient
- ▶ We need more such as
  - ▶ Copyrights
  - ▶ Trademarks
  - ▶ Patent
  - ▶ Licences

Copy software illegally and you could  
get this hardware absolutely free



# IP

- ▶ **Intellectual Property (IP)** is *intangible* property owned as a result of intellectual work.
- ▶ IP can be protected from theft by law -
  - ▶ copyright,
  - ▶ patent,
  - ▶ trademark, &
  - ▶ trade secrecy.

# Copyright

- ▶ Every program is born with copyright.
- ▶ The 'creator' owns the entailed rights, but deciding who this is can be complicated (cf. employer/employee, principal/contractor, student, work-made-for-hire contractor/principal)
- ▶ A trend in s/w copyright cases extends protection beyond the literal way code is expressed to the overall *structure & logic* of the program.
- ▶ A pirate cannot circumvent your copyright by changing a few lines of your program.
- ▶ If a *significant* amount of the code, structure or logic is copied, copyright is infringed.
- ▶ ...protects the *expression* of an idea, not the idea.
- ▶ **If the same idea is expressed differently, or expressed similarly without being copied, copyright is not violated.** NB. reverse engineering need not violate copyright.

# Legal Protection for S/W

Activity	Copyright	Trade Secret	Contract	Warranty disclaimer	Trade mark
Creating Idea		•			
Flowcharting	•	•			
Hiring Programmers		•	•		
Coding	•	•	•		
Alpha Testing	•	•	•	•	
Negotiating with Developer	•	•	•		
Selling to Marketer (Retailer)	•	•	•	•	•
Selling to End-user	•		•	•	•
Documenting (Manuals)	•		•	•	•
Naming Program					•
Type of Program					
Source Code	•	•	•		
Mass-marketed Object Code	•			•	•
Limited distribution End-user	•	•	•	•	•
Operating System	•	•	•	•	•
Compiler	•	•	•	•	•

# How long does copyright last?

- ▶ In Australia, copyright law is set out in the Copyright Act 1968 (Cth). This is federal legislation, and applies throughout Australia. The Commonwealth Attorney-General administers Australian copyright law.
- ▶ Author's life + 70 years
- ▶ <http://www.copyright.org.au/>

# Copyright

A work is copyright-able if it is:

- ▶ an original work,
- ▶ fixed in a tangible medium of expression.
- ▶ Copyright cannot extend to an idea, procedure, process, system, method of operation (algorithm), concept, principle or discovery.
- ▶ It is automatic in Australia i.e. there is no registration system



# Rights

A copyright owner has exclusive right to :

- ▶ copy, display, perform/use, distribute, & alter

These rights can be separately:

- ▶ given, sold, leased, licensed, even willed

# Copyright infringement

Copyright infringement damages the owner financially and harms society, so it is not only a *civil* wrong but also a *criminal* offence. Remedy includes :

- ▶ profit recovery, monetary damages, injunction,
- ▶ court costs, and possibly attorney's fees.

Determining infringement involves considering:

- ▶ **time to market** : If a product P took time T to develop, and a competing product Q appearing soon after is claimed to infringe P's copyright, the onus will be on the defendant (Q) to show Q's development cycle time was similar to P's.
- ▶ **smoking gun** : If non-functioning code and misleading comments are placed in source code these will still be present in stolen code.

# Public Domain (PD) and Fair Use

An expression can be used by anyone without permission (ie. it is considered public property / public domain) if :

- ▶ copyright has been waived
- ▶ copyright has expired (but s/w is not that old)
- ▶ the expression lacks originality
- ▶ fair use is claimed (eg. for educational purposes)

# Australian Copyright Act

- ▶ Australian copyright law emerged from British and colonial models of the early 20th Century. It reflects international standards found in the Berne Convention for the Protection of Literary and Artistic Works, other multilateral treaties, and more recently, the U.S.-Australia Free Trade Agreement.
- ▶ The **Australian Copyright Act 1968** (as amended) is the national copyright legislation which defines the scope of copyright in Australia.
- ▶ It does not cover all forms of intellectual property, for example, trademarks, patents and circuit layouts are covered by separate legislation.
- ▶ However, designs may be covered by the Copyright Act (as sculptures or drawings) as well as by the Design Act.

# Establishing Copyright

All published copies of a program should carry the copyright notice :

© Copyright <date> <owner>All Rights Reserved

- ▶ ‘Copyright’ is a safeguard in case © misprints.
- ▶ <date> is date of first publication.
- ▶ <owner> is the owner(s) of the copyright(s)
- ▶ ‘All Rights Reserved’ is only needed in some (South American) countries which are not signatories to the Berne or UCC conventions

# What does it protect?

- ▶ textual material ; lyrics and reports;
- ▶ computer programs (a sub-category of “literary works”);
- ▶ compilations and arrangement of material may be protected separately from the individual items contained in  
the compilation;

# What does it protect?

- ▶ artistic works such as paintings, drawings, cartoons, sculpture, craft work, architectural plans, buildings, photographs, maps and plans;
- ▶ dramatic works such as choreography, screenplays, plays and mime pieces;
- ▶ musical works: that is, the music itself, separately from any lyrics or recording;

# What does it protect?

- ▶ cinematograph films: the visual images and sounds in a film, video or DVD are protected separately from any copyright in works recorded on the film or video, such as scripts and music;
- ▶ sound recordings
- ▶ *Etc.*



# What it does not protect?

- ▶ Ideas, concepts, styles, techniques and information.
- ▶ Names, titles and slogans
- ▶ People

# How do I prove I'm the copyright owner if there's no registration system?

- ▶ If there's a dispute about who created something protected by copyright, it may need to be resolved by a court. There is a presumption that a person named in a copyright notice is the copyright owner.
- ▶ However, a court would look at all the relevant evidence such as, oral evidence from the creator and from people who saw the material being created or who saw early copies.
- ▶ Other evidence may include drafts of the work. Such cases are, however, extremely rare

# Rental rights

- ▶ Owners of copyright in computer programs, sound recordings and works on sound recordings (such as music) have the exclusive right to rent out articles such as compact discs and CD-ROMs, DVDs.

# Infringement of copyright

- ▶ Using copyright material in one of the ways exclusively reserved to the copyright owner without permission.
- ▶ Using *part* of a work without permission may also infringe copyright if that *part* is an important part - the part doesn't need to be a large part. In this context, the issue is not whether you have changed or added something to the copyright material, but whether the part you have used is an important, essential or distinctive part of the original material

# Infringement of copyright

- ▶ authorise infringement (that is, endorse or sanction someone else's infringement - for example, by asking or encouraging them to infringe copyright, or by providing them with the means to do so);
- ▶ import certain types of items containing copyright material or,
- ▶ sell infringing articles or certain types of items containing copyright material which were imported without permission.

# Infringement of copyright

- ▶ Hacking
- ▶ cracking,
- ▶ “mod chipping” and
- ▶ decoding

# Activities that do not infringe copyright

- ▶ There are provisions that allow reviewers and students to use copyright material without permission provided their use is “fair” Research or Study and Fair Dealing.
- ▶ There are also special provisions for libraries, educational institutions and government bodies.

# General advice to creators and copyright owners

- ▶ Creators and owners of copyright should regard their copyright as valuable property and deal with it in a business-like way.
- ▶ It is a good idea to keep **dated copies of material** such as manuscripts, negatives, footage and recordings, as well as copies of all letters or other communications with people who have access to the work.



# Questions concerning copyright: Q1

- ▶ How many changes to something do I need to make to avoid infringing copyright?

# Q2 and Q3

- ▶ Is material from overseas protected by copyright?
- ▶ Is material from Australia protected overseas?

# Q4

- ▶ How do I prove I am the copyright owner if there's no registration?
  - ▶ keep dated drafts, plans, and outlines of the work;
  - ▶ keep dated records of research done in creating the work;
  - ▶ keep recordings of different stages of development (for example, with songs, music or choreography);
  - ▶ discuss the work with others, and/or show drafts or finished versions to others;
  - ▶ keep written records of any agreements you make concerning creation of material or ownership of copyright in material.

# Q5

- ▶ What are few actions that do not make you a copyright owner?
  - ▶ Putting a © or copyright notice on material
  - ▶ Sending a copy of the work to yourself by registered mail-this is a widely held belief among musicians. Sending copies to yourself, whether by ordinary or registered post has no legal effect. At most, doing this may prove that the material existed at a particular date: it does not create copyright, and does not make you the copyright owner

# Fair dealing

- ▶ There is no general exception for using copyright material simply because you think it is fair or because you are not making a profit. The Copyright Act allows you to use copyright material without permission if your use is a “fair dealing” for one of the following purposes:
  - ▶ research or study;
  - ▶ criticism or review;
  - ▶ parody or satire;
  - ▶ reporting news; or
  - ▶ professional advice by a lawyer, patent attorney or trade marks attorney.

# TPM

- ▶ If you are making your material available in digital form, there are an increasing number of technical things you can do to limit the ways in which it is possible for people to use it.
- ▶ Broadly, there are 2 types of TPM
  - ▶ those that restrict access to material
  - ▶ those that limit or prevent copying
- ▶ Techniques include
  - ▶ Access code, password-only access; view-only documents and low resolution document

# ERMI

- ▶ ERMI is information that has been embedded or attached to copyright-protected material and can include details about the material, the copyright owner and related data. For example, details embedded in the metadata of an MP3 file or the watermarking and other data embedded into an image or video file.
- ▶ A copyright owner can take action against someone that alters or removes such data with the aim of enabling, concealing or facilitating infringement of that material.

# References

- ▶ <http://www.copyright.org.au/find-an-answer/>



# Suggested Reading

- ▶ None from the textbook
- ▶ Please read FAQ's from <http://www.copyright.org.au/find-an-answer/>