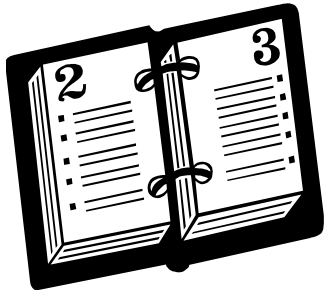
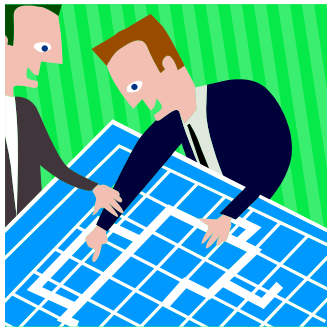
THE UNIVERSITY OF SYDNEY

INFO5990 Professional Practice in IT

Lecture 11B





Intellectual property

Copyright and patents

By the end of this lecture you will be able to:

- Understand what is meant by “intellectual property”
- Appreciate the range of mechanisms for the protection of intellectual property
- Explain basic issues relating to copyright and patents

What is Intellectual Property (IP) ?

- Represents the property of your mind or intellect.
- It can be worth money and may be sold on to other parties to utilise
- It may give you the ‘edge’ which will make your company successful
- It may be stolen and/or used without permission

Examples of Intellectual Property

- books
- original articles
- music
- artwork
- research
- inventions
- designs
- trade marks
- proprietary knowledge or trade secrets
- circuit layouts
- plant or animal breeder's 'creations'
- software

Question 1

Which of the following statements regarding intellectual property is TRUE

A. Represents the property of your mind or intellect.
B. It can be worth money and may be sold on to other parties to utilise
C. It may give you the ‘edge’ which will make your company successful
D. It may be stolen and used without permission
E. ALL of the above

Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Score / 6
A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	

Protecting other Intellectual Property

- Registration of IP is administered in Australia by *IPAustralia*
  www.ipaustralia.gov.au
  - Patents
  - Designs
  - Trade marks
  - Business names

Patents

- Legally enforceable
- Owner has exclusive right to commercially exploit the invention for the life of the patent
- Can only apply to technology , i.e. something that is a product, a composition or a process.
  - Must be novel, i.e. different from anything that has gone before.
  - Must be useful, i.e. have the potential for commercial return
  - Must be inventive, i.e. the result of some ingenuity on your part, not just a solution to a problem that would have been obvious to anyone.

Inventive (“non-obvious”)

- To decide whether it is “non-obvious” you must consider first:
  - the scope and content of the prior art
  - the level of ordinary skill in the art
  - the differences between the claimed invention and the “prior art”.
- In addition you must also consider:
  - commercial success
  - long-felt but unsolved needs
  - failure of others.

The patenting process

- Involves full disclosure - a full description of how the invention works
- The patent office then examines the application to ensure it fulfils the three criteria and does a patent search
- Members of the public can object if they hold patent for something similar
- Process can take more than a year
- Patent lasts for 20 years

Disclosure

- A detailed description of at least one way of carrying out the invention, addressed to a person skilled in the art
- Must disclose any feature essential for carrying out the invention and in sufficient detail to render it apparent how to put the invention into practice.
- A single example may suffice, but may need several to cover all possibilities

Disclosure: beware!

- The invention should not be made public until it has legal protection.
- If you demonstrate, sell or discuss your invention in public or publish about it before you file, you cannot get a patent.

The Cost

- The cost of an Australian standard patent including attorney fees is usually between $5000-$25000.

- Annual maintenance fees are payable from its fifth year. Over a 20-year term these will add a further to the cost.

Innovation patent
(called ‘petty patent’ prior to 2001)

- 'no frills' patent, but still requires examination and search by the patents office to be effective
- takes between one and three months.
- lasts for only 8 years.
- suited to inventions with a short commercial life or that are under development

What cannot be patented

- ideas, concepts or facts
- discoveries, scientific theories and mathematical methods;
- schemes, rules and methods for performing mental acts, playing games or doing business,
- programs for computers
- presentations of information
- aesthetic creations, literary, artistic, dramatic or musical works - these are protected by copyright;
- something that occurs naturally, natural events

Question 2

For a patent to be granted the invention must

A. Relate to technology of some sort
B. Must be novel, that is different from anything before
C. Must be “non-obvious”, that is include an inventive step
D. Must have the potential for commercial gain
E. Must satisfy ALL of the above

Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Score / 6
A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	

Some classic cases

Some Famous Australian Patents

- Refrigeration, 1868
- 'Sunshine' Stripper Harvester 1885
- Hills Hoist 1945
- 'Victa' Lawn Mower 1952
- Wine cask 1973
- Dynamic Lifter 1970
- Cochlear Bionic Ear Implant 1978*

*10 Oct, 2012
Medical firm *Cochlear* have won $100 million contract to supply 2,283 implants to Chinese Government over next 5 years

http://www.ipaustralia.gov.au/patents/ex_index.shtml

What if you don’t patent?

- Frank Bannigan, of Kambrook appliances found out the hard way.
- The electrical power-board, invented in 1972, was not patented and many other manufacturers made similar devices.
  - Bannigan says, 'I've probably lost millions of dollars in royalties alone. Whenever I go into a department store and see the wide range of power-boards on offer, it always comes back to haunt me.'

Success rate of patent litigation

- In Australia between 1997 and 2003:
  - Only 15 claims out of 29 (55%) upheld
  - Similarly in the US courts the success rate was between 54 and 67 per cent
- The most common grounds for invalidity of claim were
  - lack of novelty,
  - obviousness, or
  - no fair basis for comparison

Patent litigation (Australia, 1997-2003)

Classification	*Number*
Electrical devices	1
Information technology	1
Analysis, measurement, control	1
Pharmaceuticals, cosmetics	3
Biotechnology	1
Basic chemical processing, petrol	5
Mechanical elements	8
Handling, printing	3
Agriculture/food machinery	3
Space technology, weapons	1
Consumer goods & equipment	1
Civil engineering, building, mining	5
Total	33

Question 3

If you hold a patent for a new machine for spreading fertilizer on lawn tennis courts and someone challenges you in court

A. You are likely to win the case if it is a novel idea
B. You have about a 50% chance of winning
C. You have to go on and register the patent again
D. The person has to show that their idea is better
E. The judge will decide who has rights to the patent

Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Score / 6
A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	

Patenting Software

- A claim containing a mathematical formula may be patentable
  - "if it implements or applies the formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect"
- You can patent computer software, if it can be shown to have practical use that results in commercial returns
- in practice most software developers prefer to rely on copyright to protect their programs

First software patent

- On 21 May 1962, a British patent application entitled "A Computer Arranged for the Automatic Solution of Linear Programming Problems" was filed.
- The invention was concerned with efficient memory management for the simplex algorithm, and could be implemented by purely software means.
- The patent was granted on August 17, 1966 and seems to be one of the first software patents.

When is software patentable?

- If it provides a new and non-obvious technical solution to a technical problem:
  - a way of making a computer run faster or more efficiently in a novel and inventive way.
  - a way of making the computer easier to use
- Since 1978, some 30,000 patents for computer-implemented inventions have already been issued by the European Patent Office

VisiCalc 1979

Dan Bricklin and Bob Frankston

- “In 1979 patents for software inventions were infrequently granted so we chose not to risk $10,000.”
  - computer programs were deemed mere mathematical algorithms
  - mathematical algorithms, as ‘laws of nature’, were not patentable
  - 10% chance of success, even proposing it as ‘a machine’ (not software)
- 1981 US Supreme Court decision but too late to patent the spreadsheet

The Smart card (2001)

- 1998 State Street Bank ruling that "business methods are potentially patent-eligible".
- 'Street test' states that '*anything which produces a useful, concrete and tangible result is patentable*'.
- A credit smart card containing a computer chip to record various loyalty and reward points offered by different traders was therefore patentable as a business method …
- … because the scheme included a means for putting the scheme into effect.

The Bilski case (2010)

- In 1997, Bernard Bilski had filed a patent application in relation to hedging risks in commodity trading.
- The United States Patent & Trademark Office rejected the application.
- Bilski appealed in November 2009.
- 28 June 2010, the US Supreme Court handed down decision: …
- “**not patentable if it falls into either categories of (i) laws of nature (ii) physical phenomena or (iii) abstract ideas”.**

And so it goes …

- **Computer-implemented inventions which only solve a business problem using a computer, rather than a technical problem, are considered unpatentable as lacking an 'inventive step'.**
- In Australia, pure or abstract methods of doing business are not considered to be patentable, but if the method is implemented using a computer, it can avoid the exclusion applying to business methods.

Some Software Patents (1)

- Patent #4,965,765: covers “the use of different colors to distinguish the nesting level of nested expressions” . It is held by IBM.

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=if(B1<5,(c1<10,(d1<15,(e1<20,(f1<25,(g1<30)))))))
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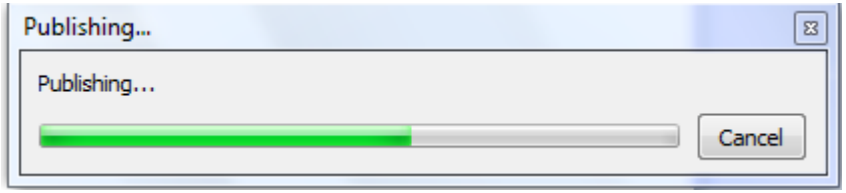
- Patent #5,249,290: covers assignment of client requests to the server process having the least load.
- Patent #4,941,125: covers using a digital camera in conjunction with character recognition software to store and index documents on a CD ROM.

Some Software Patents (2)

- Patent # 7,415,666, granted August 19, 2008.
  Title: “Method and system for navigating paginated content in page-based increments”
  (= “Page Up, Page Down” navigation keys)
- Patent # 6,727,830, granted April 27, 2004 to Microsoft.
  Title: “Time based hardware button for application launch” (=“Double click”)
- Euro Patent #394160: covers the progress bar



Copyright

Copyright: The Berne Convention

- Signed in Berne, Switzerland, in 1886.
- In 1997 delegates from160 countries discussed digital media, films, music, software, and television and distribution via the Internet
- Automatic copyright protection is the central feature of the Berne accord.
- 121 countries including USA are signatories

Articles of the Berne Convention

- **Article 1**: Protected Works
  - *“Literary and artistic works”;*
  - *Derivative works;*
  - Official texts;
  - Collections;
  - Works of applied art and industrial designs;
  - News

Question 4

Which of the following statements regarding copyright is TRUE

A. Copyright in Australia is automatic and free
B. The Berne convention excludes Australia from its conditions
C. Copyright does not apply to articles published in a learned journal
D. If you only base your work loosely on other work you can avoid infringing copyright
E. ALL of the above

Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Score / 6
A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	

10 Copyright myths

Art Majlessi, 2004,
http://www.legalmetro.com/library/copyright-law-explained.html

1. "If it doesn't have a copyright notice, it's not copyrighted."
   - False. According to the Berne copyright convention, anything created privately after April 1, 1989 is copyright.
   - It does not need the © symbol or anything else.
2. "If I don't charge for it, it's not a violation."
   - False, but it may matter if the court decides to award monetary damages.
3. "If it's posted to the internet it's in the public domain."
   - False. Copyright law still applies and the copyright still belongs to the author.

10 Copyright myths (2)

4. "My posting was just fair use!"
   - False. “Fair use,” applies only to parody, commentary, news reporting, and some educational purposes.
5. "If you don't defend your copyright you lose it."
   - False. This regulation applies to business names only.
6. "If I make up my own stories, but base them on another work, my new work belongs to me."
   - False. There is a specific section in copyright law that refers to “derivative works.”
   - If you use the same settings and characters in a new story, those characters still belong to the original author, so you need to seek permission.
   - Parodies are the only exception in this case.

10 Copyright myths (3)

7. "They can't get me; defendants in court have powerful rights!"
   - Copyright violations don't end up in court unless the copyright holder sues the offender.
   - But, it is easier to get a judgment in a civil court because the “beyond proof of a reasonable doubt” requirement doesn’t apply to civil suits.
8. "Copyright violation is not crime"
   - The copyright owner can sue.
   - In the US, copyright infringements valued at over $25,000 are classed as a felony, so you can go to jail for it.

10 Copyright myths (4)

9. "It doesn't hurt anybody -- in fact it's free advertising."
   - False. The author has to want that publicity to make it legitimate.
   - Permission must always be obtained.
10. “Someone e-mailed me a copy, so it is all right for me to use it as I will."
   - The copyright is still protected and belongs to the author.

Q5. Under which of the following circumstances is it all right to copy copyright material?

A. If it doesn't have a copyright notice
B. If you don't charge for it
C. If it's posted to the internet by someone else
D. If you make “just fair use” of it on the internet
E. NONE of the above

Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Score / 6
A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	

Further examples of IP protection (1)

- Registered Business Name: A search of Business Names database costs $40
- Registered Design: a product's unique overall appearance, shape, configuration, pattern and ornamentation can be protected, regardless of function
- Registered Trade Mark: a word, phrase, letter, number, sound, smell, shape, logo, picture, aspect of packaging or a combination of these

Further examples of IP protection (2)

- 1989 Circuit Layouts Act
  - covering the three-dimensional configuration of electronic circuits in integrated circuit products or layout designs
- 1987 Plant Variety Rights Act and 1994 Plant Breeder's Rights Act
  - provide exclusive commercial rights to market a new variety of plant or its reproductive material
  - Examples: new plant varieties, plant components such as genes or chromosomes, reproductive material, chemicals or pharmaceuticals from plants

Question 6

Write down your score

Which of the following is FALSE

A. It is possible to register a design without regard to function
B. Software can be patented in the same way that technology can
C. Any kind of trade mark or sign can be registered
D. A normal patent once granted is valid for 20 years
E. An innovation patent is valid for only 8 years

Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Score / 6
A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	A B C D E	

Next Week

Last official lecture

Week 13 is revision & Student Feedback completion !!