

# COMP 516

## Research Methods in Computer Science

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## Legal Issues

- Copyright, Designs and Patents Act, 1988
- The Copyright and Related Rights Regulations, 2003
- Electronic Commerce (EC Directive) Regulations, 2002
- The Privacy and Electronic Communications (EC Directive) (Amendment) Regulations, 2011
- Conspiracy to Defraud
- Computer Misuse Act, 1990
- Data Protection Act, 1984, 1998
- Equality Act, 2010
- Freedom of Information Act, 2001

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# COMP 516

## Research Methods in Computer Science

### Lecture 20: Legal, Social, Ethical and Professional Issues (3)

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## Intellectual Property

### Intellectual Property (Oxford Dictionaries Online)

A **work** or **invention** that is the result of **creativity**, such as a manuscript or a design, to which one has **rights** and for which one may apply for a patent, copyright, trademark, etc

### Intellectual Property (Wikipedia)

A term referring to a number of distinct types of **creations of the mind** for which a set of **exclusive rights** are recognised—and the corresponding fields of law.

Common types of intellectual property rights include

- copyrights
- patents
- industrial design rights
- trade marks

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## Intellectual Property

	Patents	Trade marks	Designs	Copyright
What is protected	Inventions	Brand identity, including words, logos, and other signs	What a product looks like	Music, art, film, literary works and broadcasts
Protects against	invention being used, sold, manufactured	use of trade mark by others without permission	product being manufactured, sold or improved	work being copied or reproduced in communication or performance
Term	Up to 20 years (annual renewal)	Rights can last forever (renewal very 10 years)	Up to 25 years	Life plus 70 years

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## Copyright, Designs and Patents Act, 1988

Copyright is a **property right** which applies to

- original literary, dramatic, musical or artistic works
  - literary work** covers **computer programs**, song lyrics
  - dramatic work** covers work of dance or mime
  - musical work** covers music exclusive of lyrics, dance, mime
- sound recordings, films, broadcasts or cable programmes
  - sound recording** is a recording of sounds, from which the sounds may be reproduced, regardless of the medium
- the typographical arrangement of published editions

Copyright lies with the **author** of a work, or, if the work has been created by an employee in the course of his employment, with the **employer**

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## Duration of copyright

- literary, dramatic, musical or artistic works
  - 70 years from the end of the calendar year in which the **last remaining known author** of the work dies, or
  - 70 years from the end of the calendar year in which **a work was created or made public**, whichever occurred later, if none of the authors is unknown

But, if the work is **computer-generated** copyright expires at the end of the period of 50 years from the end of the calendar year in which the work was made

An author is **unknown** if it is not possible for a person to ascertain his identity by **reasonable inquiry**

Note: These rules also apply if the **owner** of the copyright is the employer of the authors

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## Duration of copyright

- sound recordings, broadcasts, or cable programmes
  - 50 years from the end of the calendar year in which the **work was created**, or,
  - 50 years from the end of the calendar year in which the **work was first released**, if the work is released within 50 years of being created
- films
  - 70 years from the end of the calendar year in which the **last known principal director, author or composer** dies, or
  - 70 years from the end of the calendar year in which **the film was created or made public**, whichever occurred last, if neither principal director, author or composer are known
- typographical arrangement of published editions
  - 25 years from the end of the calendar year in which the **work was first published**

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## The Copyright, Designs and Patents Act, 1988

- Copyright restrictions what actions one might perform with copyrighted work
- The owner of the copyright in a work has the exclusive right
  - (a) to copy the work
  - (b) to issue copies of the work to the public
  - (c) to rent or lend the work to the public
  - (d) to perform, show or play the work in public
  - (e) to communicate the work to the public

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## What is a copy? What is copying?

- In most cases, copying does not mean the production of a facsimile
- In most cases, copying does not mean the reuse of ideas or information
- Copying in relation to
  - a literary, dramatic, musical or artistic work means reproducing the work in any material form, including storing the work in any medium by electronic means
  - a film or broadcast includes making a photograph of the whole or any substantial part of any image forming part of the film or broadcast
  - the typographical arrangement of a published edition means making a facsimile copy of the arrangement

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## The Copyright, Designs and Patents Act, 1988

States

*The owner of the copyright has exclusive right to copy the work*

- There are no fair use or private copy exceptions in UK law
- But fair dealings with copyright works in the form of quotations and excerpts are allowed provided
  - quoted material is justified
  - the source of the quoted material is acknowledged and the quotations and excerpts are used
  - for the purpose of a critical review or news reporting
  - for the purpose of non-commercial research or education
- Incidental copies (e.g., incidental recording of images or music in a home movie) and temporary copies (e.g., web cache) are also allowed

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## Copyright, Designs and Patents Act, 1988

States

*The owner of the copyright has exclusive right to copy the work*

It follows that it is illegal to

- copy or distribute software or its documentation without the permission or licence of the copyright owner
- run purchased software on two or more computer simultaneously unless the licence specifically allows it
- knowingly or unknowingly to allow, encourage or pressure employees to make or use illegal copies within an organisation
- infringe laws against unauthorised software copying because a superior, colleague or friend compels or requests it
- loan software in order that a copy be made of it

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## Copyright, Designs and Patents Act, 1988

### States

*The making of an adaptation of the work is an act restricted by the copyright in a literary, dramatic or musical work*

- In relation to a **computer program**, **adaptation** means an arrangement or altered version of the program or a translation of it  
**Translation** includes a version of the program in which it is converted into or out of a computer language or code or into a different computer language or code
- In relation to a **database**, **adaptation** means an arrangement or altered version of the database or a translation of it  
Changing identifiers or swapping lines of code in a computer program creates an **adaptation**  
↪ restricted by copyright

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## Exceptions for computer programmes

But you can't do anything with a computer program without copying it!

- **installing** requires download or transfer from a storage medium
- **execution** requires copying into computer memory

Lawful users of computer programs are guaranteed the right

- to **use** computer programs (includes **transferring**, **installing**, and **running** of programs)
- to **make backup copies** (only as necessary)
- to **decompile** computer programs in order to obtain information necessary to create an interoperable program (but not a similar program)
- to **observe**, **study** or **test** the functioning of the program in order to determine the **ideas** and **principles** which underlie any element of the program

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## Copyright, Designs and Patents Act, 1988

### Other stipulations of the act deal with

- **importing infringing copy other than for personal use – illegal**  
The **copyright** in a work is infringed by a person who, without the licence of the copyright owner, **imports into the United Kingdom, otherwise than for his private and domestic use**, an article which is, and which he knows or has reason to believe is, an infringing copy of the work

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## Copyright, Designs and Patents Act, 1988

### Other stipulations of the act deal with

- **providing means for making infringing copies – illegal**  
Copyright in a work is infringed by a person who, without the licence of the copyright owner
  - (a) **makes**,
  - (b) **imports into the United Kingdom**,
  - (c) **possesses in the course of a business**, or
  - (d) **sells or lets for hire, or offers or exposes for sale or hire**,an **article specifically designed or adapted for making copies** of that work, knowing or having reason to believe that it is to be used to make infringing copies

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## Copyright, Designs and Patents Act, 1988

Other stipulation of the act deals with copyright work which has an **electronic form of is copy-protection**.

### ■ **devices designed to circumvent copy-protection – illegal**

The person issuing the copies to the public has the same rights against a person who, knowing or having reason to believe that it will be used to make infringing copies

- (a) makes, imports, sells or lets for hire, offers or exposes for sale or hire, or advertises for sale or hire, any **device or means specifically designed or adapted to circumvent the form of copy-protection employed**, or
- (b) **publishes information intended to enable or assist persons to circumvent that form of copy-protection**, as a copyright owner has in respect of an infringement of copyright.

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## Trade marks

- A **trade mark** is a sign which can distinguish the goods and services of one organisation from those of another
- A **sign** includes words, logos, pictures or a combination of these
- Typically used as a **marketing tool** so that customers can recognise your products or services
- A **trade mark** gives the owner the legal **right** to take action against anyone who uses their mark or a similar mark on the same, or similar goods and services
- However it is allowed to use another person's trade mark to accurately identify the source of goods or services

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## Copyright, Designs and Patents Act, 1988

- **Patents** in the UK cannot describe **algorithms** or **mathematical methods**, these are **discoveries**
- But software that **makes a technical contribution** or **solves a technical problem** can be patented  
(e.g., **the software that controls the engine or the brakes of your car**)
- **Software** can be patented in some countries, most notably, the USA
- More than 40k software patents are issued each year in the USA
- Intended to give **exclusive rights** for a particular **software technique**
- Several infamous patents for software techniques exist that most experienced programmers consider to be trivial  
(e.g., **using XOR to draw a cursor on a bitmap display**)
- Becomes a problem if you **export** software or services to the USA

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## Designs

- **Designs** relate to the **physical appearance** of an industrial or handcrafted item
- **Physical appearance** includes **lines, contours, colours, shape, texture, material**
- To qualify, a **design** must be **new** and **individual in character**

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## Designs: Apple iPad versus Samsung Galaxy Tab 10.1



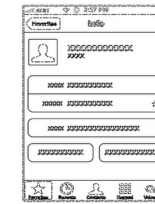
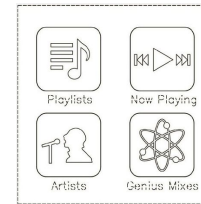
A rectangular handheld mobile digital electronic device  
 with rounded corners  
 with colours grey, silver, and black  
 the colour grey appears as rectangle at the front, centre of the device (the screen)  
 substantial black borders on all sides of the grey rectangle being roughly equal in width  
 the colour silver appears as the outer border and sides of the device  
 a display of a grid of colorful square icons with uniformly rounded corners  
 a bottom row of square icons set off from the other icons and that do not change as the other pages of the user interface are viewed



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## Designs: Examples

Not only the design of devices can be protected, but also **graphical user interfaces** (GUIs) and their **elements** (e.g. icons)



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## Copyright and Related Rights Regulations, 2003

- Makes a whole series of amendments to the **Copyright, Designs and Patents Act, 1988**
- But also introduces a number of new provisions
- The notion of a **technical device** (for copyright protection) is introduced
- **circumvention of a technical device** – **illegal**
  - manufacturing for sale or hire, importation, sale or distribution of devices or products which are primarily designed or adapted for the purpose of the circumvention of a technical device
  - providing, promoting, advertising or marketing a service the purpose of which is to enable or facilitate the circumvention of a technical device

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## Copyright and Related Rights Regulations, 2003

- removal or alteration of **electronic rights management information** – **illegal**
  - if there is reason to believe that this induces, enables, facilitates or conceals an infringement of copyright
- distribution of a copyright work from which **electronic rights management information** has been removed – **illegal**
  - also covers import for distribution or communication to the public copies of a copyright work from which **electronic rights management information** has been removed or altered
- An **injunction** can be granted against a **service provider**, where that service provider has **actual knowledge** of another person using their service to infringe copyright
  - **actual knowledge** may come about by receiving a notice of the copyright infringement under related regulations
  - see 'Injunctions Against Service Providers' (later)

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## Copyright and Related Rights Regulations, 2003

- The Copyright, Designs and Patents Act, 1988 states that  
*The owner of the copyright has exclusive right to communicate the work to the public*
- The Copyright and Related Rights Regulations, 2003 clarifies the notions of communication to the public (and of a broadcast)

### Communication to the public

#### Includes

- (a) the broadcasting of a work
- (b) the making available to the public of a work by electronic transmission in such a way that members of the public may access it from a place and at a time individually chosen by them

Item (b) covers YouTube, BBC iPlayer, and similar services

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## Copyright and Related Rights Regulations, 2003

### Broadcast

an electronic transmission of visual images, sounds or other information which

- (a) is transmitted for simultaneous reception by members of the public and is capable of being lawfully received by them, or
- (b) is transmitted at a time determined solely by the person making the transmission for presentation to members of the public and is not internet transmission unless that transmission
  - (a) a transmission taking place simultaneously on the internet and by other means
  - (b) a concurrent transmission of a live event, or
  - (c) a transmission forming part of a programme service in which programmes are transmitted at scheduled times determined by the person responsible for the transmission

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## Copyright and Rights in Databases Regulations, 1997

- Databases are also literary works under the Copyright, Designs and Patents Act
- Additional protection is offered by the Copyright and Rights in Databases Regulations of 1997
- Applies to databases where a substantial amount of work was required to create the contents of the database
- Rights last for 15 years from the last substantial change
- Rights are infringed if
  - most or all of a database is extracted and reused without the consent of the owner, or
  - if small portions of a database are repeatedly extracted and reused without the consent of the owner

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## Electronic Commerce (EC Directive) Regulations 2002

### Information society service (ISS)

Any service normally provided for remuneration, at a distance, by means of electronic equipment for the processing (including digital compression) and storage of data, and at the individual request of a recipient of a service

### Service Provider

A person (company) providing an information society service

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## Electronic Commerce (EC Directive) Regulations 2002

- Regulations 6 to 16 deal with **e-commerce activities** of an ISS provider
- Regulations 17 to 18 limit the liability of an ISS provider in case they act
  - as **mere conduit**
  - in a **caching role**
  - as **host**
- **Successful defense**: David M. Rock and David P. Overton — TV-Links  
[LINK TO THE ARTICLE](#)

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## Electronic Commerce Regulations 2002: Caching

- A **service provider** acts in a **caching role** if
- a transmission is the subject of automatic, intermediate and temporary storage where that storage is for the sole purpose of making more efficient onward transmission of the information to other recipients of the service upon their request, and
  - the service provider
    - does not modify the information
    - expeditiously removes cached information once the original information becomes unavailable
    - 'behaves in accordance with industry practice'

A service provider acting in a **caching role** is **not liable** for damages or for any other pecuniary remedy or for any criminal sanction as a result of that **transmission**

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## Electronic Commerce Regulations 2002: Mere Conduit

- A **service provider** acts as **mere conduit** for a **transmission** if it
- did not initiate the transmission
  - did not select the receiver of the transmission
  - did not select or modify the information contained in the transmission
- The **transmission** may include the automatic, intermediate and transient storage of the information transmitted where
- this takes place for the sole purpose of carrying out the transmission in the communication network
  - the information is not stored for any period longer than is reasonably necessary for the transmission

A **mere conduit** is **not liable** for damages or for any other pecuniary remedy or for any criminal sanction as a result of that **transmission**

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## Electronic Commerce Regulations 2002: Host

- A **service provide** acts as **host** if
- it provides a service which which consists of the storage of information provided by a recipient of the service, and
  - the recipient does not act under the authority of the service provider
  - the service provide
    - **does not have actual knowledge of unlawful activity or information** and, where a claim for damages is made, is not aware of facts or circumstances from which it would have been apparent to the service provider that the activity or information was unlawful; or
    - upon obtaining such knowledge or awareness, **acts expeditiously to remove or to disable access** to the **information**

A **service provider** acting as **host** is **not liable** for damages or for any other pecuniary remedy or for any criminal sanction as a result of that **storage**

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## The 'Cookie Law'

- Officially called 'The Privacy and Electronic Communications (EC Directive) (Amendment) Regulations 2011'  
[LINK TO THE ARTICLE](#)
- HTTP is a state-less protocol
  - ↪ transactions often require (authenticated) sessions
  - ↪ cookies are a means to realise sessions with HTTP, but can also be used for long-term user observation/surveillance
- The Regulations require that users or subscribers give consent to the use of cookies
- Current interpretation of the Regulations suggest that cookies can only be used without explicit permission if they are limited to the current session

Information Commissioner's Office Guidance: [LINK TO THE ARTICLE](#)

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## Injunctions Against Service Providers

### Copyright, Designs and Patents Act 1988, Section 97A

The High Court (in Scotland, the Court of Session) shall have power to grant an injunction against a service provider, where that service provider has actual knowledge of another person using their service to infringe copyright

- 'Service provider' has the meaning given to it in the Electronic Commerce (EC Directive) Regulations 2002
- 'Actual knowledge' is also defined in terms of the provisions of the Electronic Commerce (EC Directive) Regulations 2002

#### Example:

Used by copyright holders to shut down sites or to force UK ISPs to block access to a site (e.g., Newzbin and The Pirate Bay)

[LINK TO THE ARTICLE 1](#)

[LINK TO THE ARTICLE 2](#)

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## Conspiracy to Defraud

Conspiracy to Defraud is a common law criminal offence

A person is guilty of conspiring to defraud if

- that person agrees with any other person or persons that a course of conduct shall be pursued and
- that course of conduct will necessarily amount to or involve the commission of any offence or offences by one or more of the parties to the agreement if the agreement is carried out in accordance with their intentions

**Example:** A car mechanic helps a car dealer to reduce the mileage on a used car in order to obtain a better prize for it

**Contention:** Someone maintaining a link farm with links to copyrighted material is guilty of conspiracy to defraud

- Successful prosecution: Anton Vickerman — Sufthechannel.com  
[LINK TO THE ARTICLE](#)

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## Private prosecution

- In England and Wales, the Crown Prosecution Service (CPS) is the primary prosecuting authority
- However, private prosecutions, initiated by an individual or private organization, are possible even where the CPS declines to prosecute
- The Federation Against Copyright Theft (FACT) is an organisation actively pursuing alleged cases of copyright infringement
- FACT will hire private investigators or use the police to gain access to information and computer hardware
- FACT will hire forensic investigators to 'find' evidence

Note: In contrast to England, in Scotland private prosecutions are extremely rare

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## Software Audit: Accountability

- In mid-size and large business and organisation [copyright law](#) and [license terms](#) can inadvertently be violated
- To ensure that this does not occur, [software audits](#) are a common approach

### Software audits

- are a regular investigation of the software installed on all computers in an organisation
- ensure that it is authorised or licensed
- minimise the risk of prosecution for software theft
- minimise the risk of viruses through uncontrolled software copying
- ensure technical support is available to all users

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## Computer Misuse Act, 1990

Defines three offences:

### (1) [Unauthorised access to computer material](#)

Occurs if

- (a) someone causes a computer to perform any function with intent to secure access to any program or data held in any computer,
- (b) the access he intends to secure is unauthorised, and
- (c) he knows at the time when he causes the computer to perform the function that this is the case

### (2) [Unauthorised access with intent to commit or facilitate commission of further offences](#)

Like (1) but with the intent to commit an offence or to facilitate the commission of such an offence

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## Computer Misuse Act, 1990

Defines three offences:

### (3) [Unauthorised modification of computer material](#)

Occurs if

- (a) someone performs any act which causes an unauthorised modification of the contents of any computer; and
- (b) at the time when he does the act he has the requisite intent and the requisite knowledge

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## Data Protection Act, 1998

- Repeals an earlier 1984 act

- Defines

[data](#) is information which can be electronically processed or is recorded as part of a relevant filing system

[personal data](#) means data which relate to a living individual who can be identified from that data (possibly together with other information)

[sensitive personal data](#) is personal data relating to race, ethnicity, political opinions, etc.

- Regulates who may keep it, how, and who has access, especially the data subject
- Defines registration of [data controllers](#) and the role of [audit](#)
- Defines exemptions, charges and penalties, disclosure

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## Eight Principles of Data Protection

- 1 Personal data shall be **processed fairly and lawfully**
- 2 Personal data shall be **obtained only for one or more specified and lawful purposes**, and **shall not be further processed** in any manner incompatible with that purpose or those purposes
- 3 Personal data shall be **adequate, relevant and not excessive** in relation to the purpose or purposes for which they are processed
- 4 Personal data shall be **accurate** and, where necessary, **kept up to date**
- 5 Personal data processed for any purpose or purposes shall **not be kept for longer than is necessary** for that purpose or those purposes

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## Eight Principles of Data Protection

- 6 Personal data shall be processed in accordance with the rights of data subjects under this Act
- 7 Appropriate **technical and organisational measures** shall be taken **against unauthorised or unlawful processing of personal data** and **against accidental loss or destruction** of, or damage to, personal data
- 8 Personal data shall **not be transferred to a country or territory outside the European Economic Area unless that country or territory ensures an adequate level of protection** for the rights and freedoms of data subjects in relation to the processing of personal data

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## OECD Recommendations for Data Protection

- 1 **Notice:**  
data subjects should be given notice when their data is being collected
- 2 **Purpose:**  
data should only be used for the purpose stated and not for any other purposes
- 3 **Consent:**  
data should not be disclosed without the data subject's consent
- 4 **Security:**  
collected data should be kept secure from any potential abuses

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## OECD Recommendations for Data Protection

- 5 **Disclosure:**  
data subjects should be informed as to who is collecting their data
  - 6 **Access:**  
data subjects should be allowed to access their data and make corrections to any inaccurate data
  - 7 **Accountability:**  
data subjects should have a method available to them to hold data collectors accountable for following the above principles
- Add to that
- 8 **Minimality:** only relevant and required data should be collected

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## Equality Act, 2010

### The protected characteristics:

age; disability; gender reassignment;  
marriage and civil partnership; pregnancy and maternity;  
race; religion or belief; sex; sexual orientation.

- A service-provider (A) must not, in providing the service, discriminate against a person (B)
  - as to the terms on which A provides the service to B
  - by terminating the provision of the service to B
  - by subjecting B to any other detriment
- Where a provision, criterion or practice of A's puts a **disabled person at a substantial disadvantage** in relation to a relevant matter in comparison with persons who are not disabled, to take such steps as it is **reasonable** to have to take to avoid the disadvantage.

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## Freedom of Information Act, 2001

- Obliges **public authorities and publicly-owned companies** to provide information:
  - through a Publication Scheme
  - in response to requests made under the general right of access
- A **publication scheme** is a public commitment to make certain information available and a guide to how that information can be obtained
- Any person making a request for information to a public authority or publicly-owned company is entitled
  - (a) to be informed in writing by the public authority whether it holds information of the description specified in the request
  - (b) if that is the case, to have that information communicated to him
- There are many exemptions

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## Class test on professional, legal, and ethical issues

- Monday 14:00, Laboratory 2 in GHOLT Bldg
- multiple choice test
- 15 questions, 30 minutes
- notes etc. are not allowed, not even pen and paper as there won't be anything to calculate this time

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## Last practical and lecture

- Last practical tomorrow
  - writing maths formulae in  $\text{\LaTeX}$
  - but also ask Anton any questions you may still have regarding your essay
- Last lecture on Tuesday
  - feedback on your presentations
  - feedback on both class tests
  - final tips for writing your essay
  - some tips for your COMP702 (MSc project)
  - best presentation award will be given

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