Lecturer: Kieran Herley, k.herley@cs.ucc.ie

Labs will start soon (in a week or two):

Thurs 9—11 WGB.G20

Thurs 4—6 WGB.G20

More info on those later.

There is a webpage:

www.cs.ucc.ie/~kieran/cs1106

This will have lecture slides (pdf format, extra printer-friendly copies), lab sheets, handouts, examples.

Good to take notes ourselves in addition to his notes.

There is no assigned text, but a useful reference is:

Learning SQL (2nd edition) by Alan Beaulieu

O'Reilly (2009)

Final exam: 70%

Continuous Assessment: 30%

CA: 2 in-class tests (15% each):

1. Friday 9th October
2. Friday 13th November

(provisional dates)

End of year exam will be a 90-minute exam, more details will be provided later.

Overview:

A database is an IT tool used for maintaining and interacting with records.

Def: A shared, structured collection of logically related data designed to meet the information needs of an organisation.

A typical example would be a set of university academic records.

A database system deals with different databases that contain different information.

Database System = Database(s) + Database Software

Database software:

- Database Management System (DBMS) provides software infrastructure to manage multiple databases with differing structures, diverse content, etc.
- Provides tools to allow data to be *manipulated* and *queried*
    - **Manipulation:** add/delete/update data
    - **Query:** "interrogate" data to obtain information of interest

Database(s)

- Organisation may need multiple databases
- University: academic records, payroll, library catalogue, accounts…

Databases form the foundation of most IT systems.

Traditional examples:

- public administration (e.g. CAO)
- payroll
- banking (account info)
- retail (inventory)

More novel examples:

- facebook
- ebay
- amazon
- flickr
- tripadvisor
- youtube
    - you wouldn't think of videos normally as database info, but actually there is a DBMS there to keep track of info

Most e-commerce sites (like airling reservation systems) are built around database "back-ends".

The database holds the data (flight schedules, prices, availability).

Web-server holds programs to await and respond to customer enquiries.

Even though it may not be obvious, all e-commerce requires databases.

Database work makes up a good chunk of all IT work, much more so than its public profile/visibility would suggest.

The idea of a database and a database management system is pretty important and ubiquitous.

What will be studied:

- Structure and organisation of relational DBs
- Specifying and manipulating DBs (tools for setting up, manipulating)
- Using
    - SQL – notation expressing DB queries
    - MySQL – standard database software
- Applying DB concepts to sample IT problems
- Designing simple DBs