**Week 15 Notes**

## Information System

**Write your definition below**

Information systems are made up of pieces of communication hardware, operating systems and applications that allow a specific function or task to be produced, often used for business support to analyse large pieces of data. Also used in all kinds of technology such as GPS systems where transfer off data is required.

**Source 1:** [**http://eds.a.ebscohost.com/eds/detail/detail?sid=6aa7dbb0-9c9f-4776-a3e0-68f6dc766eda%40sessionmgr4004&vid=4&hid=4111&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=89163834&db=ers**](http://eds.a.ebscohost.com/eds/detail/detail?sid=6aa7dbb0-9c9f-4776-a3e0-68f6dc766eda%40sessionmgr4004&vid=4&hid=4111&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=89163834&db=ers)

**Source 2:** [**https://www.google.com/patents/US20030182052**](https://www.google.com/patents/US20030182052)

**Source 3:** [**http://ieeexplore.ieee.org/xpls/icp.jsp?arnumber=1265710&tag=1**](http://ieeexplore.ieee.org/xpls/icp.jsp?arnumber=1265710&tag=1)

## Information Technology

**Write your definition below**

Information Technology ties together computer science, information systems and software engineering. It includes anything that helps create, modify, store, manage or communicate information via technology. It is used in industrial engineering as an analysis and modeling tool and has some very useful uses such as, process modeling, production scheduling and control, materials management and logistics.

**Source 1:** [**http://eds.b.ebscohost.com/eds/detail/detail?sid=0b73252c-daa9-48c8-8e71-b99e3cb60362%40sessionmgr111&vid=1&hid=108&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=89250495&db=ers**](http://eds.b.ebscohost.com/eds/detail/detail?sid=0b73252c-daa9-48c8-8e71-b99e3cb60362%40sessionmgr111&vid=1&hid=108&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=89250495&db=ers)

**Source 2:** [**https://books.google.co.uk/books?hl=en&lr=&id=p6vuyWD8I30C&oi=fnd&pg=PA97&dq=information+technology&ots=9E1lAHJbD2&sig=rAPMXef5bmYmFyH65EeNoG8ZSCU#v=onepage&q=information%20technology&f=false**](https://books.google.co.uk/books?hl=en&lr=&id=p6vuyWD8I30C&oi=fnd&pg=PA97&dq=information+technology&ots=9E1lAHJbD2&sig=rAPMXef5bmYmFyH65EeNoG8ZSCU#v=onepage&q=information%20technology&f=false)

## Systems Analysis

**Write your definition below:**

Studying and breaking down a procedure or process sometimes by mathematical or logic means to define the goals and purposes of the process and applying them more efficiently.

**Source 1:**<http://www.merriam-webster.com/dictionary/systems%20analysis>

## Software Development Life Cycle

**Write your definition below:**

A framework for developing software systems. It is a design framework that is used in industry to design, develop and test high quality programs and systems.

Stages included:

- Requirement gathering and analysis

- Design

- Implementation / Coding

- Testing

- Deployment

- Maintenance

**Source 1:** [**http://www.tutorialspoint.com/sdlc/sdlc\_overview.htm**](http://www.tutorialspoint.com/sdlc/sdlc_overview.htm)

**Source 2:** [**http://eds.b.ebscohost.com/eds/detail/detail?vid=12&sid=b5d216cc-333e-457d-bbfb-10ed92c34a44%40sessionmgr113&hid=108&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=110751922&db=iih**](http://eds.b.ebscohost.com/eds/detail/detail?vid=12&sid=b5d216cc-333e-457d-bbfb-10ed92c34a44%40sessionmgr113&hid=108&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=110751922&db=iih)

## Requirements Engineering

**Write your definition below:**

Requirements engineering is a process of finding out the business requirements and expectations of the user of a new or existing product. The requirements are often called functional specifications. These are gathered via meetings, questionnaires and generally interacting with the end user.

**Source 1:** [**http://eds.b.ebscohost.com/eds/detail/detail?vid=14&sid=b5d216cc-333e-457d-bbfb-10ed92c34a44%40sessionmgr113&hid=108&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=up.954242&db=cat01619a**](http://eds.b.ebscohost.com/eds/detail/detail?vid=14&sid=b5d216cc-333e-457d-bbfb-10ed92c34a44%40sessionmgr113&hid=108&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=up.954242&db=cat01619a)

**Source 2:** [**http://searchsoftwarequality.techtarget.com/definition/requirements-analysis**](http://searchsoftwarequality.techtarget.com/definition/requirements-analysis)

## Economic Feasibility

**Software Costs**

Developing software is expensive. Can you find information about how much it costs to develop Information Systems of varying sizes? Or perhaps how much it costs to write a line of code?

A typical HRIS system will cost anywhere from £1000, to six figures depending on the size of the business and its needs

<http://www.people-trak.com/blog/06/10/2013/how-much-does-hr-software-cost/>

**Software Factors**

What factors determine costs(complexity, language etc)?

Programmers themselves are the most expensive so in this respect anytime not programming. Complexity also has a role, the more complex a piece of code the more difficult it is to maintain in the future which will have an affect on work efficient. The language used to program in must be a common and widely used one as well as this will make it easier in finding new staff that can maintain the code.

**The Waterfall**

How much time is spent in each phase of the waterfall model? For example, is Design 20% of the overall time of a project or more/less? What about Coding? Analysis? etc

Obviously depends on the business and how they implement it but typically it follows this:

Project management: 15%

Analysis: 20%

Design: 15%

Construct: 25%

Test: 20%

Implementation: 5%

## Technical Feasibility

**Databases**

What databases could be used to develop a database for a large scale Information System?

PostgreSQL

Oracle

**Advantages and Disadvantages**

What are the advantages/disadvantages of each?

PostgreSQL

Advantages:

It implements the SQL standard very well

It includes support for "advanced" SQL stuff like window functions or common table expressions

It is very innovative in terms of how plpgsql interacts with SQL

It supports lots of advanced data types, such as (multi-dimensional) arrays, user-defined types, etc.

It supports all sorts of performance optimisation that you're used to from Oracle, SQL Server.

Disadvantages:

It is clearly behind MySQL in terms of popularity

It is thus a bit harder to get community support or to google for results

Replication is not yet as well implemented as in MySQL

Oracle

Advantages:

Oracle supports large databases, data type support numbers and characters, and it provides data to support object-oriented database storage. An Oracle database has the ability to manage multiple databases using a two-phase commit protocol. Oracle supports cursors, which helps to make programming easier. It also performs each transaction separately, and the result of each transaction is invisible to other transactions until it is complete, which increases the security of data.

Disadvantages:

One major disadvantage of Oracle database is its complexity. Using Oracle is not ideal if the users lack the technical ability and know-how needed to work with Oracle databases. It is also not ideal to use Oracle if an organization or individual is looking for an easy-to-use database with basic features.

Oracle is only useful when large databases are needed. It is not ideal for small or mid-sized companies where small databases are needed. In such cases, using MySQL is more cost effective.

Schedule Feasibility

**Project Length**

Is there an average length of a database project?

No each one can be completely different

What constitutes a 'long' project?

One that is difficult and "get's you down" i.e. bad client, fellow workers etc.

What constitutes a 'short' project?

One that goes smoothly without many issues

Legal Feasibility

**Laws**

What laws need to be considered when developing an Information System such as the Student Information System used here at the Uni?

Data Protection etc.