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**Contents**

<b>Contents</b> .....	2
<b>Week 1 - Wendy Beresford – 27/1/09</b> .....	3
<b>Week 2 - Paolo Barone – 4/2/09</b> .....	5
<b>Week 3 - Alex Botten – 10/2/09</b> .....	8
<b>Week 4 – Professor Muffy Calder – 18/2/09</b> .....	10
<b>Week 5 –Mary Clarkson– 24/2/09</b> .....	15
<b>Week 6 –Ken Evans– 3/3/09</b> .....	17
<b>Week 7 – BrandFour – 10/3/2009</b> .....	18
<b>Week 8 – Ken Blair – 17/3/09</b> .....	19
<b>Week 9 – Mike Hopkinson – 23/3/09</b> .....	21
<b>Week 10 – Gary Leyman – 30/3/09</b> .....	22
<b>Week 11 – Mervyn K. Hobden – 21/4/09</b> .....	23

**Week 1 - Wendy Beresford – 27/1/09**

Wendy Beresford worked in the IT Educational industry for several years alongside her husband. However she had the aim of becoming a secondary school IT teacher, which meant that she needed additional qualifications.

She then applied to complete a course at Lincoln University, and because of the experience and training she had already received she was able to jump straight into the third year of the course. She left Lincoln University almost a year ago and graduated with a First class degree.

She was then offered a job teaching in a school in Lincolnshire, however soon found that it was not what she had expected. Disliking the job so much that she left after only a couple of weeks of having the position.

After this due to the fact that she did not want to leave her family for extended periods of time for further training in Sheffield, and because of the experience she had, had she decided to start up her own company.

Initially she registered herself as an “IT Consultant” offering IT help, website design for schools, etc. In order to gain initial custom she compiled mailing lists for Lincolnshire schools and businesses and used email to spread word of her company. She then found that through word of mouth she would gain more custom.

She then developed her business into a more teaching focused one, offering:

- ❖ Classes In Digital Animation
- ❖ Classes In Photography
- ❖ Web Design
- ❖ Staff Training

For the classes, her target market is 7 – 11 year olds, she goes to schools and teaches them how to use digital cameras to create “Stop Motion” animations. She also teaches them

basic computing skills and how to use such programs as Adobe Photoshop, and Premier in order to turn the stills into post produced animations which include audio, etc.

She also offers training days to teachers in order to improve their skills. She also tries to keep an up to date knowledge of the education curriculum to ensure that appropriate material is taught.

She works with the Lincolnshire County Council to promote her business, and ensure that she can offer her services in as many schools as possible.

It has taken her around 6 months to build this business up, and while she still has no free time she believes that by offering good quality services she will be able to expand her business in the future.

**Week 2 - Paolo Barone – 4/2/09****Part 1 – SilverLight:**

Paolo Barone works for Microsoft and is currently giving presentations for the “Microsoft Inspiration Tour” which is going around the UK.

The presentation starts with an introduction to the evolution of the web, showing the difference between sites 10 years ago, and today and pointing out how much more interactive they are.

Then he introduces Microsoft’s version of “Flash” SilverLight, which aims to build better user experiences. It is in the form of a browser Plug-In, and works with all leading browsers:

- ❖ Internet Explorer
- ❖ Firefox
- ❖ Google Chrome
- ❖ Opera (Although not officially supported)

It is intended to offer a “Rich media Experience”, it streams image data to the users computer and uses location mapping to know exactly where a user is in the experience. E.G If the user is viewing a specific picture, the software will know this and display some information about it.

Because the software works in the same way as “Vector” Images do quality is not lost when zooming in. The user also only need load what they want to view as the interface does not load something until the user zooms into that area.

MSN Messenger can also be integrated into the software, allowing content to be instantly shared with the users contacts, making it a much more social experience.

Not only can the software stream images, but it can also stream video content and be used to develop interactive user interfaces and games.

The software can be used to calculate the available bandwidth a user has at their disposal, and then scale the streaming media accordingly. E.G A user with a fast connection will get to view video data in HD quality resolutions.

The software is already being used by companies such as “Net Flix” an online movie rental site to provide users with instant data. Because of the ability to scale image quality there is no need to buffer data thus providing users with instant content.

The interactive side of this software can be used to create things such as interactive movie trailers, which enable the user to engage more with the information provided.

The software is also being employed by the NHS, to create a standardised interface. This should offer the users a lower learning curve and allow for easy navigation of the NHS website.

The software uses between 40% and 60% of the users CPU dependant on what application is being used for, Microsoft state that this is “Low CPU Usage”

There are two ways to create applications for SilverLight, one is via a Flash like program which enables the user to draw their interface, animations etc. However while this is easy to use it does not allow the user to make the interface fully interactive.

This is where programming comes in, the software supports C# and .NET languages and when programmed in the correct way can produce much better results than when using the GUI to create content.

Videos can be encoded with DVD like menu interfaces, allowing chapter select etc.

## **Part 2 – XNA:**

The second part of the lecture went on to talk about XNA, this is the new development system which can be used to make games for the XBOX 360, PC and even the Microsoft Zune.

It enables the user to create 2D or 3D produces, and is accessible to anyone with a PC, 360 Etc. A much cheaper alternative also to the 360 Development kit which costs \$15,000 making it available only to games developers, not the average user.

Again this software supports the C# and .NET programming languages, and thus a background in these is required to produce a game. The software while becoming more commercial is generally not used in a professional manner. This is because the software is slower than the Dev Kit, XNA offers between 90 – 95% of the performance.

The slogan used is “Games Publishing for Everyone!”, and this is true as anyone with a little programming knowledge is able to produce something no matter how basic it is.

Users who make these games are able to publish them to Xbox Live Arcade, and chose the price they wish to charge for it. They are then able to keep 70% of income made from the sale of the game.

### **Part 3 – Student Programs:**

This part of the lecture is short, however introduces us to available student programs such as the Imagine Cup, where groups of students from around the world gather with an idea which must benefit the world in some way, the winners gaining jobs within the Microsoft corporation

**Week 3 - Alex Botten – 10/2/09**

Alex Botten graduated from Lincoln University 2 years ago, he left with a Distinction.

He has worked for Osiris Educational for 6 years, staying on part time while completing his degree. His salary rose from 15k, to 30k on completion of his degree.

Osiris Educational offer training solutions in teaching, tailoring course to the requirements of the current market, introducing new media and removing unwanted media as necessary.

The company has an annual turnover of £2,500,000, with an annual growth rate of 40%, and a profit margin of £400,000 - £500,000 per annum.

The company employs 20 members of staff, however the course providers are freelance and therefore if financial problems were to occur could be let go due to not having a fixed contract.

The courses offered are either single day course or longer “INSET” In School Education Training.

The company gains 55% of its business from phone orders, however a further 20% from both email and fax orders.

They use a variety of software:

- ❖ SAGE Management Software
- ❖ Microsoft Office 2000
- ❖ Microsoft Windows XP
- ❖ Adobe CS3
- ❖ Osiris Custom CRM Software.

CRM is Customer Relationship Management, this is similar to the Amazon “Recommended For You” system in that it tracks the buying/browsing habits of customers and then tailors the site to suite them so that they see more of what they normally look for and less of what they don’t.

They also use a mail server running Microsoft Server 2003, in order to handle all incoming emails.

They state that by offering good quality services they gain more custom, and continually aim to improve their services accordingly.

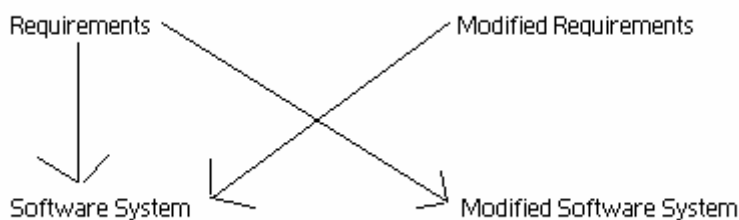
**Week 4 – Professor Muffy Calder – 18/2/09**

Professor Muffy Calder, is a professor from an Edinburgh university, and works in the subject of computer science.

The talk given was to be on communicating machines, and cells and how they relate. She talked about the Atomiter Theory, which she referred to as “The thing that makes sense in programming”.

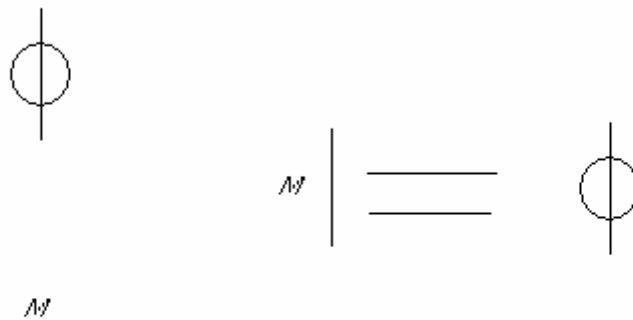
She then went on to talk about concurrent processes, given diagrammatical examples of how it worked, noting the equation which needed to be true in order for a program to work correctly as “ $M(A||B) \models \langle \rangle [](x < 2)$ ”

She said she worked with synchronous communications in programs, in other words 2 programs which agree to perform the same action.



She then suggested we read Jeanette Wings – Computational Thinking, telling us how a system works.

She then gave us an equation asking if a biochemical system works as it should:



Signals to genes effects the growth, division and apoptosis of a cell.

Apoptosis means “Cell Death”.

She informed us that uncoordinated, or abnormal signalling will lead to uncontrolled cell division.

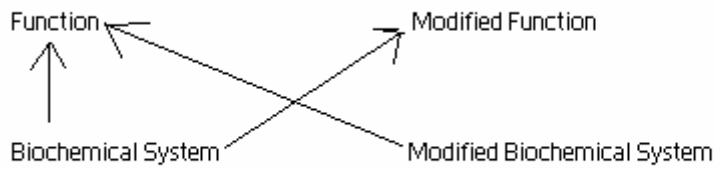
“Signals control and coordinate cell activities”

She works in Cancer research now, and informed us that cancer is caused by a lack of cell death, and not uncontrolled growth which she herself found surprising. The uncontrolled division of cells leads to a lack of Apoptosis causing the cancer.

The aim of her current work is to build a mathematical computational model based upon the way cancer occurs.

She aims to complete this model by reverse engineering the “Artefact” which is the biochemical system, and turning it into a model.

This system should work as follows:

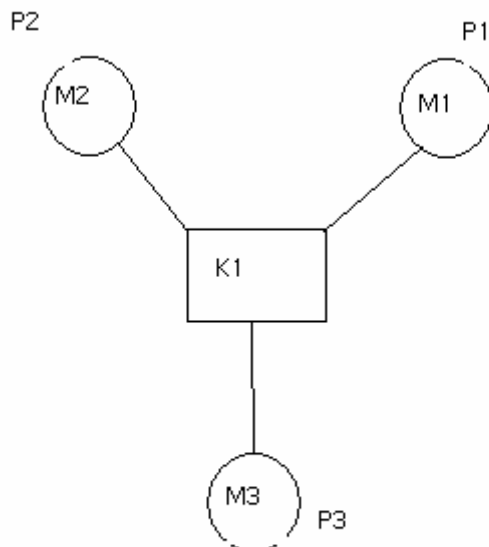


She then talked about Intracellular Signalling, which is signals coming into a cell, not Inter-Cell communication.

Rat and human signals work in a very similar manner “Phosphorylation”

She then began to talk about how cells work giving us the following diagram:

She explained this with the following:



Circles = Protein

Squares = Rate at which something happens.

Every protein is a process.

K1react reaction produces P3 from P1 and P2, increases P3, reduces P1 and P2.

K1react is a 3—way synchronisation.

She then talked about how she will model reactions, stating that the 1/0 (On/Off) of computing becomes High/Low in a biological model. Next she gave more information on how the diagram above functions with this High/Low system applied:

$$P1h = K1react. P1l$$

$$P1l = K2react. P1h$$

$$P2h = K1react. P2l$$

$$P2l = K2react. P2h$$

$$P3h = K2react. P3l$$

$$P3l = K1react. P2h$$

The P3 being the only protein which functions differently.

The equation for this system is therefore:

$$P1h \parallel P2h \parallel P3l$$

K1 and K2 are the rate coefficients, and this equation uses stochastic process algebra.

Another diagram, too complex to copy down is shown and she explains that too much ERK-PP being introduced to cells causes cancer in cells.

She can use RAF-1 to reduce the ERK-PP production, reducing the cancers effects, by increasing the rate of reaction that binds RAF1 to RKIP.

Her final system will predict probabilities.

She then goes on to ask “Is life random, or deterministic? Electrons and oh dear”

Next someone spots the joke in her slide “Stochastic Simulation “DIZZY””.

She shows another diagram showing the viability of found data:



She is also looking at cardiovascular medicine, scaffold proteins, crosstalk and salt hypertension.

She sums up the lecture by saying:

Computing = Engineered systems.

Life = Evolved systems.

**Week 5 –Mary Clarkson– 24/2/09**

Mary started off by talking about “Current trends in the IT industry”, she mentioned:

- ❖ Large and Small Companies.
- ❖ Off Shoring (Which tends to be for smaller projects).
- ❖ Mobility.

She also stated that the IT industry has competition within it.

She has recently returned to teaching after a 20 year break from it. She has had several jobs:

- ❖ Applications development.
- ❖ Undertaking a Post Graduate diploma.
- ❖ Lectured in Database Design.
- ❖ IT Training Manager.
- ❖ Database Design and Analysis (6 years).

She then went on to talk about “Developing your skills”, as with most of this lecture she talked about a list of items on her slides, this time on how to develop skills:

- ❖ Must keep developing skills.
- ❖ Ask for help.
- ❖ Job experience training courses.
- ❖ Journals and Books.
- ❖ Conferences at society meetings.
- ❖ Career maps.
- ❖ SFIA Plus.
- ❖ Job search to identify required skills.

She stated that “Your degree is your starting point” in other words we need to keep on learning even after we leave, she also suggested we all join the BCS.

She then went on to talk about what “Employers look for...”:

- ❖ A well rounded person.
- ❖ Communication skills.
- ❖ Adaptable.
- ❖ Interpersonal skills.
- ❖ Business awareness.
- ❖ Presentation skills.
- ❖ Teamwork.
- ❖ Project skills.
- ❖ PC skills.

To sum up she said employers look for “People who can look at problem and tease out solution”

Next she went to talk about “What about programming skills”, she said that companies will train if in languages, however you should be fluent in at least the basics. To get a job write out a full application, which is well documented, and coded using practiced standards, along with an easy to use “User guide”.

She then went on to talk about “Current Hot Skills”, saying to find out what they are looking for trends in the industry, ask what is the industry currently looking for?

Next gave tips on interviews, how to prepare for them by doing background research on a company, what to do in them etc, and finally she talked about “Jobs: Where to look” saying that we need to search everywhere for jobs and should apply to one at least once a week as a habit starting now, because it is not easy.

**Week 6 –Ken Evans– 3/3/09**

Ken Evans has had many experiences in his life, for one has owned a pilots license for more than 50 years, he has also worked as an engineer, a manager for UK air defense systems and for 15 years at IBM.

He talked to us about his personal interest Management systems, and the use of ORM (Object Role Modelling), mentioning GreenSetting which used Dopler and worked as a Radar system, showing it as an example than just with the word “GreenSetting” we did not understand what it was, and that is how language works, not by saying a word but by giving something a definition.

He said that 1 “What, leads to many “Hows”, and cutting costs creates problems, for example unit mix ups caused pilots to crash short of their target because they had not got enough fuel. He said that poor data management comes from poor organization structure.

He undertook a degree at university, and his final year dissertation was on the use of ORM, conducting research on how fast it is to use when compared to other methods such as UML. He worked out that it is around 25% more efficient than the other methods

Informal -> Formal -> Derived

His personal website where more about ORM can be found is [www.ormfoundation.org](http://www.ormfoundation.org) He summed this section up by saying “Managing Systems is about Managing Information” Taking note of the ORM in Information.

He then finished by telling us that he is now teaching hand gliding in the Nevada desert when he is not working on his website.

**Week 7 – BrandFour – 10/3/2009**

Two gentlemen came from their company BrandFour, this is a local business, which works in website development. They are in their third trading year as a company. So far they have only 4 members of staff, but are looking to expand this in the near future with 1, and potentially more graduates, paying them a starting salary of £18,000 + Bonuses. They are set up in SparkHouse Studios, and while they are not themselves Lincoln graduates they do hope to supply job opportunities to students from Lincoln University.

They create bespoke websites to suite the needs of each individual customer, in order to ensure they get the best possibly product and services. As well as web development they also offer other services to their clients:

**Search Engine Optimization (SEO)** – Making sure that the websites appear on search engines, and get a good number of hits.

**Web Management System** – The ability to easily update websites without the need to enter HTML formatting code. The end user is able to understand and use this, so can maintain their own website.

**Analytics and Usability** – They use Google Analytics to ensure that the websites they create are getting a good number of hits, and to be able to advise clients of any areas of improvement that would benefit their site.

Some of their key customers are:

- ❖ Coca Cola
- ❖ Mainstay Group
- ❖ Lindum Group
- ❖ OCL
- ❖ Lincoln University

To sum up, they aim to create good websites, and make old ones more efficient via the use of their tools in order to offer good websites to both clients and users.

**Week 8 – Ken Blair – 17/3/09**

Ken Blair has had over 20 years experience within the audio industry, he runs his own business called BMP Audio, and is involved with location recording.

Location recording refers to the fact that he records on location, not in a studio, and his services are normally used for Acoustic music, such as Jazz, Classical and Folk.

When recording say an orchestra the audio is recorded live to a stereo output, meaning that it can not simply be fixed during post production, so it is necessary to record multiple renditions of the same piece in order to generate the required final composition.

Most live recordings, lasting around 70 minutes undergo between 100 and 2,000 edits before they are published to CD.

Recordings tend to take between 2 to 3 days, with around 3, 3hour recording sessions undertaken in each day.

He said that his job is a good experience, and gives him the ability to travel, however a lot of his work is based in London.

He records audio between 8 to 10 days per month, edits for 8 to 15 days per month, and does around 4 days of paper work such as VAT forms per month also.

His customers come in several forms, recording labels in London and Europe, as well as music publishers, which required CD's to accompany books etc. He also works with individuals, musicians, orchestras, choirs, bands etc.

He said that he both records, and edits, and while this is double the work, it is also double the money. He uses a program called Sadie, by Prism Sound to edit.

He showed examples of the recent places he has been, West Sussex, Festival Hall London, Studio in West London etc, and talks about the process he goes through when recording.

The work he does is for his self run business, he talked about the process he went through to get to where he is today. He is originally from Scotland, and had an interest in music from a young age, he played in bands etc. He first found he had an attraction to recording when he got hold of his uncle's tape recorder, even though he only had creaking doors to record.

He then moved on to making recordings with the band he was in, however soon found he had more of an interest in what was going on in the control room, and this is when he started looking into university courses. He was originally going to study law, get rich and buy his own studio, however he found an interesting course on music and sound recording at the university of Surry. This was a 4 years sandwich course, and in his sandwich year he went to work on Montserrat Island, where one of the beetles owned a recording studio.

After he graduated, he did a post graduate year which was very practically based, he had access to recording studios etc. He then started on the Graduate Enterprise Scheme in the late 1980's, but quickly decided to leave, and start his own business in music production. The university had graduated from offered him the chance to have his own office and access to studios, in return for him giving lectures which he accepted.

He eventually adapted his company from music production to a recording company, and now 20 years down his business is still going strong.

**Week 9 – Mike Hopkinson – 23/3/09**

Mike Hopkinson and his colleague Jane work for Mouchel Business Services, which is a FTSE400 company. The company has over 11,000 employees, 800 of which work in the Lincoln branch, it was said that Mouchel has over 550 trained ICT professionals at over 100 sites.

Mouchel work closely with their partner the Lincolnshire County Council, and were voted by the Times as “Best company to work for 2008”. They provide ICT support services to over 230 schools, and also work with Microsoft, Citrix and HP to deliver their services.

The companies overall goal is to be the first choice partner for all ICT related projects and services, and stated “At Mouchel, above all else, we have a passion for success, believe in a spirit of adventure, and have integrity at heart”.

They offer 5 work style options, and have several areas of interest including:

- ❖ Role Based
- ❖ Corporate Infrastructure
- ❖ Transformation Value Add

They offer remote desktop technologies using BTCloud which creates a virtual WAN, delivered over technologies such as WIFI and Wired LAN's. The service allows a user to connect to a server remotely, accessing a virtual desktop which contains all their files and is very secure, it also removes the need for processing power.

The presentation was concluded with the statement “Work is something you do, not some where you go” Showing that you can work from anywhere, thanks to their technologies and services.

**Week 10 – Gary Leyman – 30/3/09**

Gary Leyman works at Cisco, a company which provides voice related technologies and is seen to be a technical leader in internationalisation of hardware and software.

Internationalisation is the process of making ready software etc for use in multiple countries, and Cisco aims to make this process as simple as possible. The process involves several considerations such as:

- ❖ UTF-8
- ❖ Language Considerations
- ❖ Colour Considerations

Images etc are important to consider, as what may be good in one country may be offensive in another, and this is just one of the many issues taken into consideration with Internationalisation. Cisco are developing a Localisation toolkit, which is easy to use, and can be used by field engineers.

This should make the process of localising products much quicker and ultimately much cheaper, allowing more sales, and quicker turnaround. It includes a vast library of data including shared translation memory, culture information, etc.

**Week 11 – Mervyn K. Hobden – 21/4/09**

Mervyn K. Hobden introduced himself as coming from Lincoln's own Dark and Satanic mill, which is used to work on Radar technologies for automotive products. The company works on Millimetre Wave Readers, and was initially founded in the 1980's by MEDT in Lincoln.

EM Radiation has a wavelength of 1cm to 1m, or 30GHz to 300GHz, and is emitted by all objects, living and inanimate, but blocked by metals. Its normal operational range is within the 70GHz to 100GHz frequency range, and is mimicked for use in radars via the use of technologies such as:

- ❖ IMPATT Diodes
- ❖ Gunn Diodes
- ❖ Backward Wave Oscillators

The technology works by sending a signal out, and creating an image based on how the signal is sent back. It can be used to create functions such as Auto cruise for cars, although fog and rain can interfere with its function. It can also be used to detect and prepare the car for crashes, and the project was started in 1991. The company aims to have realised its vision of collision avoidance by 2010. The technologies are also used in Navtec surveillance radars and containment movement. The Gunn Diode was created by J.B Gunn in the 1960's