

CM2003
Dynamic Web
Programming

Lecture 1

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ME!

John Isaacs

j.p.isaacs@rgu.ac.uk

Rm 432

01224 262789

Overview Today

- What are web apps?
- Why are web apps important?
- Why are you taking this class?
- What will you learn?
- How is this class taught?
- How will you be assessed?
- What do I expect from you?

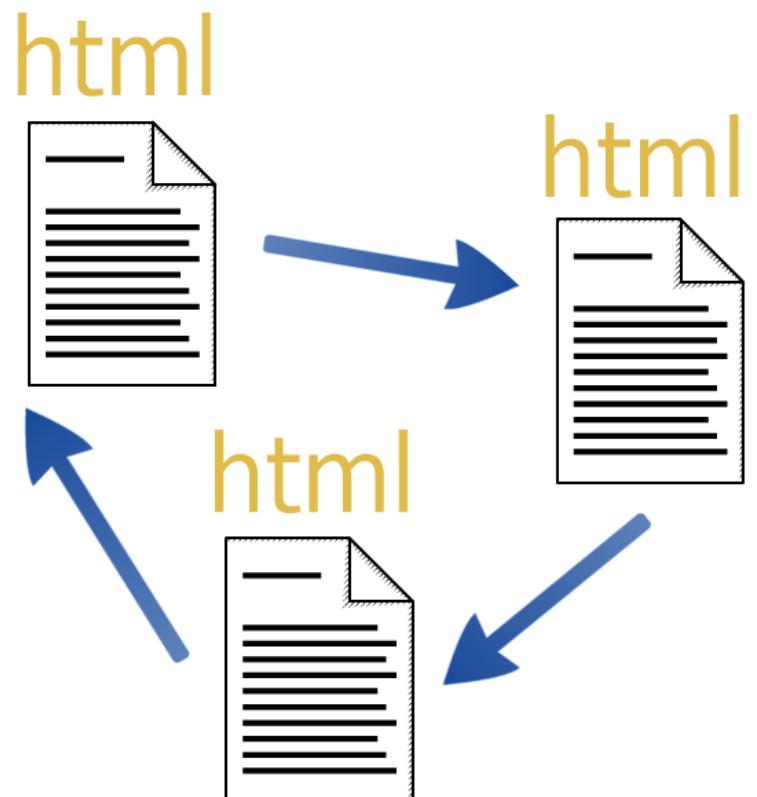
What are web apps?

A brief history of the internet

First Web Pages

Static pages of hyperlinked information

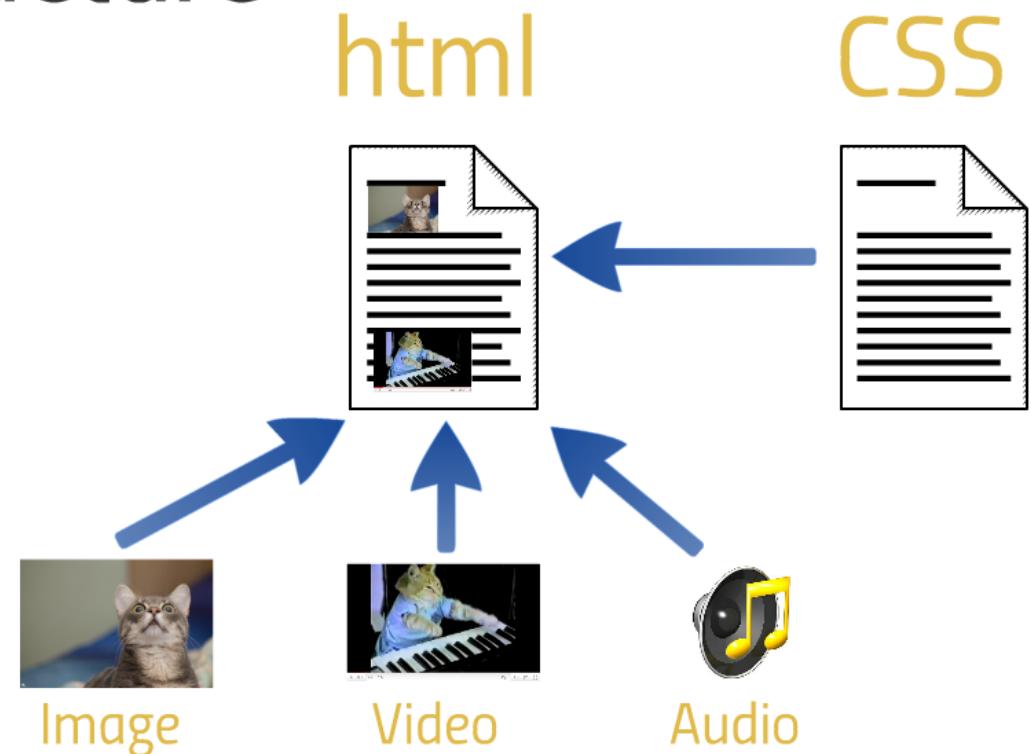
- information revolution
- created using HTML
- <mark-up language>



Style Sheets

Look and feel improved with style sheets

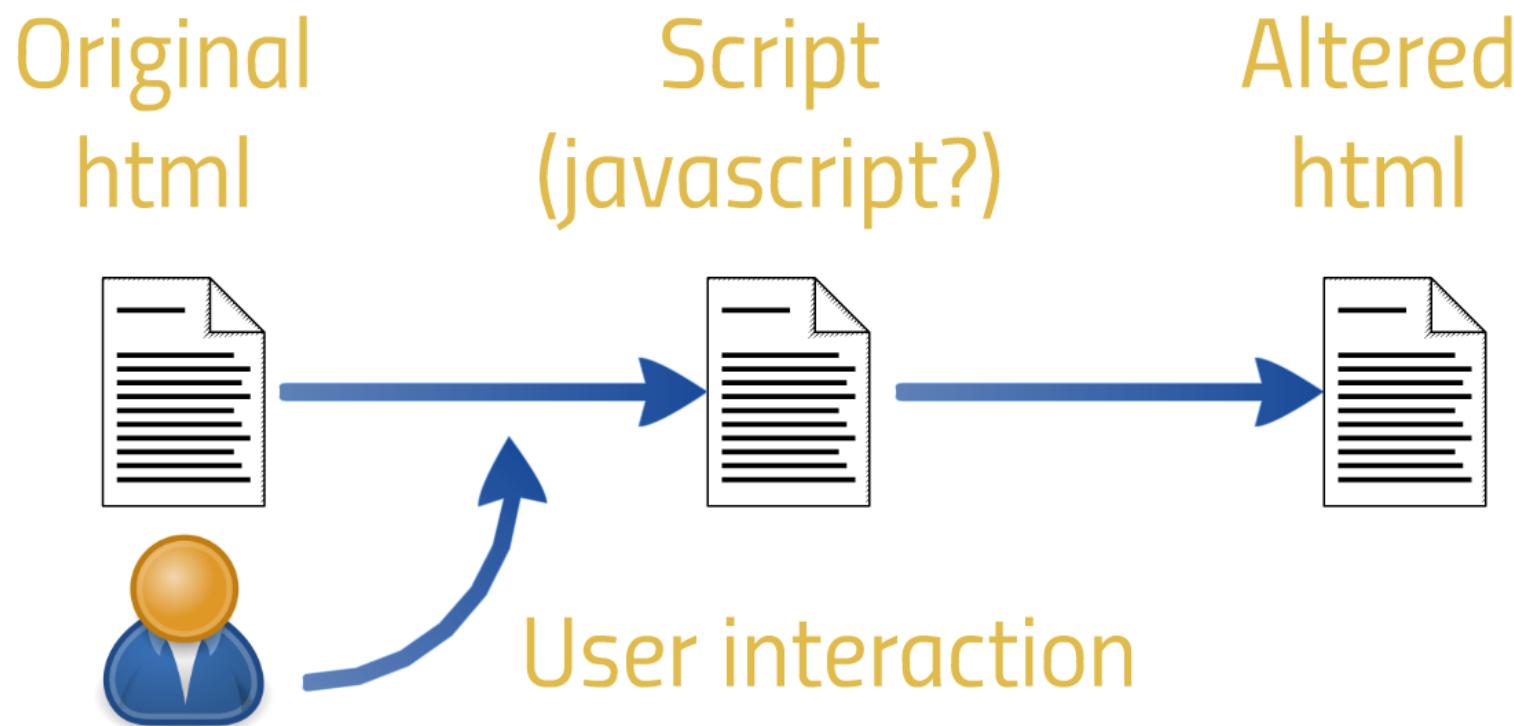
- Presentation could be separated from content and structure
- Mixed media
- CSS



Client Side Scripting

Interactive websites allowing user input

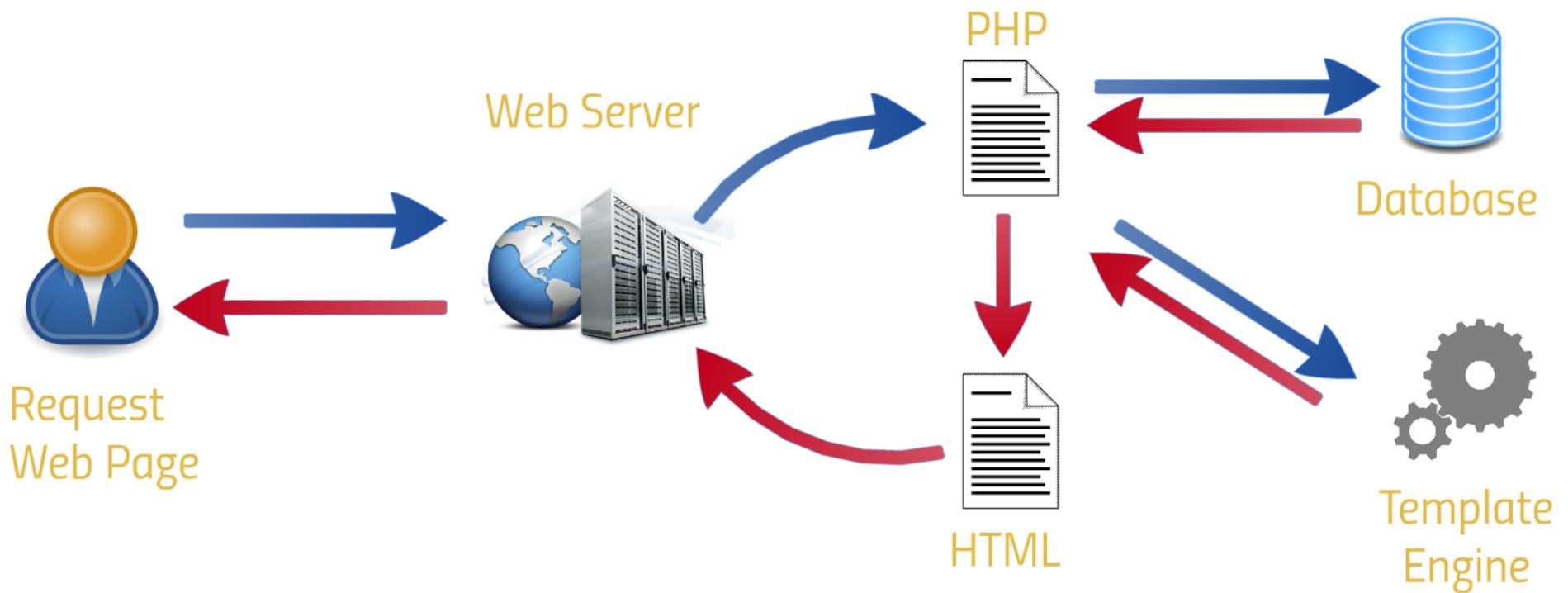
- Embedded programs / scripts
- Executed by the Browser



Server Side Coding

Server Side dynamic content generation

- Mature web server stacks (LAMP/ ISS)
- Sites became services (data, not pages)



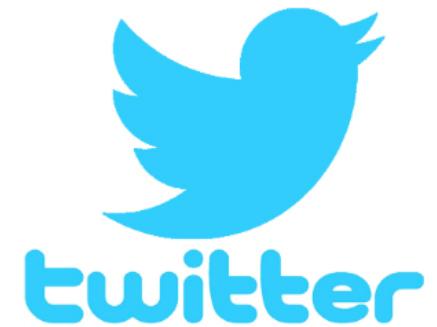


20. EXPEDITION OF 1870

Then nothing much happened

2008

Around 2008 something changed



WORDPRESS



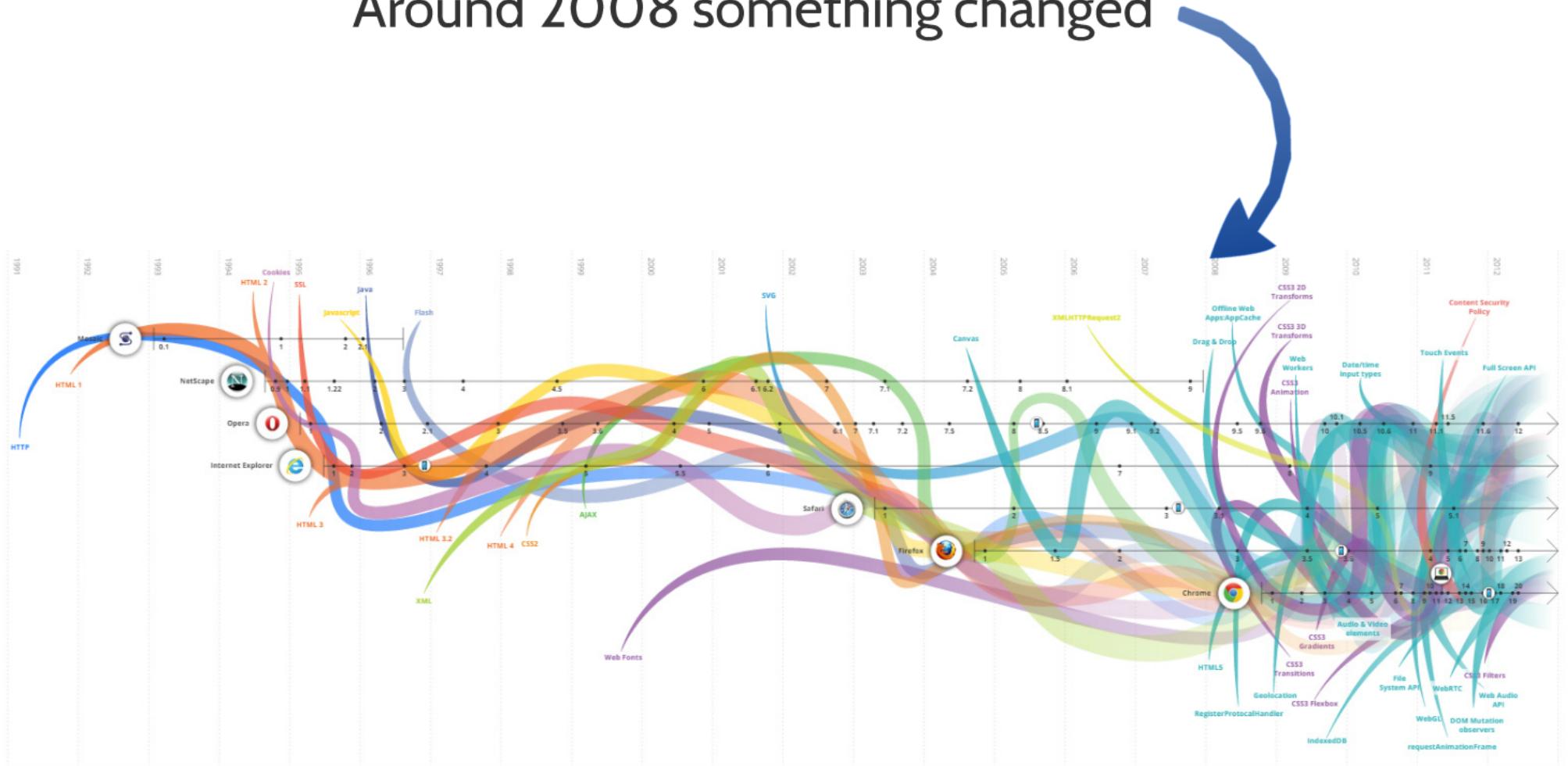
What Happened?

nothing really!

- these companies were **not** created in 2008
- they did all kind of "come of age" at around the same time
- The amount of **users** dramatically increased (more uptake of technology?)
- There was **no real technological jump** (chrome?)

Rise of the Web App

Around 2008 something changed



<http://www.evolutionoftheweb.com/#/evolution/day>

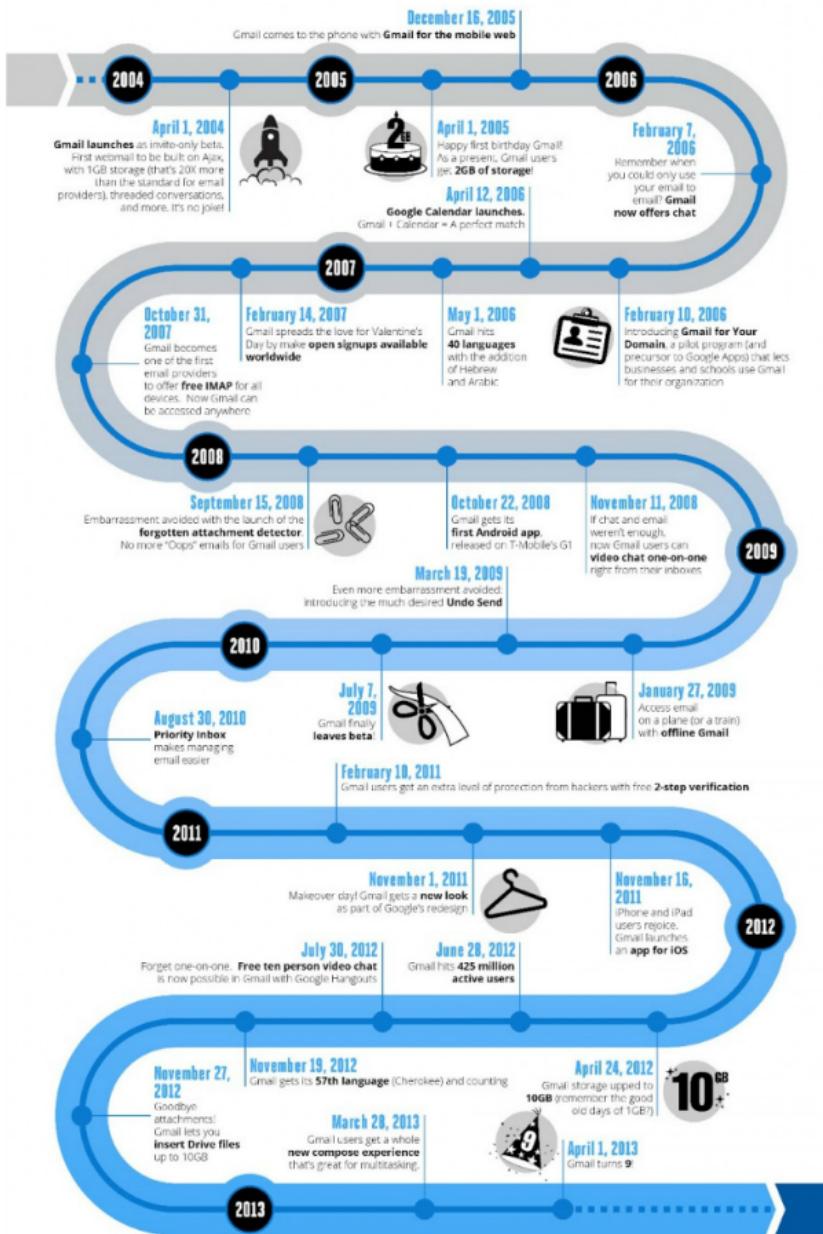
So why?

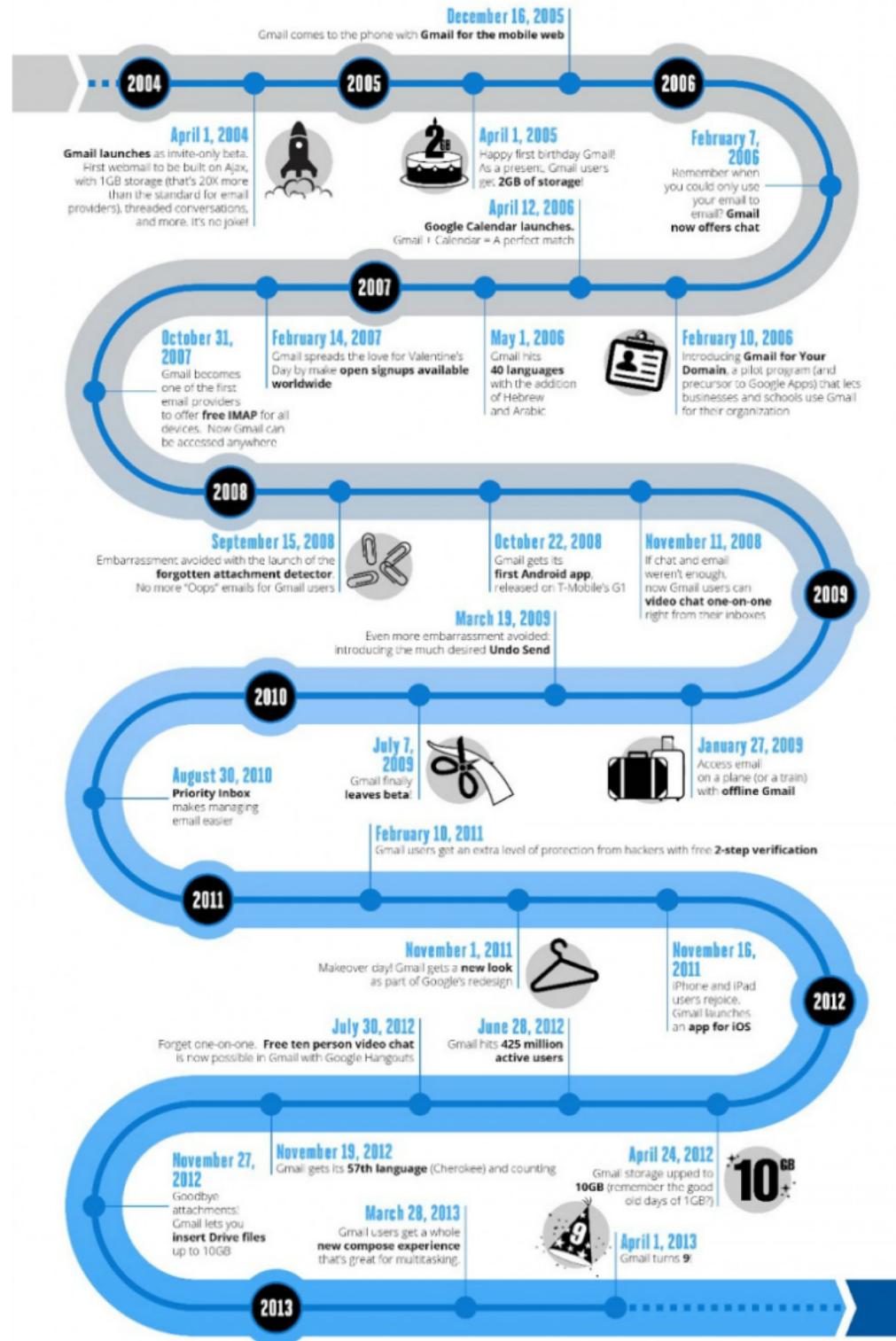
- No single technological revolution
- Better use of existing & developing web technologies (**HTML, CSS, JavaScript, Ajax**)
- **Java Applets** and **Adobe Flash** distractions disappearing (slowly but surely)
- Increased interest
- recovery from first dot com crash
- Opportunity to profit
- new ad-based revenue models

<http://www.webpagesthatsuck.com/worst-web-sites-of-2008.html>

<https://michaelianeade.wordpress.com/bad-examples-of-flash-websites/>

Evolution of a Web App





**Why are
web apps important?**

Demand for ease of use

- Nobody wants a simple web page anymore
- Desktop software for common tasks may become extinct (eg. email)
- Secure, redundant, offsite (Cloud) storage as standard
- Collaboration easily added
- No software installation
- No software updates

Development Landscape

No single ‘one-size fits all’ solution

Attempts like Java / .Net collapse under their own complexity

- easily passed by new, dedicated approaches
- cannot react to rapid shifts in market
- cannot react to changes in developer interest

Mobile vs Web Apps

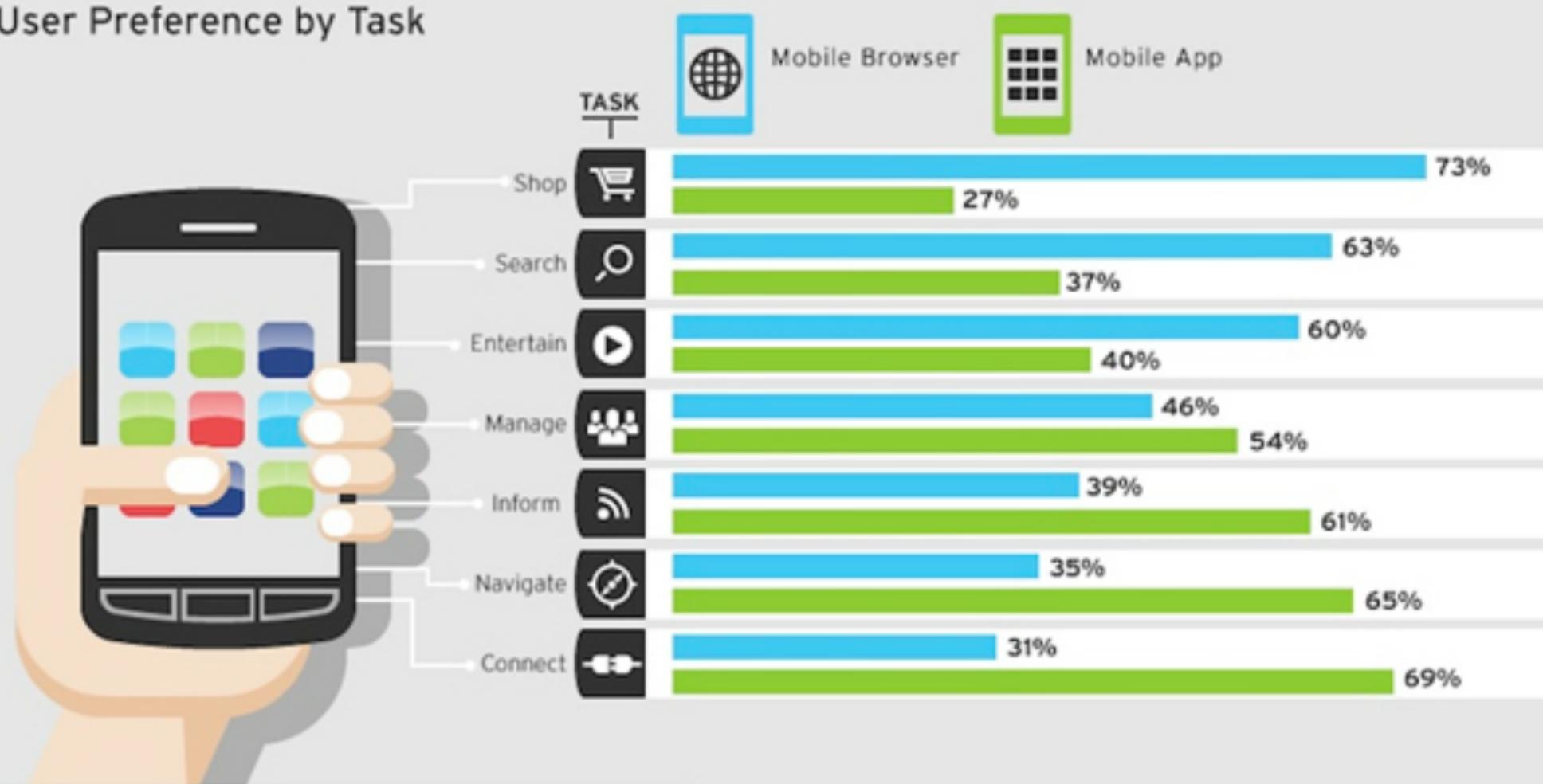
This is a bigger and ongoing question

- Web apps may have the potential to kill off native mobile development
- Web apps should allow for a build once deploy everywhere solution
- However, mobile network is not as ubiquitous as its made out to be
- And the hardware landscape at the minute is not that standardised (Android, IOS, Windows)

CONTENT USAGE

For many, the choice of whether to pursue a mobile-optimized site or mobile app will come down to content. How are people going to interact with you on mobile devices? A breakdown of which platform mobile users prefer for different tasks can help.

User Preference by Task



SO WHAT'S RIGHT FOR YOU?

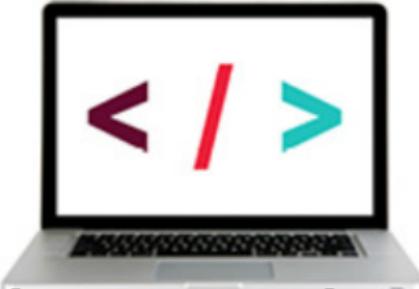
**Why are you doing this
class?**

It's a different type of development

- Web apps don't fit into a one 'tool' or technology model
- mark-up languages
- scripting languages
- database languages
- communication languages



Different Market



- Employers are looking for developers that are creative ([not code monkeys](#))
- And designers that can code ([not fine artists](#))
- Companies like, [Google](#), [Skyscanner](#), [Dropbox](#), [Amazon](#) will expect you to know these techniques
- If web apps do start to dominate the mobile arena, you've got a foot in there too

Different Languages

- Learning different languages gives you a different perspective on programming and development
- Learn to learn and learn to adapt - it will set you up for any job

**How will the class be
taught**

Time Table

Fridays

One hour lecture (11:00-12:00)

- Mix of lecture, videos, cool stuff I find under the sofa

Three hour lab (14:00-17:00)

- set exercises
- coursework development

Course Themes

- **Information Architecture**
- **Information Presentation**
- **Information Interaction**
- **Information Communication**
- **Information Accessibility**

Course Technologies

- **HTML**
- **CSS**
- **Javascript**
- **Ajax**
- **JQuery**
- **XML**
- **JSON**
- **also (if we have time) some frameworks such as Angular and Bootstrap**

HTML5

Hypertext Mark-up Language



Describes the structure
and content of web pages
(and web apps)

<http://www.w3schools.com/html/default.asp>

CSS

Cascading Stylesheets



Control the presentation of
information within a web app
Stylesheet language (non-
programming)

<http://www.w3schools.com/css/default.asp>

Javascript / JSON/ jQuery

Client-side scripting language

world's most executed programming language

Simple data description format

worlds easier than XML



Library to improve web development

world's favourite JavaScript enhancement

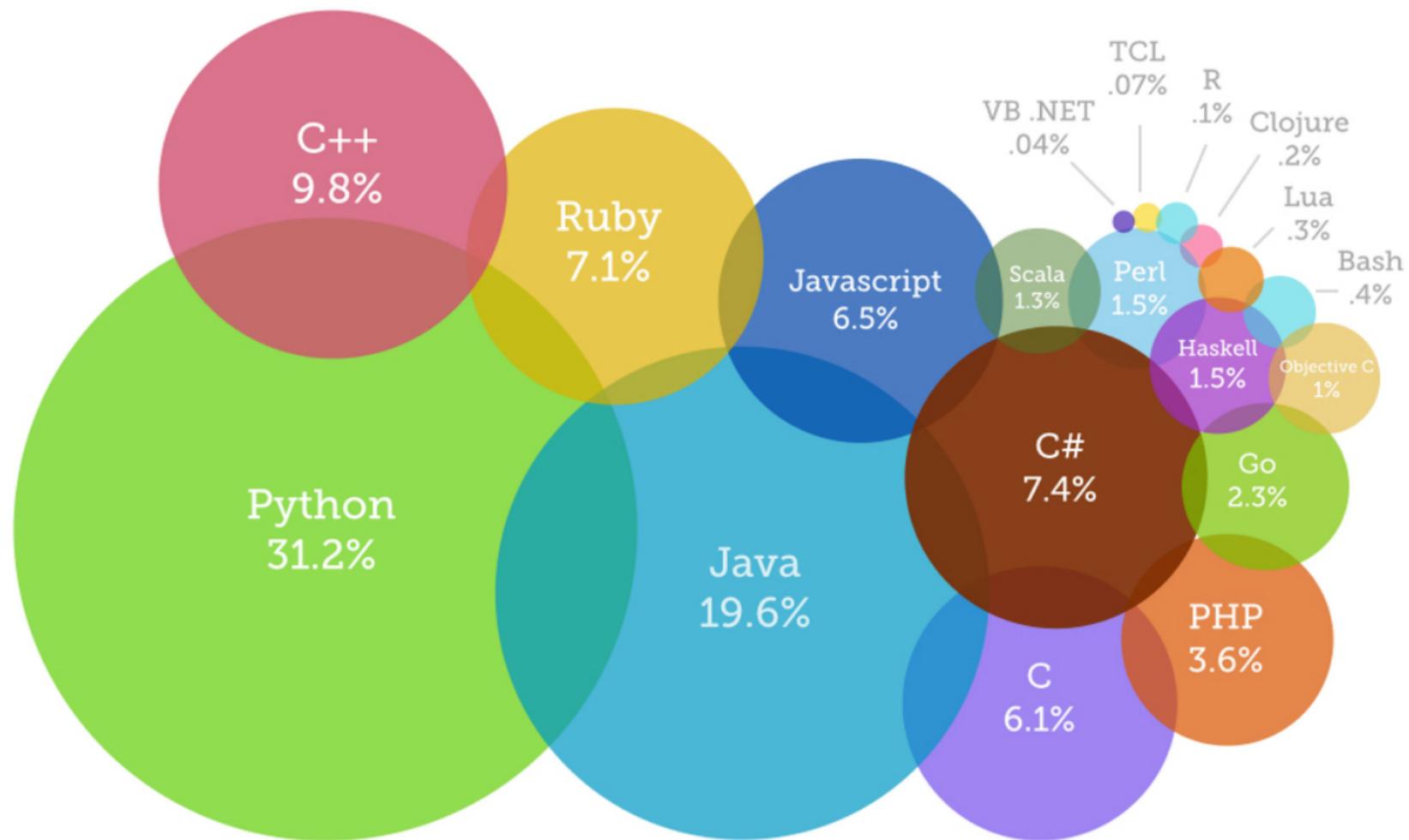


<http://www.w3schools.com/js/default.asp>

<http://www.w3schools.com/jquery/default.asp>

Javascript / JSON/ jQuery

Most Popular Coding Languages of 2015



AJAX



Asynchronous JavaScript and XML

Not strictly a single technology

A group of technologies that can be used to allow more responsive websites through asynchronous calls

<http://www.w3schools.com/ajax/>

Assessment

Assessment

is 100%

Coursework



if you don't hand something in

What you need to do

- Create and deploy a stunning web application
- Gain experience of the design process
- Gain experience of the development process
- Critically assess web app development

Don't worry we will show you how to do it

be creative

be stylish

keep it simple

keep it clean

Don't do this

<http://www.webpagesthatsuck.com/>

Structure of Assessment

Work in Groups

now work
with your group!



Structure

Split into three deliverables:

- Concept Report
- Interface Design
- Functional Implementation

Concept Report

- structured report
- fixed word length
- emphasis on diagrams
- architecture of the system
- wireframe interface
- web service requirements
- user interaction / experience
- created using Google Docs

20%

Interface Design

- illustrate interface look and feel
- use placeholders for content
- developed in HTML and CSS
- demonstrate clean coding
- deployed online
- demonstrated in class

40%

Functional Implementation

- responds to user interaction
- loads dynamic content from 3rd party web service
- developed in JavaScript, Ajax, JSON
- illustrate separation of concerns
- deployed online
- demonstrated in class (demo day)

40%

DEMO

At the end of the course you get to demonstrate the excellent web app your group has developed to the whole class and we'll have a student's choice vote :-)

Actual Skills

- Web Apps require a wide range of skills
- Teams of designers / developers collaborate but speak different languages
- Opportunity to strengthen existing skill or develop new skills
 - technical communication (writing / drawing)
 - design (architecture and style)
 - development (functionality)
 - presentation (demos)

Example Web Apps

Search Flip Concept

- The challenge of the game is for the user to receive results in a random order, and they have to fix them as they expect them to appear
- They are scored by comparing the actual ranking of results against their personal ranking for feedback



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SafeSearch strict ▾

Search

About 1,290,000 results (0.29 seconds)

Everything

Images

Maps

Videos

News

Shopping

More

Aberdeen, UK

Change location

The web

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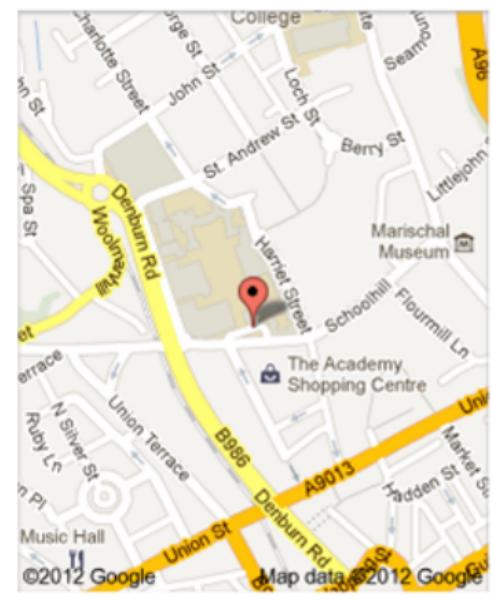
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Everything ok?



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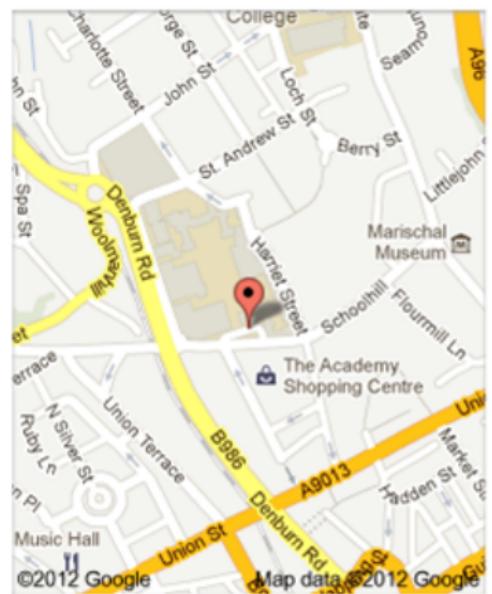
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Actual Results

Example 2 - JuSe

- JuSe - Junior Search
- kids have different information finding abilities than adults
- varies by age group / developmental stage
- young kids do not have as much cognitive grasp of query formulation compared to adults
- but they do have information needs
- how can we make a search service to suit them?

JuSe Query Interface

JuSe: The Junior Search Engine

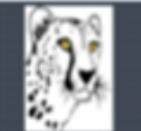
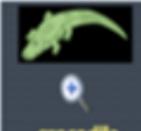
pooley.dcs.gla.ac.uk:8080/juse/

search! Search Words Results Edit Feedback

Drop pictures here

Characters

Animals

search!



Search Words

Results



Groups

Year 3 CASD & Year 3 DM
Should be in groups from CM3032

Year 2 you can pick your own
groups of 4-5 , but they **must be**
mixed

Each group should have at least
2 CS or BIT and 2 DM or CGA

Let me know your group by next week

**Any group
problems,
Let me know**



Summary

Complex Stuff

The mixture of technologies can be confusing

Be creative, but be reasonable!

Use good coding practices attracts more marks
if code is:

- well structured
- well presented
- well documented / commented

Fun Stuff

- Immediate results
- Tangible output
- More focus on user interface
- More focus on information
- Open technology set
- Evolving technology set

Busy classes :(

- Space is limited
 - work in groups
- Be patient
- Mistakes will happen
- Feedback (both ways) is important
- If there is anything you want to cover, let me know.

