COMP3013/GC06 Database and Information Management Systems/ Database Systems

(Project Component)

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Objectives

- The practical component counts for **30%** of the module assessment.
- The goal is to build a 3-tier web application implementing the brief given.
- Learn about a range of web-based technologies, including HTML, CSS, PHP, etc.
- Create a SQL backend database implemented with MySQL, of reasonable complexity.
- Deploy into the cloud on Azure.

Admin

- Copies of lecture slides etc. will be on the Moodle site.
- Lab Sessions:
  - Friday 4-6pm in labs 1.05, 1.21
  - Can use your own machines as well.

Groups

- Work in groups of **THREE** where possible.
  - Either PG or UG, not mixed.
  - See lists on Moodle.
- All team members expected to make an equal contribution.
  - All receive the same mark (no discussion).
    - One fail, all fail...
    - If a group member is not contributing, **take action**.
  - Must organise yourselves properly.

Assessment

- Submit the source code of the working application, along with sample data, and a short supplementary report.
- Give a demonstration of the working application:
  - By creating video and uploading it to YouTube.
    - Submit the URL.
    - The video does not have to be made public on YouTube.
  - Or giving a live demonstration in last week of term.
  - 5-8 minutes in length.
- UG pass mark is 40%, PG 50%
- Marking takes into account different backgrounds of UG and PG students.

Grading

- Coursework is graded A-F.

Doesn't work or lack of substance	F
Partly works with basic elements in place	D
Works OK - Satisfactory	C
Works well, good database, reasonable UI	B
Works very well, v. good database, good UI	A
Excellent, well designed in all aspects	A+

Technologies

- The support lectures will focus on using the *AMP stack, plus Azure.
  - OS + Apache server + MySQL Database + PHP scripting language
  - LAMP for Linux platform
  - MAMP for Mac OS X platform
  - WAMP for MS Windows platform
  - Or XAMPP.
- CS labs 1.05/21 have WAMP installed.
- But all software is Open Source so can be downloaded and installed on your own computer.
  - Easy to use pre-packaged versions available.

Other technologies

- You must use one of the *AMP stacks for development.
- For the client side (web pages) you can use HTML5, CSS, JavaScript, JQuery, Twitter Bootstrap or similar libraries.
  - Not Flash.
  - Should be compatible with Firefox, Chrome, Safari.
- Must use the MySQL database via SQL in PHP.
  - Database access must use the SQL knowledge being covered in this module and previously.
  - Cannot use PHP frameworks.
- Make sure everything is properly referenced to avoid plagiarism issues.

Azure

- Microsoft's Cloud Service
- http://www.windowsazure.com
- Wide range of services
  - Web services (PHP, MySQL)
  - Windows services and virtual machines (VMs)
  - Linux virtual machines
- You can develop your applications locally (e.g., lab or your own machine).
- Then deploy to Azure.

Azure Accounts

- You need an access code pre group
  - Will give you full access for 180 days
- Email me for a code:
  - graham.roberts@ucl.ac.uk
  - put in subject line: Azure Code
  - Create a new Outlook account to work with Azure.
- Register on Azure
  - May take a few days to be confirmed
- See the familiarisation worksheet on Moodle for more information.

Azure deployment

- Required for COMP3013
  - Can use the web services.
  - Even better if you create your own Linux VM!
    - Or a Windows Server, or multiple options.
- Not required for COMPGC06
  - But you can try out Azure.
  - And you are strongly encouraged to deploy to Azure.

Outline lecture content

- Week 1 - introduction to *AMP and overview of web applications.
- Week 2 - Basic PHP
- Week 3 - Databases and SQL with PHP
- Weeks 4,5 - More advanced PHP (OO programming) + Azure.

- Week 6 Reading week

- Weeks 7,8,9 - Further PHP and SQL.

Outline of Your Progress

- Week 1 Decide what features your application will have. Start getting familiar with *AMP.
- Weeks 2,3 Begin planning your database and practice using PHP. Start exploring Azure.
- Week 4 Practice using using databases and SQL with PHP.
- Week 5 Begin serious implementation of your application. Get a basic first version working.

- Week 6 Reading Week

- Weeks 7,8 Incrementally extend your application to add the full set of features and make it robust. Add more advanced features if time. Work on demonstration video.
- Week Fully deploy onto Azure.
- Week 10 Create your video and submit the final results.

Other Resources

- Much available on line (Google, YouTube)
- PHP: http://www.php.net/
- MAMP: http://www.mamp.info/en/index.html
- WAMP: http://www.wampserver.com/en/
- LAMP: use distribution package manager and/or find a tutorial on the web
- HTML: http://www.w3schools.com + many other sites.
- CSS: www.w3schools.com/css + many other sites
- MySQL: http://www.mysql.com/
  - Download MySQL Community Server
- Twitter Bootstrap http://getbootstrap.com

Tools

- Can use a programmer's editor like Notepad++, emacs, Sublime Text 2 or JEdit.
- Or an IDE like Eclipse, NetBeans.
  - Download the PHP plugin and use with MAMP/WAMP.
  - An IDE is likely to be much more productive.
  - NetBeans supports WAMP/MAMP better.

Project Discussion Forum on Moodle

- Use this forum to discuss the project
- Ask questions
- Post useful information
  - e.g., Useful tutorials, tools, tips and tricks, etc.

Questions?