Department of Computer Science UCL

Database and information systems COMP3013/GC06

Postgraduate coursework briefing

This document explains the arrangements for the coursework, a group project in which you will design and build an auction system. Through this coursework you will develop your knowledge of database technologies and your skills with database development methods.

This project runs through most of the term and counts for 30% of the marks available for the module. The deadline for submission is the end of the friday of the ninth taught week of term (we will remind you of the date when it is due). Each week (until week 8) we will provide a one hour lecture-format tutorial to explain the technologies and methods you will need to use in your projects. These tutorial sessions are followed immediately by lab sessions when groups will meet to work on their project and will be able to discuss their work with teaching assistants. The project is self-directed in the sense that you will decide how you will achieve the requirements that we set for you in the design brief below. You will likely need to investigate additional techniques needed to implement your systems.

The coursework must be performed in groups of four and groups must be formed by the end of the first week using the wiki on moodle: postgraduate groups wiki. A list of postgraduates taking this module is posted on the moodle page with emails to allow you to self-form your groups. Students who haven't joined a group by the end of the first week of term will be allocated to groups by the tutors.

Each group will build a functioning database system that achieves the capability requirements we set out below in the Design Brief. You should build your demonstrators using WAMPserver. WAMP provides web server services on localhost under Windows using Apache, MySQL and PHP. WAMP is installed on the lab machines we use in the scheduled lab sessions and in the lab tutorials we will be explaining how you can use it. We recommend that you install WAMP on your own windows machines or use MAMP under OSX or a version of XAMPP. You may not use any proprietary development frameworks. You will need to populate your database with illustrative data.

You may host your project on Microsoft Azure to gain experience of hosting a real service and managing a cloud-based MySQL instance. Azure supports PHP with MySQL integrated with version control services such as Github. This allows groups to develop their systems on their local or lab machines with their WAMP stack and then push their code into the cloud to run on Azure. The Friday lab tutorial lectures given by Dr Roberts will cover Cloud and Azure.

Your design work should be focused on the database design and follow the structured methods taught in the introductory short course. You should translate the requirements as you interpret them into what data should be stored and the transactions that those data should support, how the data will be modified and who will have access to it. You must create an entity relationship diagram to fully represent the data of interest and their relationships and attributes. You should translate that diagram systematically into a database schema defining the tables and relationships for your database. You should show that the database is in third normal form.

Submission requirements and assessment

The deliverables are a video of a demonstration of your working system, a design report and your source code.

The video demonstration should be about 5 to 8 minutes long with voice-over narration. You can use free screen recorder tools such as Jing or CamStudio to make your video. The video must show explicitly how each capability listed in the design brief below is achieved in your system. It must go through each capability in the order in which it is listed in the Design Brief. The narration must refer to the capability and preferably the video should flash back to the visual list. With a spoken narration the video must show each capability you have achieved either through interaction with the user interface of your system or through execution of the relevant queries on the database through phpmyadmin. Examples of videos from previous years are on the moodle page. Videos should be uploaded to Youtube and made unlisted.

You need to submit your design report (a single pdf file only) which should contain the link to your video. The submission link is on the Group Project page.

The design report should contain:

1. URL for your Youtube video
2. Your entity relationship diagram, giving any assumptions that it makes about the processes that use the data.
3. A listing of your database schema with an explanation of how it translates the ER diagram.
4. An analysis showing that the database schema is in third normal form.
5. A listing and explanation of your database queries.
6. You must submit a copy of your code via moodle and provide us with access to your system if it is hosted on Azure.

As well as the design report, you should submit an archive containing your source code (php, SQL, html css, etc. files that you have created). Source code only please, no binary data files or database dumps. Please put your group number in the zip file name.

You should submit a draft entity relationship diagram as a separate submission at the end of the second week of term. The diagram will be the best view you have at that point even if it changes later. The diagram won't be assessed but we will give you formative feedback on it.

Your project work will be marked against the rubric visible at the upload link. Marks for your project work will be awarded first for the capabilities (ie functional requirements) your system achieves, and second, for evidence of the database design process you followed. Total marks for these two components will be allocated on an 80%/20% basis. The members of a group will receive the same mark.

Design brief

Your online auction systems should have as many of the capabilities listed below as you are able to develop. Marks will be awarded for each capability achieved and will take account of the quality and completeness of the design and implementation. You should design a database schema to store the data needed to achieve these capabilities. You should build the database and populate it with illustrative data. You should develop the queries and updates needed to achieve each capability. The presentation design of your user interface and its usability is not being assessed and you should avoid spending time on these; our concern is with the design of the database, the queries on the database to achieve the capabilities and the application function.

	Capability	Postgraduates Max. marks%
1.	Users can register with the system and create accounts. Users have roles of seller, buyer or administrator with different privileges.	10
2.	Sellers can create auctions for particular items, setting suitable conditions and features of the items including the item description, categorisation, starting price, reserve price and end date.	10
3.	Buyers can search the system for particular kinds of item being auctioned and can browse and visually re-arrange listings of items within categories.	10
4.	Buyers can bid for items and see the bids other users make as they are received. The system will manage the auction until the set end time and award the item to the highest bidder. The system should confirm to both the winner and seller of an auction its outcome.	10
5.	Buyers can watch auctions on items and receive emailed updates on bids on those items including notifications when they are outbid.	10
6.	Sellers can receive reports on the progress of the auction through to completion and how much viewing traffic their auction items have had.	10
7.	Buyers and sellers can see a report summarising their buying and selling activity. They can accumulate feedback points and see a summary of other users' feedback.	10
8.	Buyers can receive recommendations for items to bid on based on collaborative filtering (i.e., 'you might want to bid on the sorts of things other people, who have also bid on the sorts of things you have previously bid on, are currently bidding on).	10