

Coursework Title: **eAuction System OOAD**

Module Name: **Object Oriented Systems**

Module Code: **5104COMP**

Level: **5**

Credit Rating: **20**

Weighting: **40%**

Maximum Mark Available: **100**

Lecturer: **Mr. Glyn Hughes**

Contact: *If you have any issues with this coursework you may contact your lecturer whose contact details are:*

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Room: **604B**

Hand-Out Date: **28th Jan 2019**

Hand-In Date: **22nd Feb 2019**

Hand-In Method: **Canvas**

FeedBack Date: **15th Mar 2019**

FeedBack Method: **eMail**

Programme(s): **CS, CSc, SE, CF**

Introduction:

This coursework is to be attempted **individually**. You must submit your work to Canvas on or before the due date.

Employ an **OOAD** (**O**bject **O**riented **A**nalysis & **D**esign) process in designing an eAuction system from a given requirements document and use the **UML** (**U**nified **M**odelling **L**anguage) to diagrammatically model the eAuction system's functionality.

You should produce . .

1. UML **Use Case** Diagram.
2. List of **Nouns** from the **Requirements Document**.
3. Revised list of **Nouns** that specify **Candidate Classes**.
4. UML **Class** Diagram.
5. Identify Class **Attributes**.
6. UML **State** Diagram.
7. UML **Activity** Diagram.
8. Identify Class **Operations**.
9. UML **Communication** Diagram.
10. UML **Sequence** Diagram.

Learning Outcome(s) Being Assessed:

1. Illustrate the concepts of object oriented design.
 2. Specify object oriented designs using the unified modelling language.
 3. <not assessed in this coursework>
 4. <not assessed in this coursework>
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Details of Task:

The eAuction system allows multiple users to conduct auctions electronically. Once a user has setup an account, they are able to act as a seller and start an auction by listing an item to be sold. They may also act as a buyer by browsing auctions that are in progress and bidding on any item whose auction has not closed. A user does not need to setup an account to simply browse auctions in progress.

An auction is started when a seller inputs data including, a description of the item, the starting price, the reserve price and a date when the auction will close. The system enforces an upper and lower bidding increment of 20% and 10% of the starting price respectively. The system also enforces a closing date ≤ 7 days from the current date. Once the data has been input, the auction automatically becomes pending and the seller must verify the auction before it starts.

When a user wants to make a bid against an item, they must first locate the auction in question by browsing the auctions that are in progress. They may then make a bid that the system must check is within the upper and lower bidding increment amounts.

Each auction keeps track of every bid made against the item. Once the auction closes the system checks to see if the item's reserve price has been met and if so, informs the buyer with the highest bid of their victory. If the item's reserve price has not been met, the system informs every buyer who made a bid and the auction is closed.

Both sellers and auctions may be temporarily blocked which prevents the sellers from logging on or the auctions from being browsed or bid upon respectively.

The requirements document above is only an overview of the system. It does not incorporate every aspect of the system's functionality. You must use common sense / assumptions along with the OOAD process to define parts of the system that are poorly described.

You should produce . .

1. UML **Use Case** Diagram.
 - Try to use the << uses >> arrow to relate functionality.
2. List of **Nouns** from the **Requirements Document**.
3. Revised list of **Nouns** that specify **Candidate Classes**.
 - Justify why you exclude any Noun.
 - Identify any Noun that might become an Attribute.
4. UML **Class** Diagram.
 - Make appropriate use of associations, compositions & aggregations and ensure that you specify multiplicity.
5. Identify Class **Attributes**.
 - Specify the data type.
6. UML **State** Diagram.
 - Model the high level state transition for a single auction only.
7. UML **Activity** Diagram.
 - Model the process of a seller starting an auction.
8. Identify Class **Operations**.
 - Specify the return data type.
9. UML **Communication** Diagram. *NOTE : SAME SCENARIO AS 10*
 - Model the process of a two buyers bidding for an item and one of them being victorious.
10. UML **Sequence** Diagram. *NOTE : SAME SCENARIO AS 9*
 - Model the process of a two buyers bidding for an item and one of them being victorious.

What you should hand in:

A word processed report not exceeding 20 pages.

Marking Scheme/Assessment Criteria:

Assessment	Assessment Criteria	% weighting for part
1	UML Use Case Diagram.	10
2	Nouns & Candidate Classes .	10
3	UML Class Diagram (with Attributes & Operations).	30
4	UML State & Activity Diagrams.	20
5	UML Communication & Sequence Diagrams.	20
6	Quality Assumptions / Best Practice.	10

Guidelines:

- Correctly reference resources that you use.
- You must specify any assumptions you make as you make them and include them and any general comments, along with your diagrams.
- Periodically and during lecture time, workshop sessions will run to help guide you during your OOAD of the eAuction system.

Resources Required:

You may use the computing labs on the 6th & 7th floors of the Byrom Street Campus as well as the 1st floor of the Henry Cotton Campus.

You should make use of these specific tools & resources:

- Microsoft Office 2013 / 2016 (Visio & Word).
- Lecture Materials.
- The Internet.

Extenuating Circumstances:

If something serious happens that means that you will not be able to complete this assignment, you need to contact the module leader as soon as possible. There are a number of things that can be done to help, such as extensions, waivers and alternative assessments, but we can only arrange this if you tell us. To ensure that the system is not abused, you will need to provide some evidence of the problem.

More guidance is available at:

<https://www.ljmu.ac.uk/about-us/public-information/student-regulations/guidance-policy-and-process>

Any coursework submitted late without the prior agreement of the module leader will receive 0 marks.

Academic Misconduct:

The University defines Academic Misconduct as ‘any case of deliberate, premeditated cheating, collusion, plagiarism or falsification of information, in an attempt to deceive and gain an unfair advantage in assessment’.

This includes attempting to gain marks as part of a team without making a contribution. The Faculty takes Academic Misconduct very seriously and any suspected cases will be investigated through the University’s standard policy (<https://www.ljmu.ac.uk/about-us/public-information/student-regulations/appeals-and-complaints>).

If you are found guilty, you may be expelled from the University with no award.

It is your responsibility to ensure that you understand what constitutes Academic Misconduct and to ensure that you do not break the rules. If you are unclear about what is required, please ask.

For more information you are directed to following the University web pages:

- Information regarding academic misconduct:
<https://www.ljmu.ac.uk/about-us/public-information/student-regulations/appeals-and-complaints>
- Information on study skills:
<https://www2.ljmu.ac.uk/studysupport/>
- Information regarding referencing:
<https://www2.ljmu.ac.uk/studysupport/69049.htm>