**General information:**

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| Study programme and class | Computer Science, DMO1401-3.semINT |
| Date and name of the teacher who has filled out the overview of contents and structure | February 2015, Tove Zöga Larsen |
| Semester | 3. Semester |
| Title of the project | An Online Auction House |
| ECTS points | 2 ECTS |
| What will the student have learnt/be able to do when having completed the subject/project? | The project is mandatorySubjects The Project involves the subjects *Software Architecture and Distributed Programs* (SDP), *Computer Network and Distributed Systems* (CDS) and *System Development Methods* (SDM). Purpose The purpose of the project is to give you an opportunity to work together and use what you've learned in a context. Goals When you've completed the project you'll be able to:   * Design and program a simple client/server-system using .Net Socket. * Design and document a distributed architecture and a distributed solution with relevant design patterns. * Describe and argument for the design specifically for the use of threads, servers and clients . * Manage a minor project * Manage the quality in a project * Document product and process |
| Contents | Your task is to make an online auction house.  On the server the auctioneer sells products to the highest bidder. All clients can bid on the available products. When a client bids, the bid must be broadcasted to all attached clients. If a client makes an invalid bid, the server must give an error message to the client. The invalid bid could for example be a price equal to or lower than the current highest bid.  When a client joins the auction house a message is received about the available products including lowest price and current highest bid.  You have to take the gavel into account, that means when at least one client has joined and at least one bid has been made and there haven't been any bids in 30 seconds the auctioneer (server) will broadcast: *First*, 10 seconds later: *Second*, and 10 seconds later again: *Third – Sold to X for Y $*. The person (X) can be identified as the clients IP/Port address. |
| Method | SDP Develop a client/server solution based on sockets. The server has to be thread safe.  It's sufficient that the system can handle a single product, additional products can be added when this requirement has been met.  The systems requirements is prioritized as follows:   1. Sign in/join to the auction house. 2. Give a bid. 3. Error message at wrong bid. 4. Broadcast of biddings. 5. Gavel.  CDS Describe in max 1 A4 page:   * Where and how it has helped that the solution could be programmed with threads. * Sketch how your solution would have been if it hadn't been possible to use threads. * Sketch which problems that can occur and where they can appear because you used threads. Sketch also how you tried to solve and avoid these problems.  SDM You have to make a short report (max 5 pages and appendixes if any). The report need to:   * Document the product so that your peers can understand and further develop the system. * Document the process so that you and your supervisors can see how you can improve your skills of managing projects. |
| Curriculum / literature |  |
| Equipment |  |
| Test form / assessment | Delivery and evaluationSDP Each group must make an oral presentation of their solution. This will take place on Tuesday March 10th. Bjarne will ask questions and give an oral feedback of the solution and the presentation.  In the presentation you especially have to put focus on how you designed client and server, the use of common resources and how you made the server thread safe.  A schedule for the group presentations will be uploaded to Fronter during week 10. CDS The solution (1 A4 document as pdf) has to be delivered in Fronter at latest **Monday week 11 at 8:30**. SDM Delivery before **Monday week 11 at 8:30**.Each group will hand in the report with appendixes as a pdf in Fronter.  The reports will be graded and commented orally on class. |
| Other general information |  |

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| WEEK | TOPIC | CONTENTS. Describe the expected content of the week’s lessons in a few sentences | Literature | Teacher initials |
| 10 | Project | The project will be made during week 10 2015. The work is done in groups of about 3 – 5 people. The students create the groups themselves.  During this period the teachers are available with guidance and consultancy. We will follow the normal time schedule – Bjarne will be available Monday and Tuesday, Sebastian on Wednesday, Tove on Thursday, and Steffen on Friday. If you need assistance on other days, you must make an appointment via e-mail. |  | BjLa, ToZL, StMo |