

**Distributed Programming I**  
*Web Programming Test Assignment*

**Submission deadline June 26, 2017, 11.59p.m.**

Build a simplified version of a website for managing online auctions. For the sake of simplicity, the web site considers only one auction, and users can bid only multiples of 0.01 euros. The initial bid value is set automatically by the system to 1.00 euros.

The website must have the following features:

1. On the home page of the site, one can view the highest bid value (called simply BID in the following), along with who did it, displaying the corresponding email.
2. Each user can sign up freely on the site by providing a username, which must be a valid email address, and a password, which must contain at least one alphabetic character and one numeric character (the user must be warned otherwise, before sending username and password to the server). A user "i", after signing up or authenticating (if already signed up), can set a maximum value (THR\_i), greater than BID, which the user is willing to bid at auction, so that the system automatically bids on the user's behalf with the mechanism described below. THR\_i is kept secret by the system and is shown to the user only if authenticated. The THR\_i value can be changed at any time by the authenticated user.
3. The auction mechanism works as follows. Whenever a new value of THR\_i is entered on the user's personal page, the system automatically checks that it is greater than the current BID value, otherwise, the operation is canceled and a special error message is displayed to the user. After having set the THR\_i, the system proceeds as described in item 4 to determine the new BID value visible to everyone, and the user is informed of the outcome of the operation ("you are the highest bidder" or "bid exceeded"). The message "you are the highest bidder" must be displayed in green while "bid exceeded" should be displayed in red, using CSS rules.
4. Determining the new BID value: when a new value of THR\_i is entered, it is compared, internally by the system, with the THR\_i values already set by other users. The user with the maximum value of THR\_i is selected by the system, and the BID value is set to the maximum of the THR\_i of all users other than the selected one, adding 0.01 euros. All the THR\_i of other users will be reported, on each user's personal page, when the user is authenticated, as "bid exceeded". If there are no other users with THR\_i set, BID is left unchanged. If there are two or more users with the same value of THR\_i, the user who entered the bid first is selected and his/her THR\_i becomes the new BID.

Example:

Let us assume there are 3 users A, B, C. Initially BID=1.00 euros (offered by nobody) and no THR\_i is set.

A now tries to set THR\_A = 0.95. This should be prevented, because it is not possible to bid less than BID.

A sets THR\_A = 2.50. As there are no other users with THR\_i set, BID remains 1.00 (offered by A).

B sets THR\_B = 1.80. The maximum of all the THR\_i is A's THR\_i (2.50), so A is selected. The maximum of all the other THR\_i, excluding A, is 1.80. So, the new BID is 1.81.

C sets THR\_C = 3.00. The maximum of all the THR\_i is C's THR\_i (3.00), so C is selected. The maximum of all the other THR\_i, excluding C, is 2.50. So the new BID is 2.51 (offered by C).

A sets THR\_A = 3.00. The maximum of all the THR\_i is again 3.00 (offered by both A and C), so C is selected because C's bid was performed first. The BID becomes 3.00 (offered by C).

5. The system should not keep the history of operations but only the current state for each user.

6. Once authenticated, the user can continue to make THR\_i settings with the procedure described above but without the need to authenticate or sign up again. There must be a command to cancel authentication (i.e. to log out).
7. In the delivered project, there must already be three users (A, B, C) with usernames a@p.it, b@p.it, c@p.it, and passwords p1, p2, p3, respectively, who have made no bid yet. The initial state must be  $BID = 1.00$  offered by nobody.
8. Authentication through username and password remains valid if no more than two minutes have elapsed since the last page load. If a user attempts to perform an operation that requires authentication after an idle time of more than 2 minutes, the operation has no effect and the user is forced to re-authenticate with username and password. The use of HTTPS must be enforced for sign up and authentication and in any part of the site that displays private information of an authenticated user.
9. The general layout of the web pages must contain: a header in the upper part, a navigation bar on the left side with links or buttons to carry out the possible operations and a central part which is used for the main operation.
10. Cookies and Javascript must be enabled, otherwise the website may not work properly (in that case, for what concerns cookies, the user must be alerted and the website navigation must be forbidden, for what concerns Javascript the user must be informed). Forms should be provided with small informational messages in order to explain the meaning of the different fields. These messages may be put within the fields themselves or may appear when the mouse pointer is over them.
11. The more uniform the views and the layouts are by varying the adopted browser, the better.

#### **Submission instructions:**

The instructions already published in the Material folder of the course web page for the installation on the cclix11.polito.it, still hold. Furthermore, you need to submit your project (the same that you installed on cclix11) in a zip file named sXXXXXX.zip (without blank spaces in the name) to the following web site:  
<https://pad.polito.it/enginframe/dp1/dp1.xml> (from inside the Politecnico network) or  
<https://pad.polito.it:8080/enginframe/dp1/dp1.xml> (from outside).

In addition:

1. The sql script included in the zip file (submitted to pad.polito.it) to create the database must have a name with the following pattern: sXXXXXX.sql (where XXXXXX is your own student id).
2. The main page of your web site must be put in a file named index.html or index.php in your SECRET\_FOLDER such that the website can be accessed at the url [http://cclix11.polito.it/~sXXXXXX/SECRET\\_FOLDER](http://cclix11.polito.it/~sXXXXXX/SECRET_FOLDER) without adding any other resource name at the end of the SECRET\_FOLDER.
3. DO NOT use absolute links

**WARNING: The system that accepts your projects, works in an **automatic** way and it will stop accepting submissions at the scheduled deadline. For this reason, we recommend you DO NOT submit your work in the very last minutes before the final deadline.**

In case of any doubt and question related to the project, please firstly visit the forum in the course website in order to check if other students have already asked the same question. Otherwise use the forum (not the teacher email) to ask your question so that the response will be available to all students.

The forum is to be used exclusively for requests of clarification about the text of the assignment and not for requesting help about how to solve it or how to solve specific problems encountered during the execution of the assignment