

Milestone 4 Beta Launch and Reviews

CEN 4010 Principles of Software Engineering, Spring 2018

Group 2, FAU Lab Manager

By

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Version 4.0

REVISIONS

Added actual definitions to the Data Definitions sections based off of feedback from milestone 1.

Removed and added functional requirements based off of our groups progress and experience with the rest of the module.

Modified the initial project description based off our groups' progress on function requirements.

Changed the contents of the milestone to reflect the current milestone (i.e from milestone 1 to milestone 3).

Added the revisions section because that was feedback from milestone 1.

Changed the name of the project to FAU lab solutions.

Changed the color of buttons on our GUI as suggested by the teacher.

Added functions and requirements as added by the shareholder.

2.2 Product summary

FAU Lab Manager is a practical solution to unauthorized equipment use occurring within the engineering department. Through the use of our application users will be able to safely access labs and equipment. Students will be able to use the interface to request lab space specific to their needs. Professors will be able to import their class rosters in order to grant students access to lab equipment required for assignments. In order to prevent damage to the lab and lab equipment, users who do not follow the lab guidelines can and will have their lab privileges revoked in order to prevent further damage to equipment. While the interface is designed to meet the needs of the engineering department, FAU Lab Manager is able to be tailored to meet the needs of other departments. Lab equipment is expensive to buy, costly to fix, and dangerous if used incorrectly. FAU Lab Manager will be able to eliminate unauthorized users and will drastically reduce damaged equipment by ensuring that users are responsible for their own areas and equipment.

LIST OF MAJOR FUNCTIONS

User

1. Request.

Users will be able to request work area and lab equipment. Using the interface the user will enter their znumber, which will be used to verify their lab privileges. If the user is not authorized they will not be able to gain access to labs and equipment. If the user is authorized they will be assigned to an area that suits their lab needs.

2. Take a Picture

After being verified, the user will be required to confirm the condition of the lab assigned lab by looking at a picture of the work area, taken by the previous user. The current user will then be required to verify that the work area was left in responsible condition in order to being working. After the user is done working, they will be required to submit another picture of the work area for the next user to verify the work area meets university standards.

3. Variable Lab Time

After requesting and verifying the work area, users will be given two hours' worth of time at the assigned work area. Users will be able to end their session at any time, which will allow other users to request the work area. Users will also be able to request more time if they need, which will add two more hours to their lab use time. Users will be periodically reminded of their remaining time, so that users are able to save their work or request more time if they need it.

Administrators

Professors will be classified as administrators.

1. Setup Classes

Administrators are able to upload a comma separated value of their class roster in order to grant users access to the correct lab equipment needed for the class. Once the administrator uploads the roster into the server, the students' znumber will be used to identify them.

2. Add a TA

Administrators will be able to assign a TA to the class

Super Administrator

Super administrator is for the engineering lab director. The super administrator will have all the privileges of the administrator.

1. Flag Users

The super administrator will be able to revoke user's access to the lab equipment as they fit. The super administrator can flag an irresponsible user, which will revoke the user's lab privileges until the flag is removed.

2.3 Usability test plan

Usability Test Plan -

The test being conducted will be a walk through the student submission for access to the lab. The objective for the test is to make sure that the student walk for being assigned to a workbench is functioning correctly. The test aims to make sure that the different functions of the student walk are free of defects before the project progresses into the next stage.

TEST OBJECTIVES

Test ID	Type	Objective	Name	Reviewed	Prioirty
1. Student Form Submission	Functional Correctness	To make sure the student is able to submit the required information to be assigned to a work station.	FC1	Not Yet	Priority 5 (high)

2. Lab Countdown	Functional Correctness	To make sure the lab timer function works correctly. Prompts student when time expires and will ask student to take a picture of lab station.	FC2	Not Yet	Priority 3
3. Picture Upload	Functional Correctness	Makes sure the picture the student takes is uploaded to the database to use for the next user to verify.	FC3	Not Yet	Priority 2
4. Student Walk	Usability	Makes sure the user is able to successfully navigate the student section of the website free of issues.	U1	Not Yet	Priority 5

TEST PLAN

System Setup-

The test is setup by accessing the student page of the website. The server will handle all requests, so no hardware needs to be setup. The student page will have the user enter their znumber in order to verify with the database of registered users. In order for the users znumber to be in the database to be accepted, the users znumber will need to be added to the database from the Administrator page.

Task to be accomplished-

The objective of the test is to walk through the different pages of the student section to make sure that the functions that are being used on the student's side are working as intended. The pages will be able to be accessed individually by using the next page button built into the test environment which will allow for all the functions to be tested.

Intended User-

The intended user of the test plan is the student. The student should be able to submit the form to the database to verify they are able to request a lab station. The user should also be

able to see their time remaining on the lab station. The user should also be able to upload a picture of the lab station to be verified for the next user.

Completion Criteria-

For the test to be considered a success the user should be able to register for a lab station. The user should also be able to see the time remaining on the lab station and should be able to request more time for the lab station. The user should also be prompted to take a picture of the lab station after the time has finished.

Url to be tested-

http://lamp.cse.fau.edu/~CEN4010_S2018q02/module4/main_page.html#

Video of our group testing the required functions:

<https://www.youtube.com/watch?v=7s1kcyuulnE>

Questionnaire

		Strongly Disagree			Agree	
	Question	1	2	3	4	5
1.	Does the Student Form Submission work as intended?					
2.	Does the lab countdown function work as intended?					
3.	Is the user prompted to take a photo when their time is up?					
4.	Is the user in this case(student) able to navigate each of the pages correctly?					

2.4 QA test plan–

Test #	Test Title	Test description	Test input	Expected correct output	Test results
1	Student form submission	Start of student walk, tests form handling,	Lab type, z number, building	Station number, time remaining, set lab availability to unavailable	CHROME: PASS IE: PASS
2	Lab countdown	After reserved lab time expires, notifies student, asks for lab station picture	Countdown reaches 0	Prompts user for picture	CHROME: PASS IE:PASS
3	Picture upload	After timer expires, take picture and upload	Picture	Uploads picture to file, sets lab availability to available	CHROME: PASS IE:PASS
4	Student walk	Tests full walk of a student from first opening the site to registering for a class lab, then terminating the lab access and submitting lab station picture.	Lab type, z number, picture of lab	Lab is set to unavailable for set time, returns to available after picture is uploaded	CHROME: PASS IE: PASS

2.5 Code Review

- 1) After going over our group member's contributions we have decided on giving member A 33.33 points, B 33.33 points, and member C 33.33 points. Each member was recognized as contributing equal amount of work.

2.)

Code for page7.html:

```
<!DOC html>
```

```
<html>
```

```
<style type="text/css">
```

```
.countdown{
  position: absolute; /* still need to prettify this, but functional */
  top:15%;
  left: 50%;
  margin-top: 180px;
  transform: translateX(-45%) translateY(50%);
  color: skyblue;
  font-size: 20px;
```

```

        background-color: black;
        padding: 5px 5px 5px 5px;
    }
    .flex-container {
        flex-direction: row;
        justify-content: space-around; /*this is the old version, i fixed this in 7.1 */
        align-content: center;
        width: 400px;
        height: 700px;
        margin:auto;
        left: 25%;
        background-color: lightgrey;
        text-align: center;

    }

    .col-s{
        top: 10%;
        left:15%;
        margin-top: 100px;
    }
    .col-sm{
        top:10%;
        left:35%;
        margin-top: 100px;
    }
    .row{
        bottom:25%;
    }
    footer {color:black;}
    .remainingTime{
        font-size: 30px;
    }
    text-shadow: -1px 0 black,0 1px black,1px 0 black,0 -1px black;}

</style>

<body>

/* here's the basic shell of the website, still need to set up links */

```

```

<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-
beta.2/css/bootstrap.min.css" integrity="sha384-
PsH8R72JQ3SOdhVi3uxftmaW6Vc51MKb0q5P2rRUpPvrszuE4W1povHYgTpBfshb"
crossorigin="anonymous">
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
<ul class="nav nav-pills navbar-expand-sm bg-white" >
  <li class="nav-item">
    <a class="nav-link " href="#" style="color: black">Student</a>
  </li>
  <li class="nav-item">
    <a class="nav-link " href="#" style="color: black">Teacher</a>
  </li>
  <li class="nav-item">
    <a class="nav-link " href="#" style="color: black">Class Labs</a>
  </li>
</ul>

/* again, i fixed this in 7.1 */
<div class="row" style="justify-content: space-around" >
  <div class="d-none d-lg-block">
    
  </div>
  <div class="flex-container">

    <div class="col-sm">
      <a href="#">
        <span class="glyphicon glyphicon-plus" style="font-size:
30px;color:black;"></span>
      </a>
      <footer> Add more time</footer>
    </div>
    <div class="col-sm">
      <a href="#">
        <span class="glyphicon glyphicon-plus" style="font-size: 30px;
color:black;"></span>

```



```

    </a>
    <footer> End Session</footer>
</div>
<div class="col-s">
    /* we probably want this in hour:minute:seconds, but also functional. */
    <script type="text/javascript">
        function countDown(secs,elem) {
            var element = document.getElementById(elem);
            element.innerHTML = "Remaining Time: "+secs+"seconds";
            if(secs<1){
                clearTimeout(timer);
                element.innerHTML = '<h2>Countdown Complete!</h2>';
            }
            secs--;
            var timer = setTimeout('countDown('+secs+', '"+elem+"' )',1000);

        }

    </script>

    <div id="status" class="countdown"></div>
    <script type="text/javascript">countDown(1200,"status");</script>
</div>

    /* did we need a submit button? */
    <button type="submit" class="btn btn-primary" name="submit"
value="Add" >Submit</button>

</div>

<div class="d-none d-lg-block">
    
    </div>
</div>

```

```
</body>
</html>
```

Code for page7.php:

```
/* here's the html for page 7, in the php */
```

```
<!DOC html>
```

```
<html>
```

```
<style type="text/css">
```

```
.countdown{
    position: absolute;
    top:15%;
    left: 70%;
    margin-top: 180px;
    transform: translateX(-45%) translateY(50%);
    color: skyblue;
    font-size: 20px;
    background-color: black;
    padding: 5px 5px 5px 5px;
}
```

```
.flex-container {
    flex-direction: row;
    justify-content: space-around;
    align-content: center;
    width: 400px;
    height: 700px;
    margin:auto;
    left: 25%;
    background-color: lightgrey;
    text-align: center;
```

```
}
.col-s{
    top: 10%;
    left:15%;
    margin-top: 100px;
}
```

```

.col-sm{
    top:10%;
    left:35%;
    margin-top: 100px;
}
.row{
    bottom:25%;
}
footer {color:black;}
.remainingTime{
    font-size: 30px;
}
text-shadow: -1px 0 black,0 1px black,1px 0 black,0 -1px black;}

```

</style>

<body>

```

<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.0.0-
beta.2/css/bootstrap.min.css" integrity="sha384-
PsH8R72JQ3SOdhVi3uxftmaW6Vc51MKb0q5P2rRUpPvrszuE4W1povHYgTpBfshb"
crossorigin="anonymous">
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css">
<ul class="nav nav-pills navbar-expand-sm bg-white" >
    <li class="nav-item">
        <a class="nav-link " href="#" style="color: black">Student</a>
    </li>
    <li class="nav-item">
        <a class="nav-link " href="#" style="color: black">Teacher</a>
    </li>
    <li class="nav-item">
        <a class="nav-link " href="#" style="color: black">Class Labs</a>
    </li>

</ul>
<div class="row" style="justify-content: space-around" >
    <div class="d-none d-lg-block">

```

```
        
    </div>
    <div class="flex-container">
```

```
        <div class="col-sm">
            <a href="#">
                <span class="glyphicon glyphicon-plus" style="font-size:
30px;color:black;"></span>
            </a>
            <footer> Add more time</footer>
        </div>
        <div class="col-sm">
            <a href="#">
                <span class="glyphicon glyphicon-plus" style="font-size: 30px;
color:black;"></span>
```

```
            </a>
            <footer> End Session</footer>
        </div>
        <div class="col-s">
            <script type="text/javascript">
                function countdown(secs,elem) {
                    var element = document.getElementById(elem);
                    element.innerHTML = "Remaining Time: "+secs+"seconds";
                    if(secs<1){
                        clearTimeout(timer);
                        element.innerHTML = '<h2>Countdown Complete!</h2>';
                    }
                    secs--;
                    var timer = setTimeout('countdown('+secs+', '"+elem+"' )',1000);
                }
            </script>

            <div id="status" class="countdown"></div>
```

```

        <script type="text/javascript">countDown(1200,"status");</script>
    </div>

</div>

<div class="d-none d-lg-block">
    
</div>
</div>

</body>
</html>

<?php
/* server login, functional */
if(isset($_POST['submit'])){
    $servername="lamp.cse.fau.edu";
    $username="CEN4010_S2018g02";
    $password="cen4010_s2018";
    $db="CEN4010_S2018g02";
    $conn = mysqli_connect($servername,$username,$password);
    if (mysqli_connect_error()) {
        die("Database connection failed: " . mysqli_connect_error());
    }
    mysqli_select_db($conn,"CEN4010_S2018g02");

    /* query to find the student's z number tuple */
    $query="SELECT * from module3 where znumber=('$_POST[znumber]')";

    /* prints out the student's info to screen */
    echo "<table border=1>";
    <tr>
    <th>Name</th>
    <th>Znumber</th>
    <th>Class Crn</th>

```

```

<th>College</th>;
<th>Department</th>;
<th>Class</th>;
<th>Classnumber</th>;
<th>Classname</th>;
<th>email</th>;
<th>Flagged</th>;
</tr>";

```

```

while (($row= mysqli_fetch_assoc($query)) != false){
    echo "<tr>"
        echo "<td>" {$row['name']} "</td>";
        echo "<td>" {$row['znumber']} "</td>";
        echo "<td>" {$row['class_crn']} "</td>";
        echo "<td>" {$row['college']} "</td>";
        echo "<td>" {$row['department']} "</td>";
        echo "<td>" {$row['class']} "</td>";
        echo "<td>" {$row['classnumber']} "</td>";
        echo "<td>" {$row['classname']} "</td>";
        echo "<td>" {$row['email']} "</td>";
        echo "<td>" {$row['Flagged']} ">/td>";
        echo "</tr>";
    }
    echo "</table>";
    mysqli_close($conn);
    sleep(5);
    header('page7.html');
    exit;
}
*/
    mysqli_close($conn);
    sleep(5);
    header('location:
http://lamp.cse.fau.edu/~CEN4010_S2018g02/module3/index.html');
    exit;
/*we're closing twice? */
?>

```

2.6 Self-check on best practices for security–

Major assets we are protecting-

We are protecting the database from unauthorized users being able to access the information. Users will not be able to perform sql injection attacks because we have utilized the POST method to make sure the sql table remains uncorrupted. We also have to protect the image database, so that incorrect images cannot be inserted to fool the system. The system does not have user input passwords, but the data the user enters will be encrypted in order to prevent the information from falling into the wrong hands.

2.7 Self-check: Adherence to original Non-functional specs

- 1) SmartLab will be able to accept two different kinds of requests for access; personal and school. **DONE**
- 2) The student's z number will be how the users log into SmartLab. **DONE**
- 3) SmartLab will be polling the devices for their states every 30 seconds in case of an outage. Once the outage is resolved the site will be able to check the conditions of workbenches before the outage and restore power respectively. **ON TRACK**
- 4) There are four levels of access: User, TA, Admin, Super Admin **DONE**
- 5) SmartLab will remind users of their remaining time at the 30,15,10,5, and 1 minute mark. **ON TRACK**
- 6) Users will also be able to be flagged by TA, Admin, Super Admin and lose their lab privileges. **ON TRACK**
- 7) SmartLab should be designed for mobile use, but will also work on University computers. **DONE**
- 8) SmartLab will be used to control access to roughly 200 devices located in Engineering East and West. **DONE**
- 9) It is required to recode the Wifi modules of the devices to be protected from unauthorized use. **ON TRACK**
- 10) SmartLab requires the user to take a picture to verify the condition of the workstation after use. **DONE**