CO551 Open Source Systems Assignment 2

Submission 2015 2016

Tutor

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Student Name

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ID

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Session Time and Day 9:30 AM to 12PM

Tuesdays

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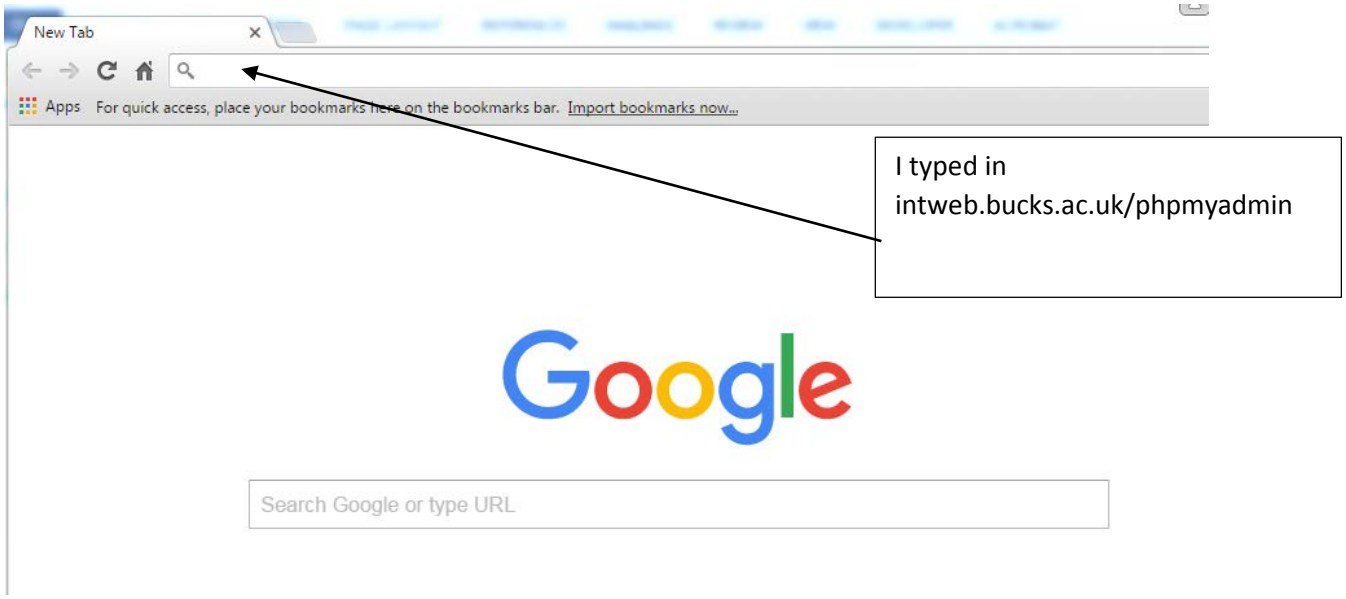
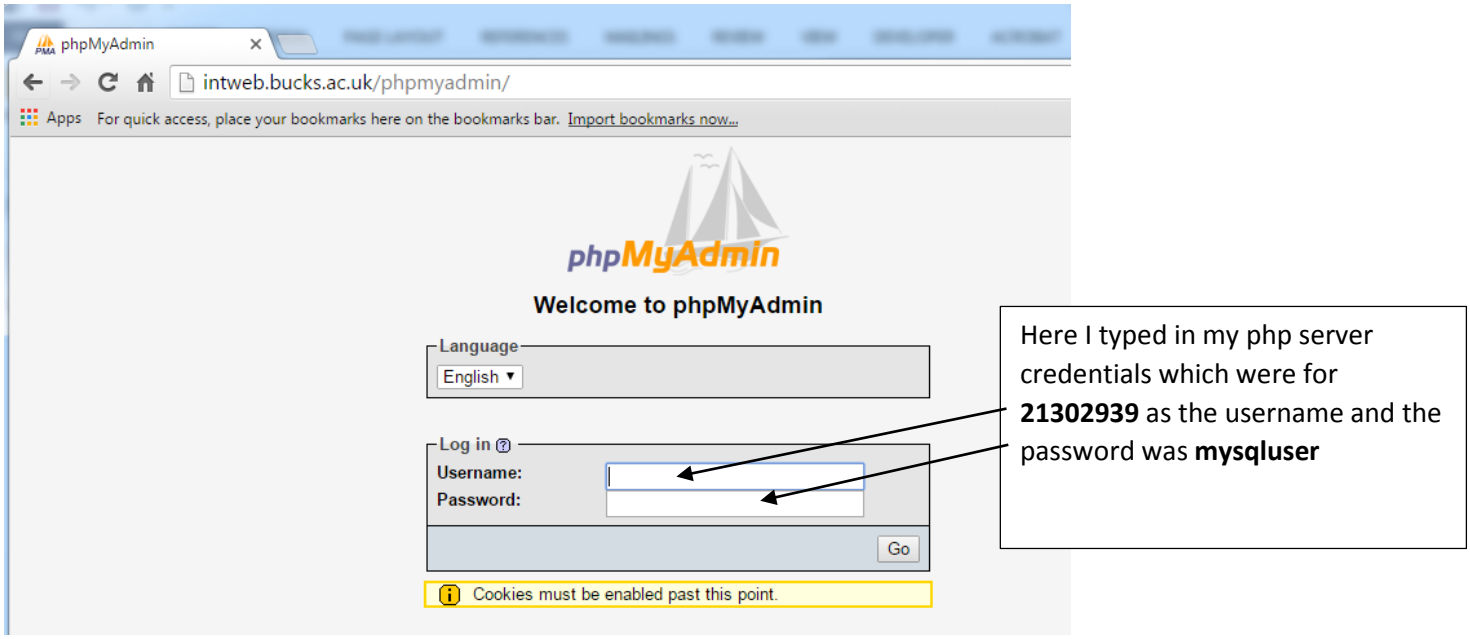
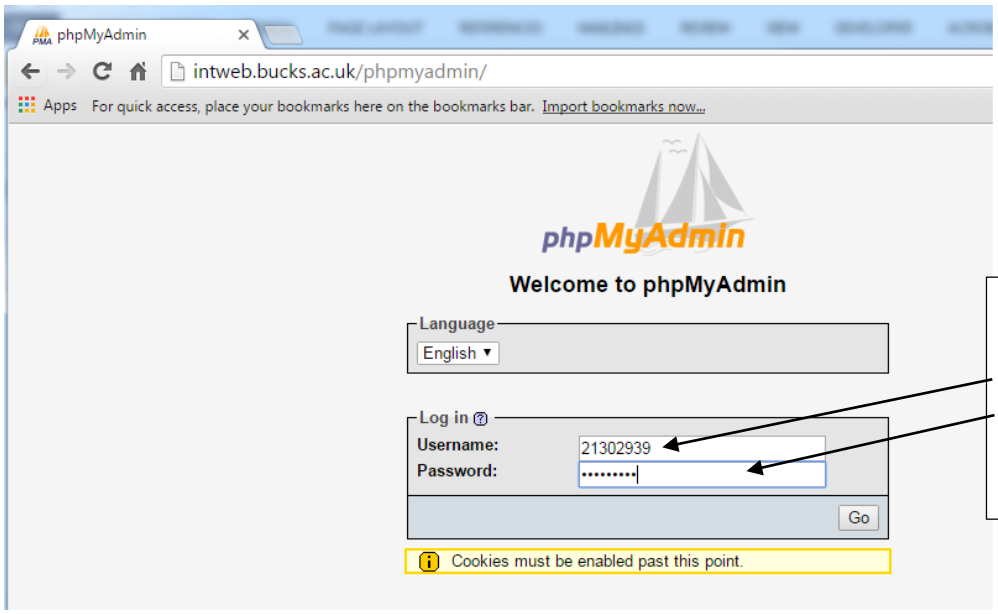
Task 1 -- Through the MySQL command line add a new module to the module table.

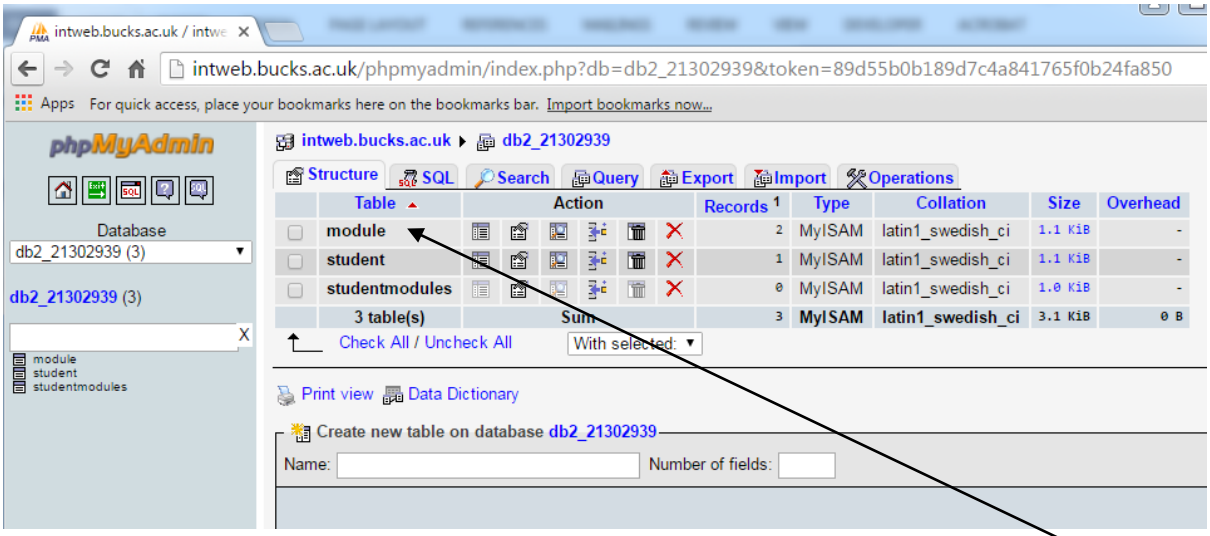
Due to time constraints and knowledge of the PUTTY program I decided to use the windows web server tool on the Bucks New University int web server tool named php my admin this is a tool where you can add databases and tables within them







Here I typed in my php server credentials which were for **21302939** as the username and the password was **mysqluser**

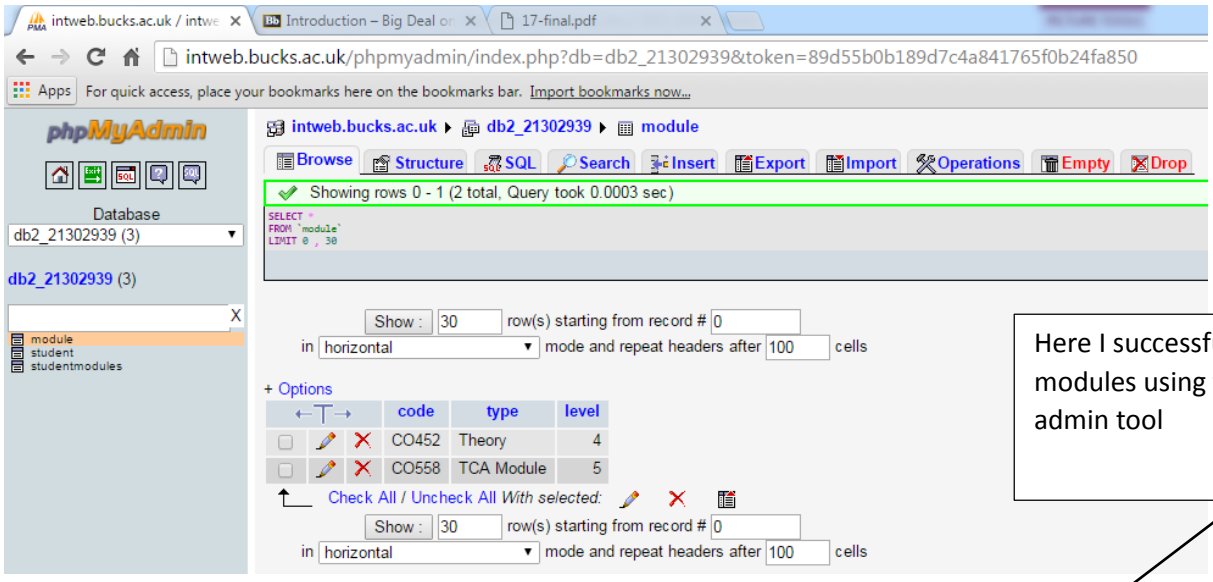


From when I logged in I setup a new database named db2_21302939 and created 3 tables

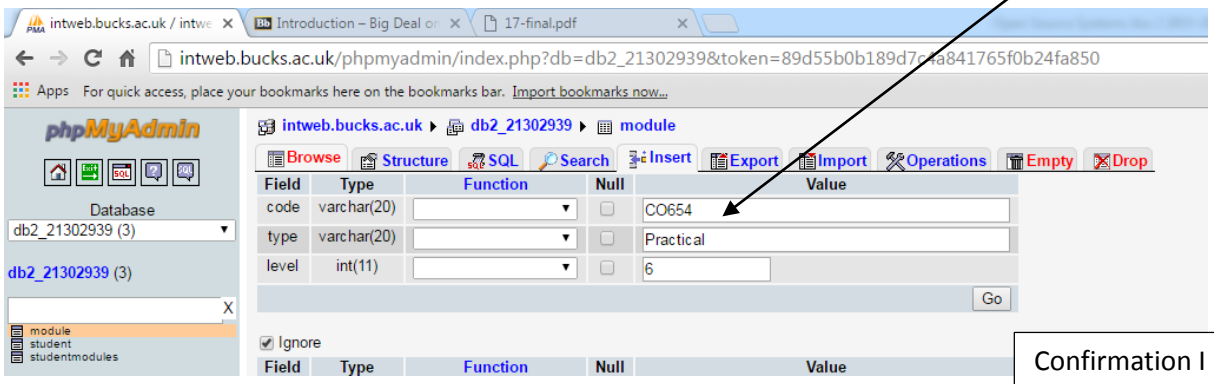
Named the following

- Module
- Student
- Student modules

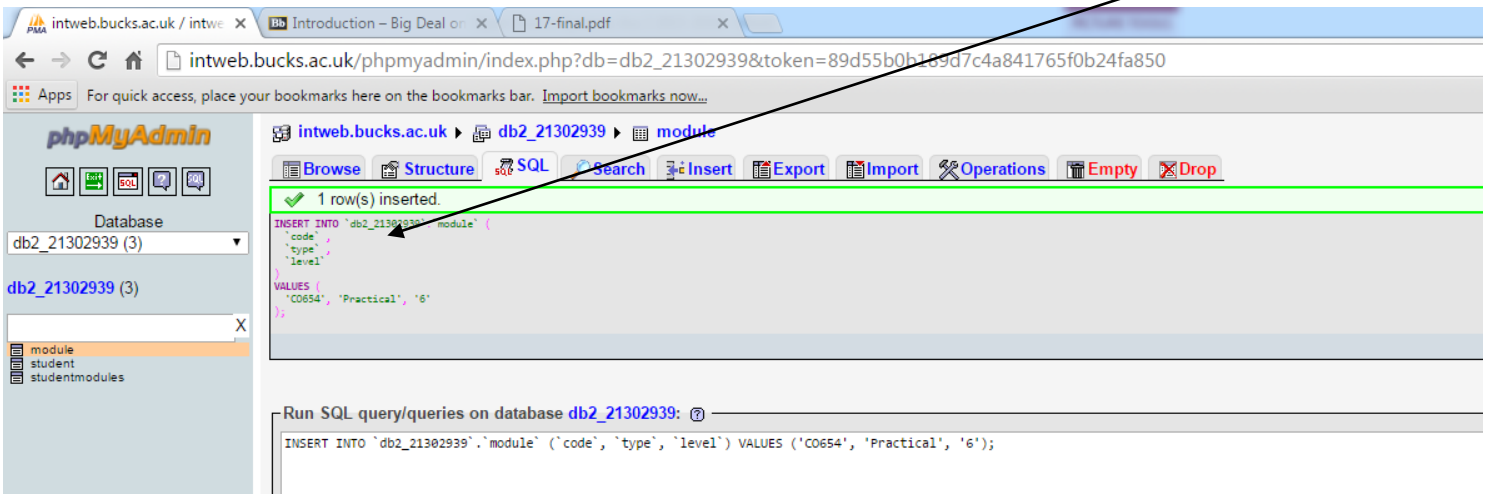
Here I typed in my php server credentials which were for **21302939** as the username and the password was **mysqluser**

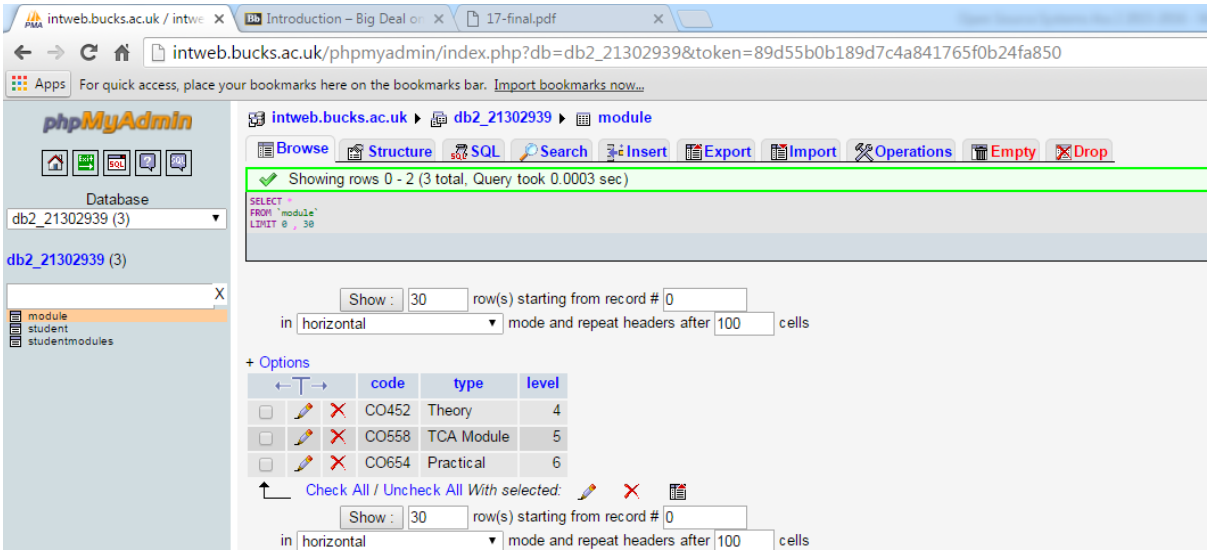


Here I successfully added some modules using the php my admin tool



Confirmation I have added the modules successfully to the table

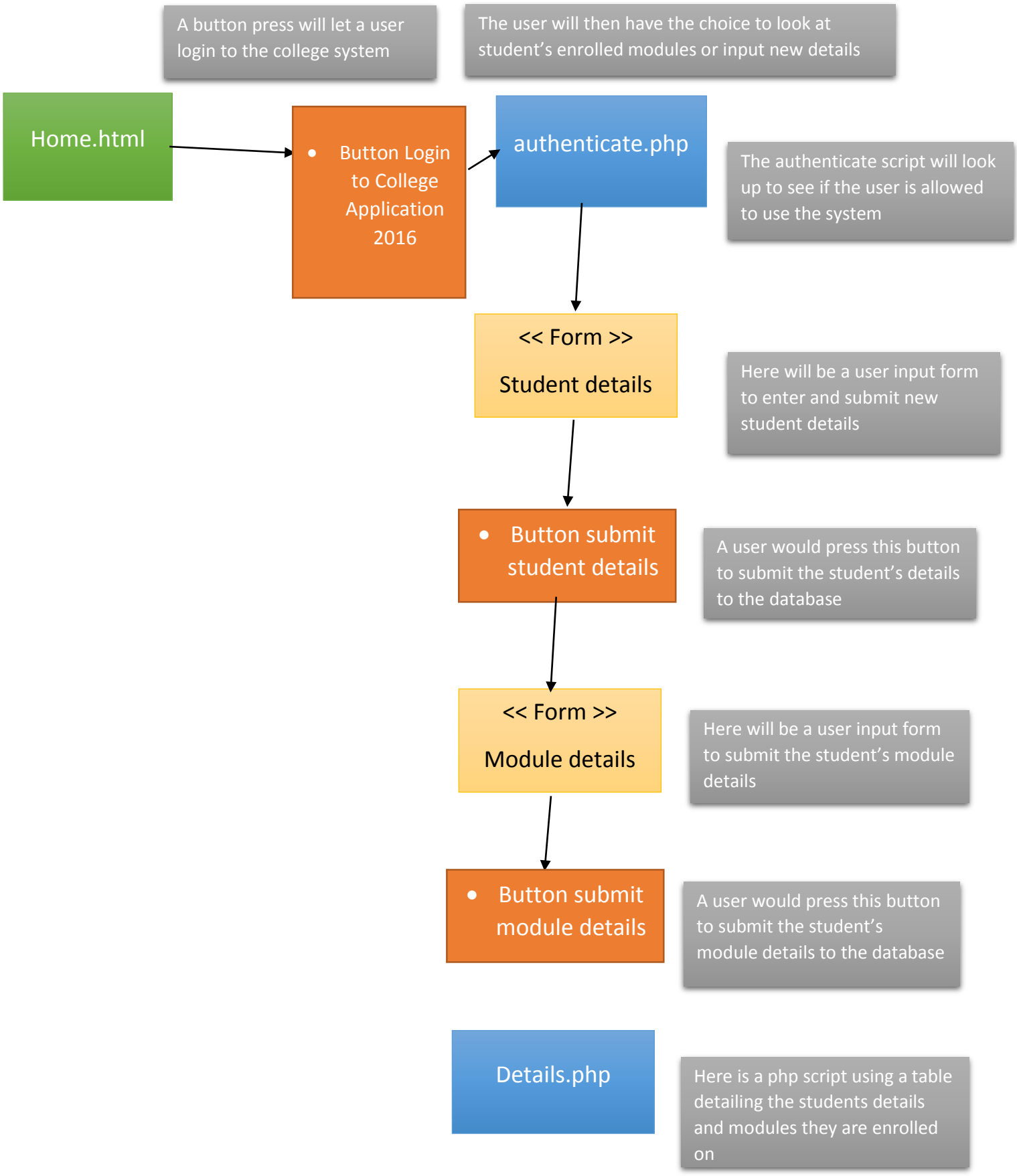




Here you can see the modules have been created using the php my admin tool what should happen now is when I login to the college application I should be able to now hopefully allocate the modules to a certain student

That has been created on the system

Task 2 – UML Diagram for the UN alternated college application



Colours Key reference for College Application 2016 UML Diagram – Task 2

Orange = Buttons

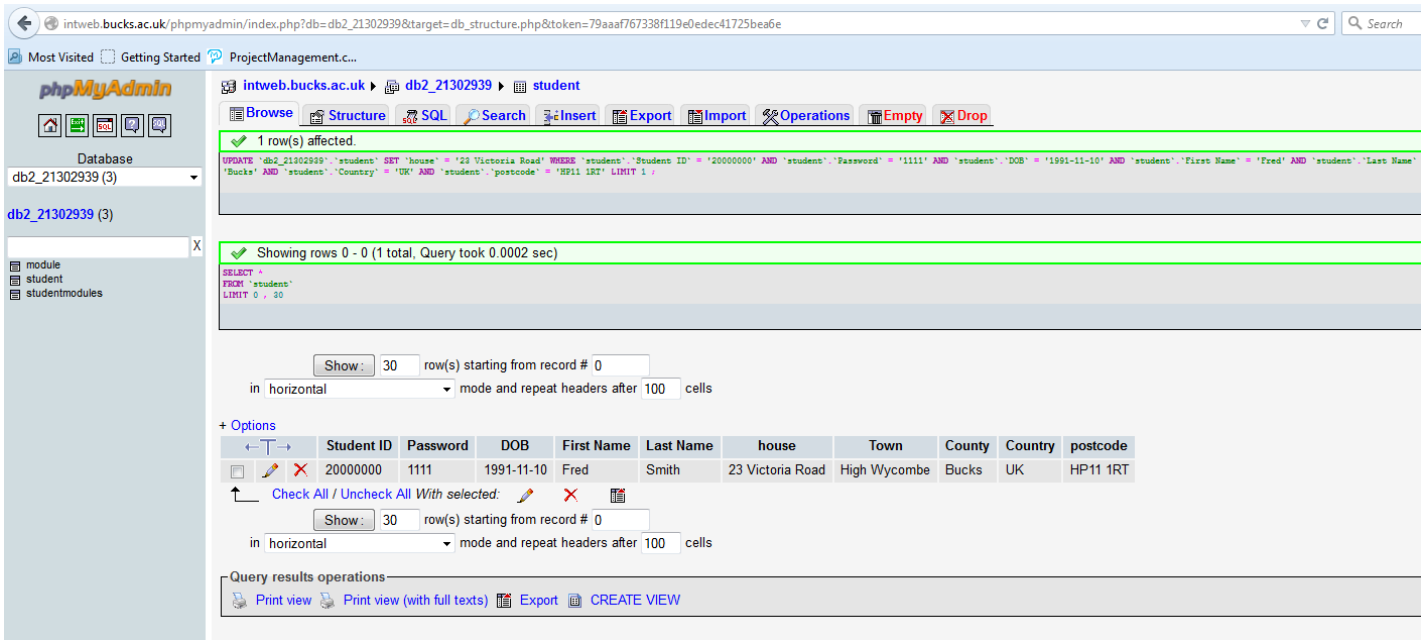
Golden Yellow = Forms

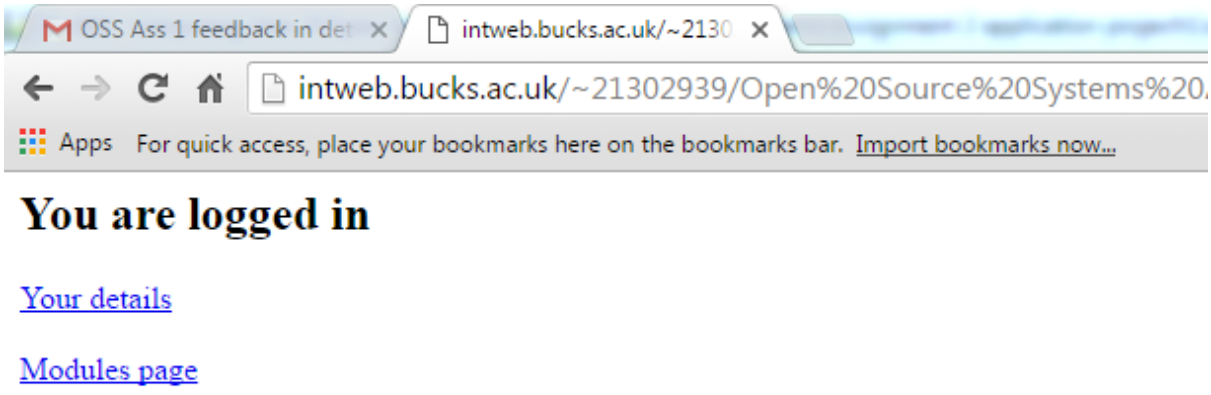
Green = client home.html page

Blue = Server Side php pages

Sliver = Explanations of each part of the UML diagram

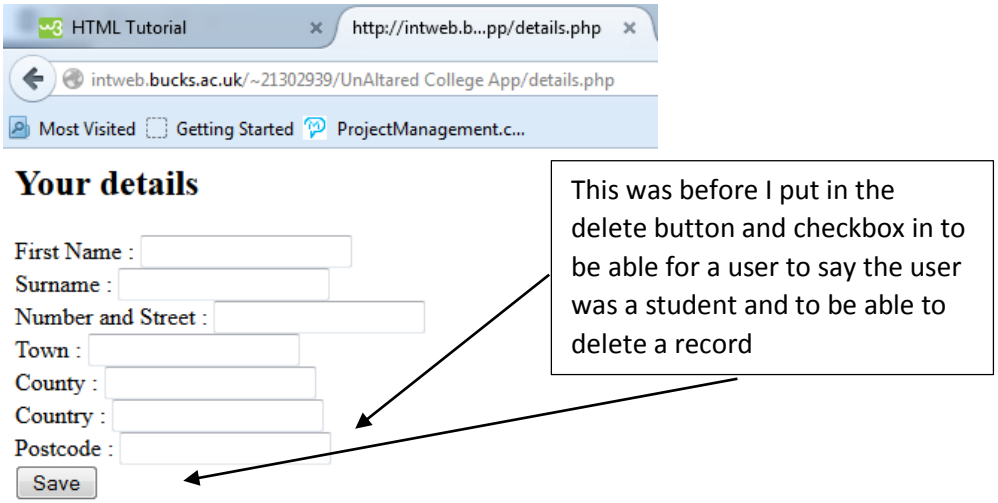
Task 3 – Create a new script that will display all the student records within the student table. The data within each field should be displayed inside the cells of an html table

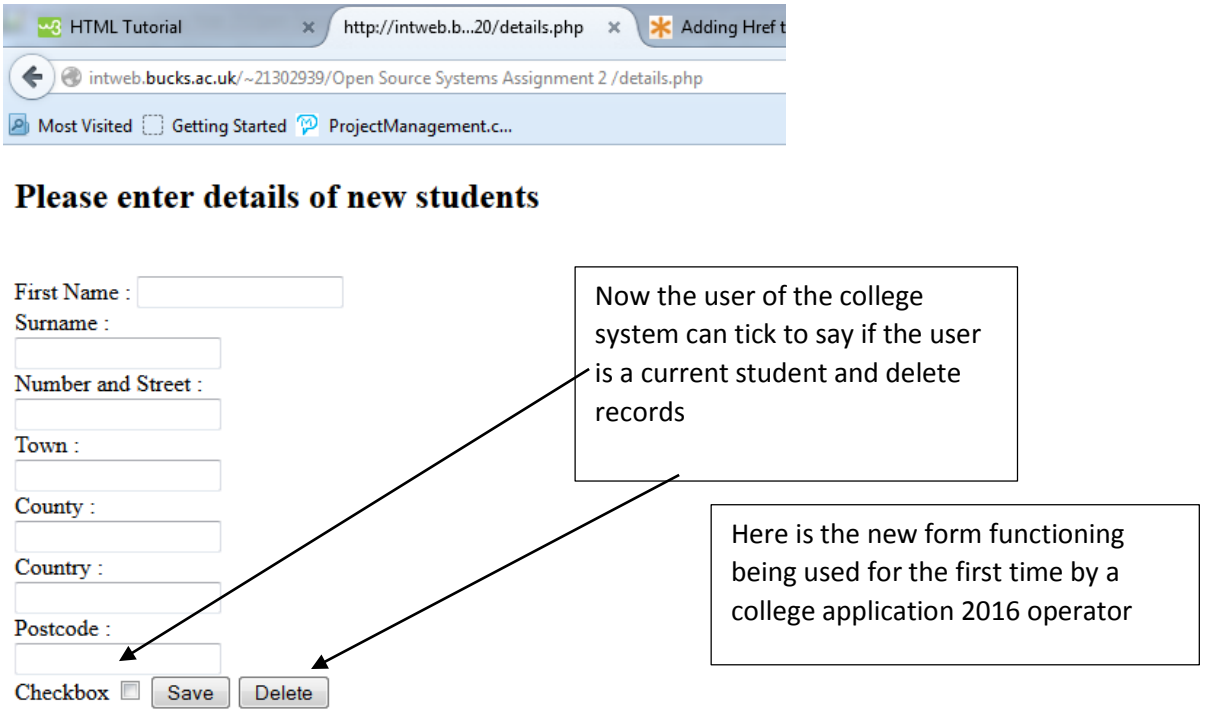


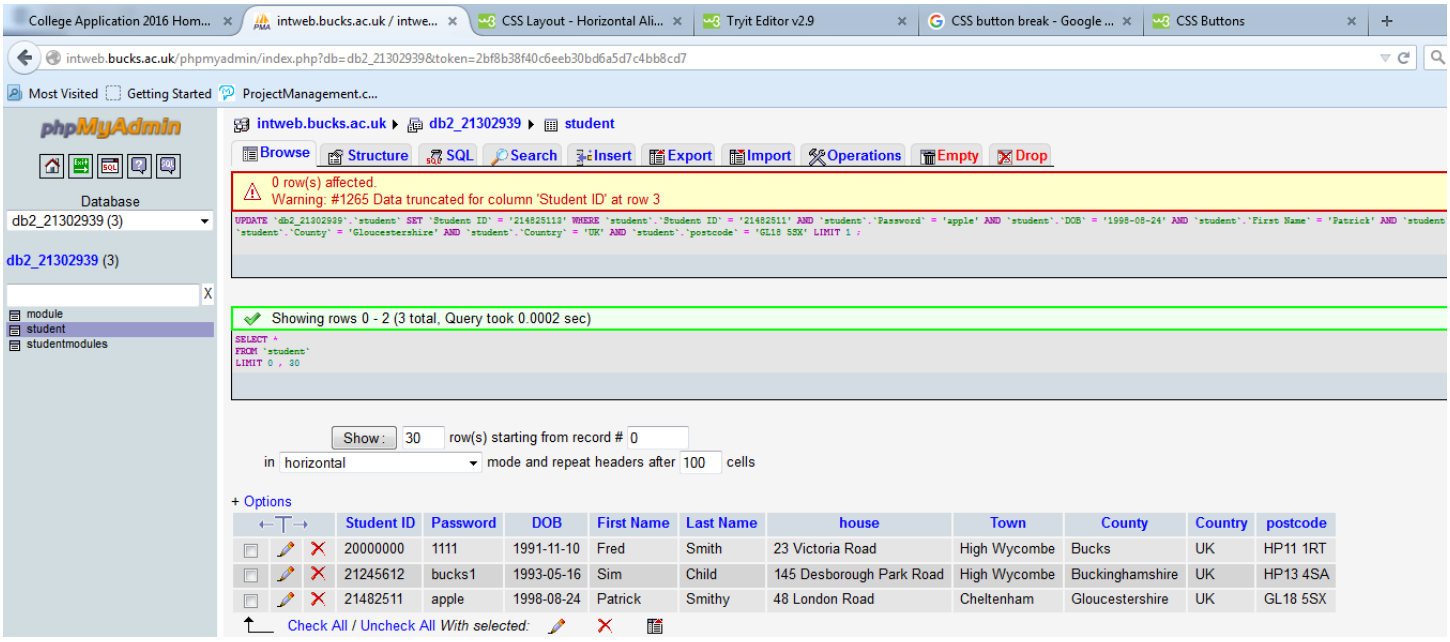


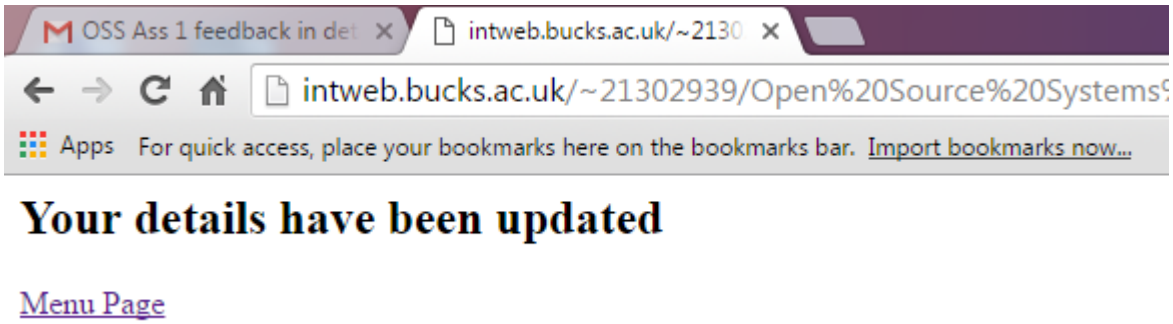
Task 4 -- Add a new column to the displayed student table that contains checkboxes that allow selecting each of the table rows for performing certain operations. Add a Delete Button in the bottom of the list that allows deleting the selected student records from the database.

Adding new students to the college application system



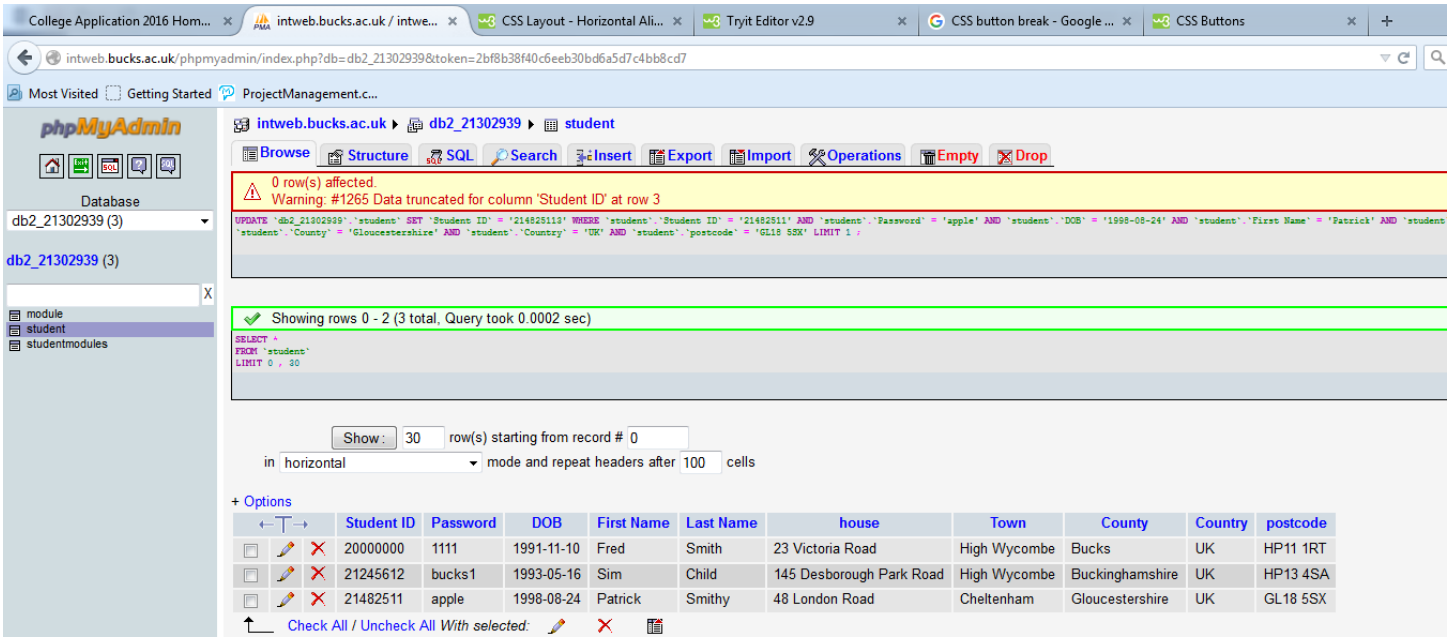



College Application 2016 Hom...
intweb.bucks.ac.uk / intwe...
CSS Layout - Horizontal Ali...
Tryit Editor v2.9
CSS button break - Google ...
CSS Buttons
intweb.bucks.ac.uk/phpmyadmin/index.php?db=db2_21302939&token=2bf8b38f40c6eeb30bd6a5d7c4bb8cd7
Most Visited
Getting Started
ProjectManagement.c...
phpMyAdmin
Database
db2_21302939 (3)
module
student
studentmodules
intweb.bucks.ac.uk
db2_21302939
student
Browse
Structure
SQL
Search
Insert
Export
Import
Operations
Empty
Drop
0 row(s) affected.
Warning: #1265 Data truncated for column 'Student ID' at row 3
Showing rows 0 - 2 (3 total, Query took 0.0002 sec)
SELECT *
FROM `student`
LIMIT 0 , 30
Show: 30 row(s) starting from record # 0
in horizontal mode and repeat headers after 100 cells
+ Options
Student ID
Password
DOB
First Name
Last Name
house
Town
County
Country
postcode
20000000
1111
1991-11-10
Fred
Smith
23 Victoria Road
High Wycombe
Bucks
UK
HP11 1RT
21245612
bucks1
1993-05-16
Sim
Child
145 Desborough Park Road
High Wycombe
Buckinghamshire
UK
HP13 4SA
21482511
apple
1998-08-24
Patrick
Smithy
48 London Road
Cheltenham
Gloucestershire
UK
GL18 5SX
Check All / Uncheck All With selected:

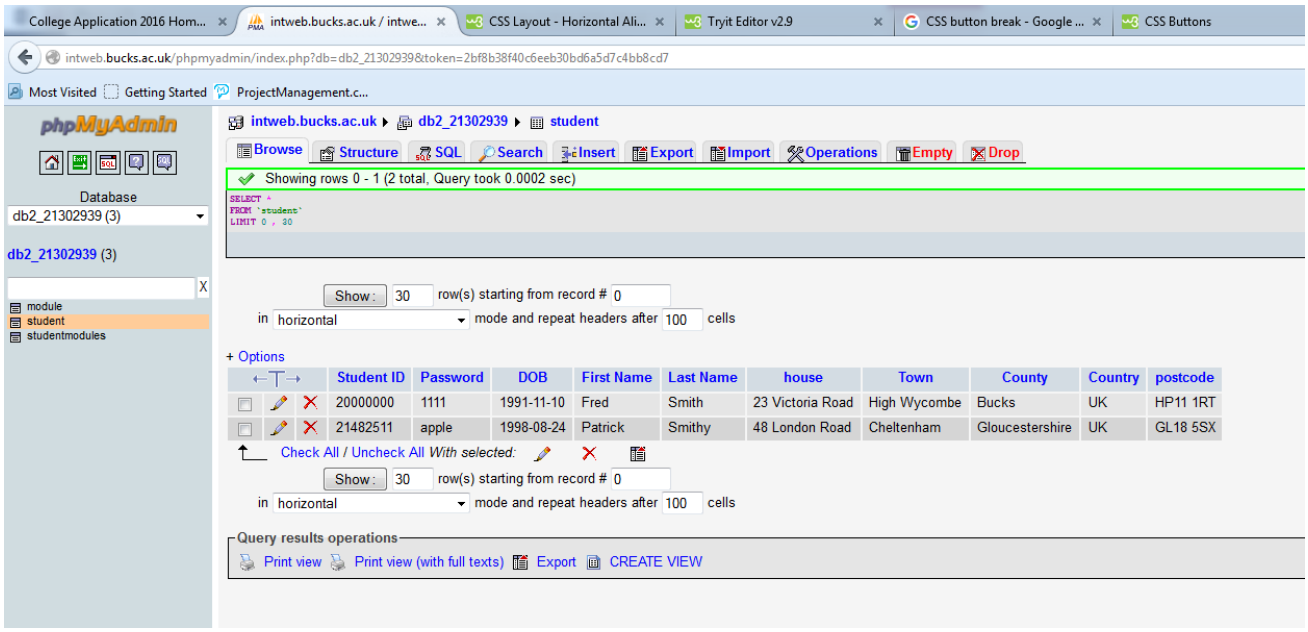

OSS Ass 1 feedback in det
intweb.bucks.ac.uk/~2130
intweb.bucks.ac.uk/~21302939/Open%20Source%20Systems
Apps
For quick access, place your bookmarks here on the bookmarks bar. Import bookmarks now...
Your details have been updated
Menu Page

Deleting Student records from the database

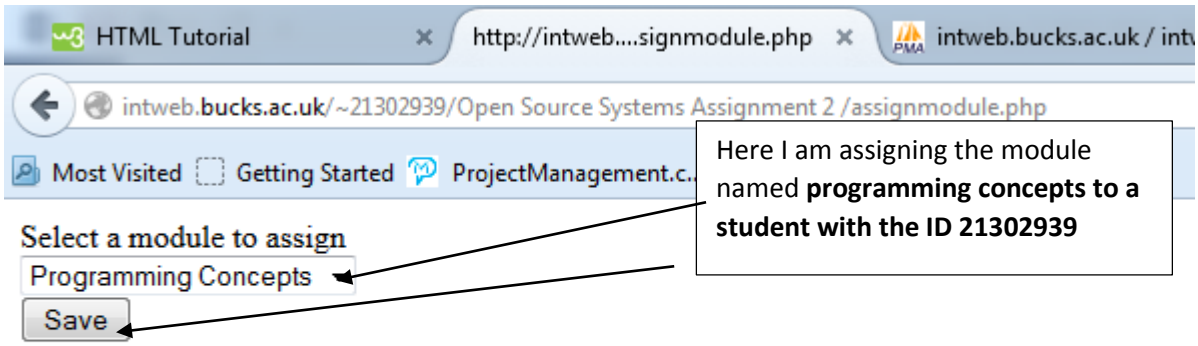
Due to time pressures and so much going on I could not make the delete button work either so I decided to come up and login to the php my admin portal to delete the student records that I did not need anymore



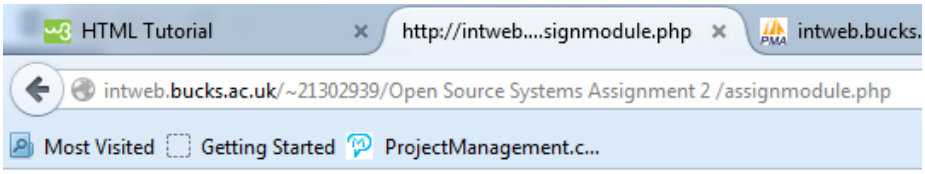
This was before I deleted the student record beginning with the ID 21482511



Assigning a module to the student modules table



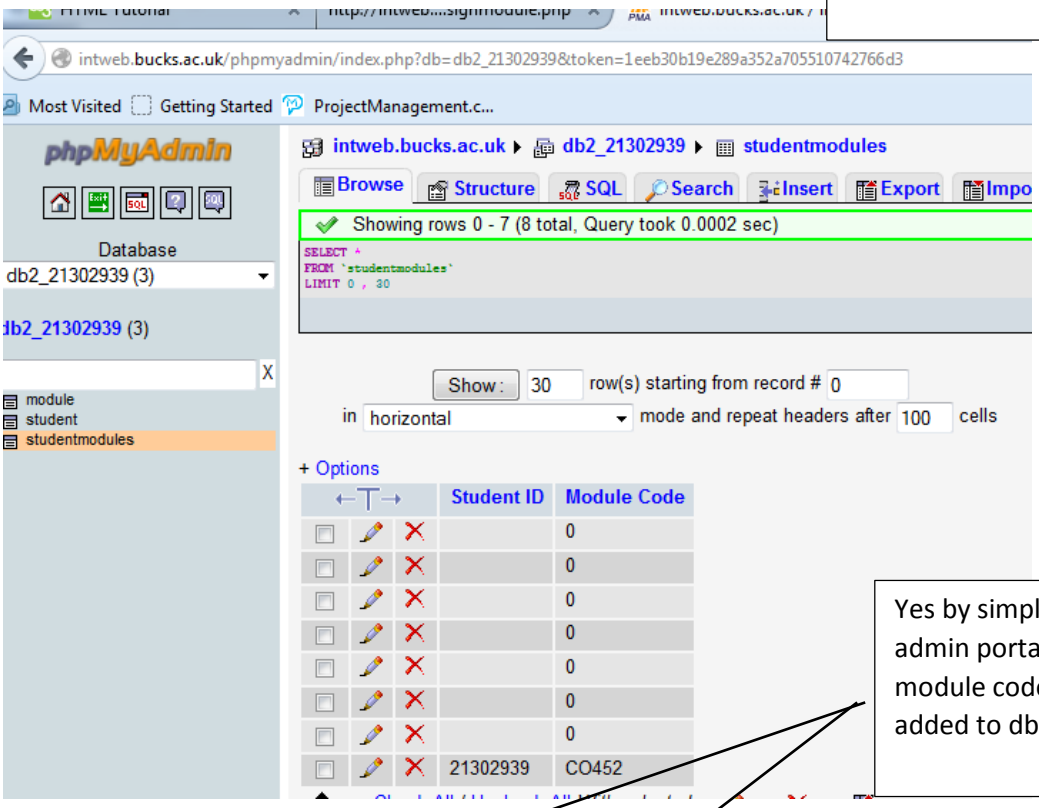
Here I am assigning the module named **programming concepts to a student with the ID 21302939**



The module CO452 has been assigned to you

Return to modules page

Confirmation of the CO452 module has been assigned to the correct ID which in this case was 21302939 let's see if it went through to db2_21302939 ok



Yes by simply checking the php my admin portal the ID 21302939 and module code CO452 were successfully added to db2_21302939

Task 5 as the application stands there is no facility to add new students to the student table. Create a new html file that contains a form for entering student details. The details should be submitted to a php script that builds an SQL statement, that when executes inserts the student details into the student table

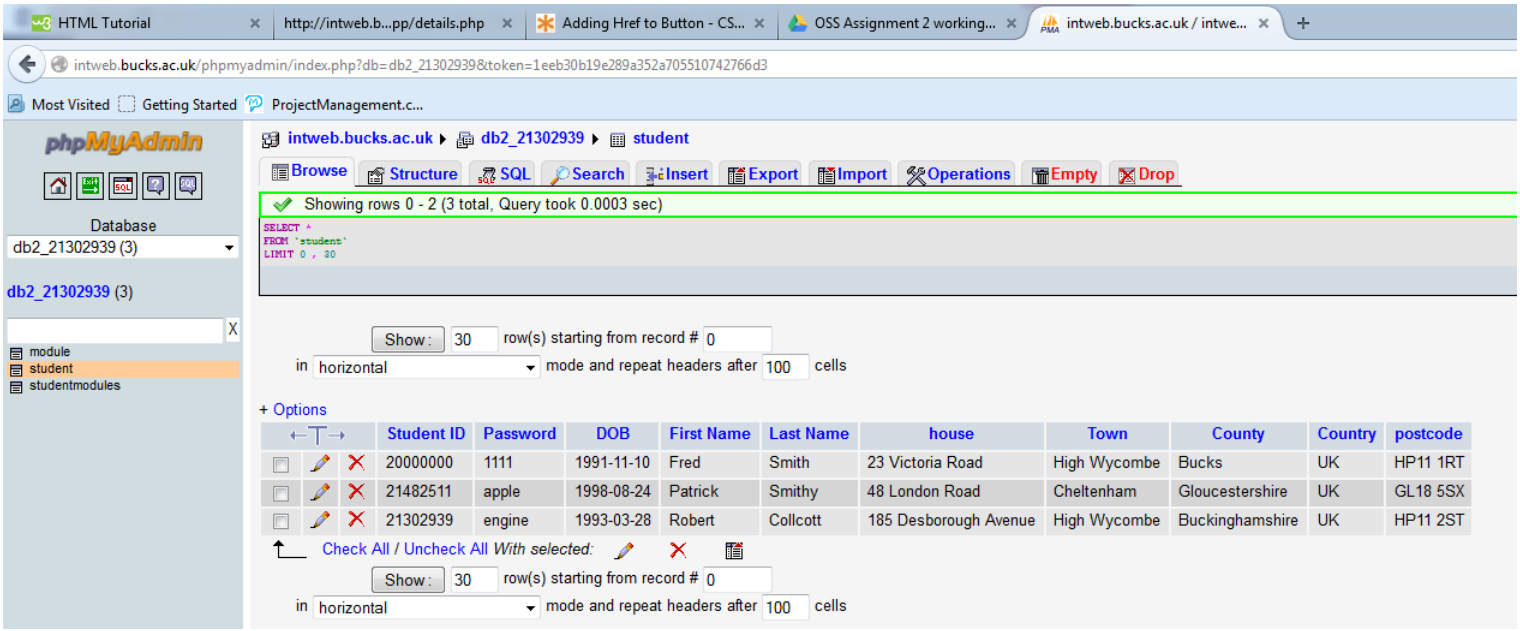
Server side php code – part 1

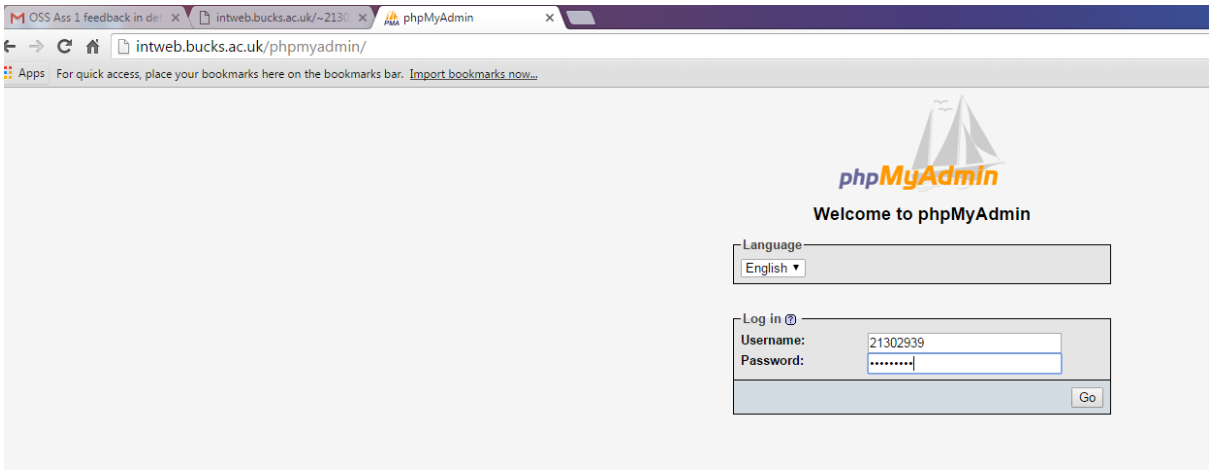
assignmodule.php | authenticate.php | details.php | Home.html | modules.php

```php
<?php

    //User details can be amended through this script

    session_start();
    include("dbconnect.inc");


// If the form has been submitted

if ($_POST[submit]){

    // Build sql statment to update the student details

    $sql = "update student set firstname ='" . $_POST[txtfirstname] . "',";                 // grab the first name posted value
    $sql = $sql . "lastname ='" . $_POST[txtlastname]  . "',";                              // grab the last name posted value
    $sql = $sql . "house ='" . $_POST[txthouse]  . "',";                                        // grab the house posted value
    $sql = $sql . "town ='" . $_POST[txttown]  . "',";                                      // grab the town posted value
    $sql = $sql . "county ='" . $_POST[txtcounty]  . "',";                                          // grab the county posted value
    $sql = $sql . "country ='" . $_POST[txtcountry]  . "',";                                // grab the country posted value
    $sql = $sql . "postcode ='" . $_POST[txtpostcode]  . "' ";                                      // grab the post code posted value
    $sql = $sql . "where studentid = '" . $_SESSION[id] . "';";                             // match the ID up with the correct session

    $result = mysql_query($sql,$conn);

?>
    <html>
    <head></head>
<style type="text/css">         <!------- style tag implements a CSS background  11th May 2016 ------>

body
{
  background:#58FAF4;
}
</style>
      <h2>Your details have been updated</h2>
      <a href="authenticate.php">Menu Page</a>
    </body>
    </html>
<?php
}
else {
   // Build an sql statment to return the student record whoes id
   // matches that of the session variable.
   $sql = "select * from student where studentid='". $_SESSION[id] . "';";

   $result = mysql_query($sql,$conn);

   $row = mysql_fetch_array($result);

?>
```

```php
    $row = mysql_fetch_array($result);

?>
    <html>
    <head>
    </head>
    <body>
    <style>          <!------- style tag implements a CSS background  11th May 2016 ------>

body {
    background-color: lightblue;               // light blue background
}
</style>
     <h2>Please enter details of new students </h2>
     <form name="frmdetails" action="<?php echo $PHP_SELF ?>" method="post">                          <!------- start a form to enter student details ------>

     <br>

     <!------- Get user input of everything from first name to post code ------>

        First Name :
    <input name="txtfirstname" type="text" value="<?php echo $row[firstname]; ?>" />
        <br/>
        Surname :
         <br>
        <input name="txtlastname" type="text"  value="<?php echo $row[lastname]; ?>" />
    <br/>
        Number and Street :
         <br>
    <input name="txthouse" type="text"  value="<?php echo $row[house]; ?>" />
        <br/>
        Town :
         <br>
        <input name="txttown" type="text"  value="<?php echo $row[town]; ?>" />
    <br/>
        County :
         <br>
    <input name="txtcounty" type="text"  value="<?php echo $row[county]; ?>" />
        <br/>
         Country :
          <br>
    <input name="txtcountry" type="text"  value="<?php echo $row[country]; ?>" />
        <br/>
        Postcode :
         <br>
        <input name="txtpostcode" type="text"  value="<?php echo $row[postcode]; ?>" />
        <br/>

    <!-------------- This is the new inculcation of the delete button    10th May 2016     --------->

        Checkbox
        <input type="checkbox" type="text" value="<?php echo $row[Checkbox]; ?>" />
```

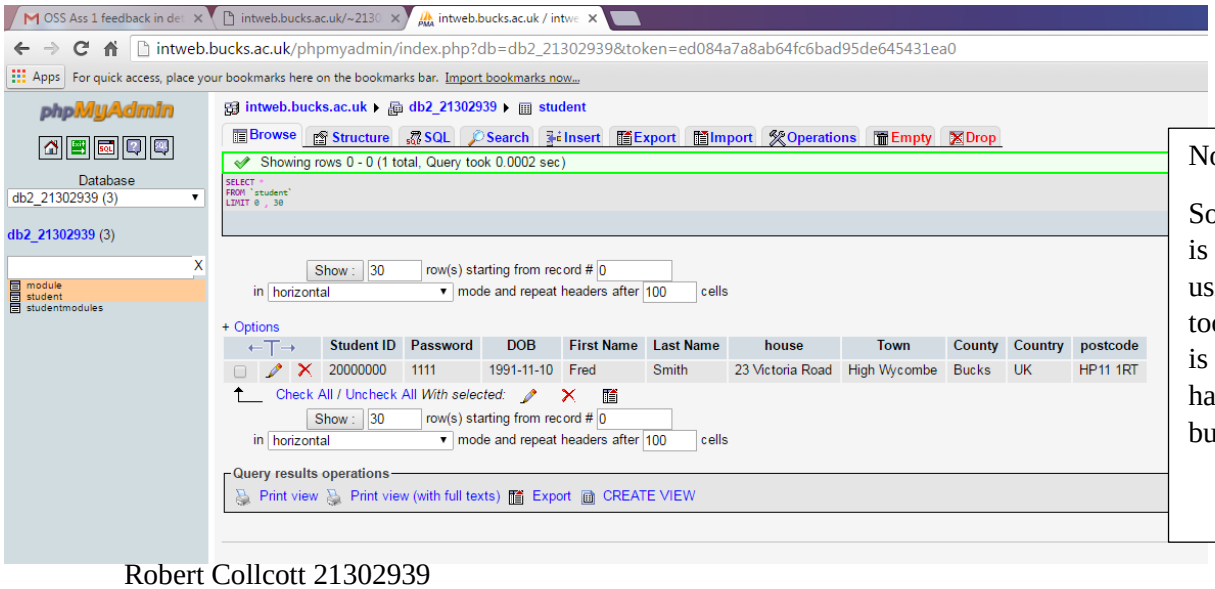
All the code above should trigger an action to build a sql statement to add a student to the students table in db2_21302939





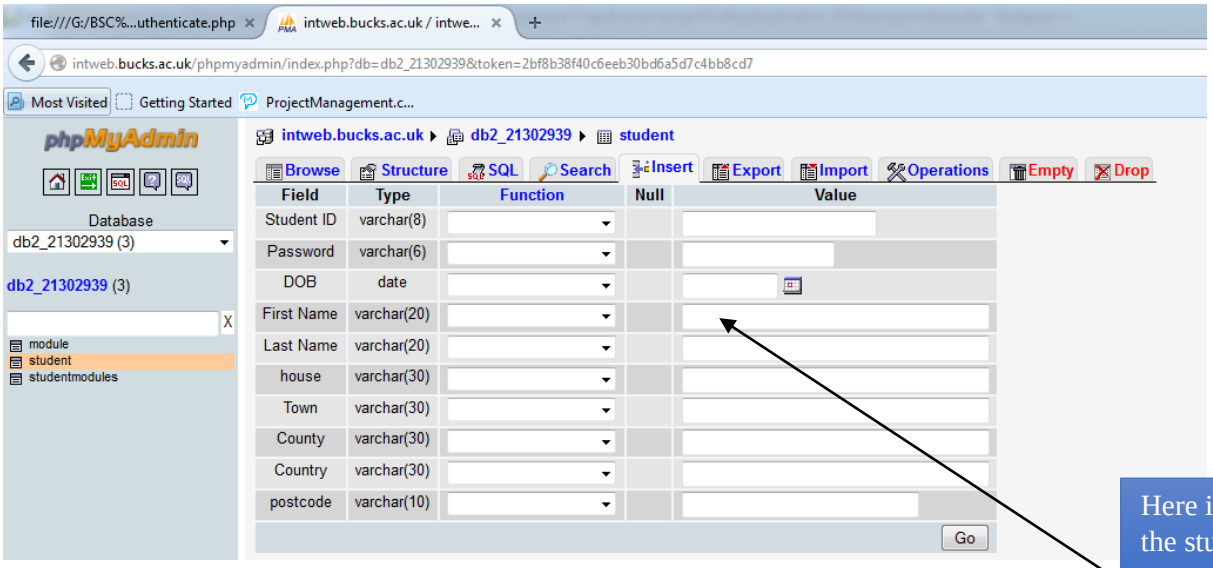
Let's see if the new students have been added to the student table again I used php my admin to check

I am going to select db2_21302939 to check

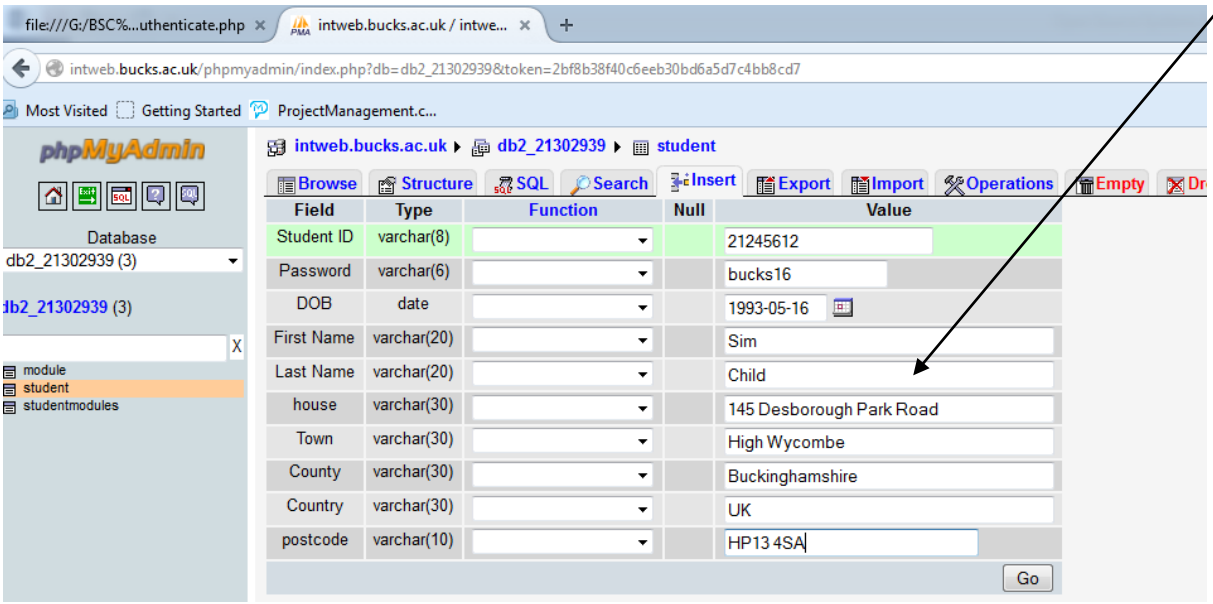


No they have not

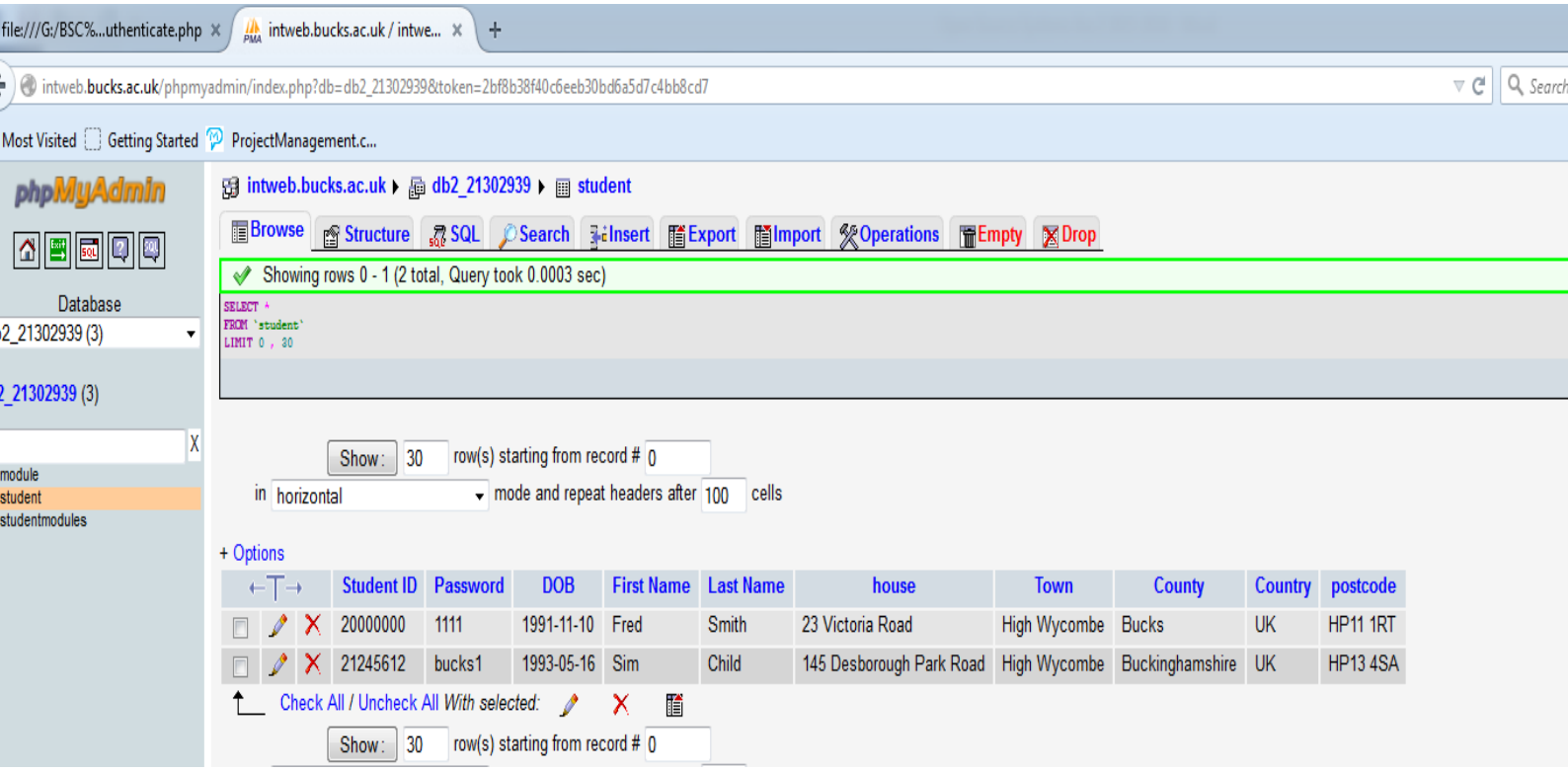
So what I will have to do is add them manually using the php my admin tool in the real world this is a pain as developers have to get things correct but time was a factor here



Here is me inserting all the student details manually using the php my admin insert tool

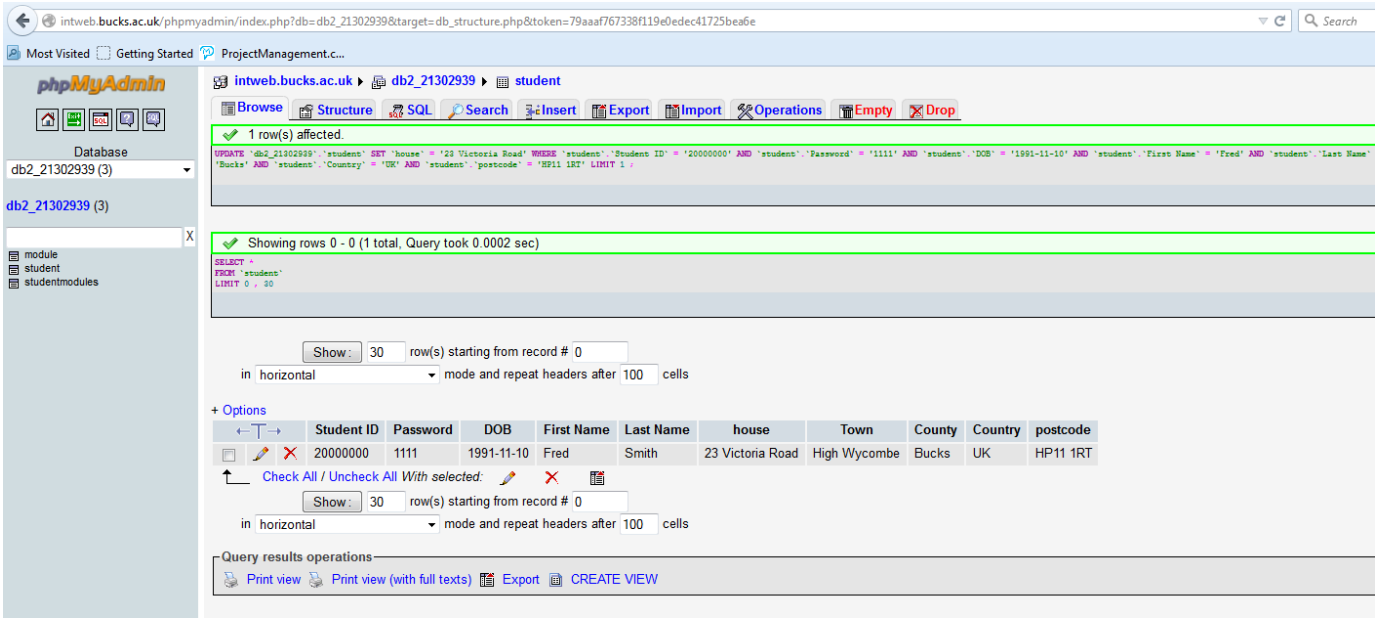


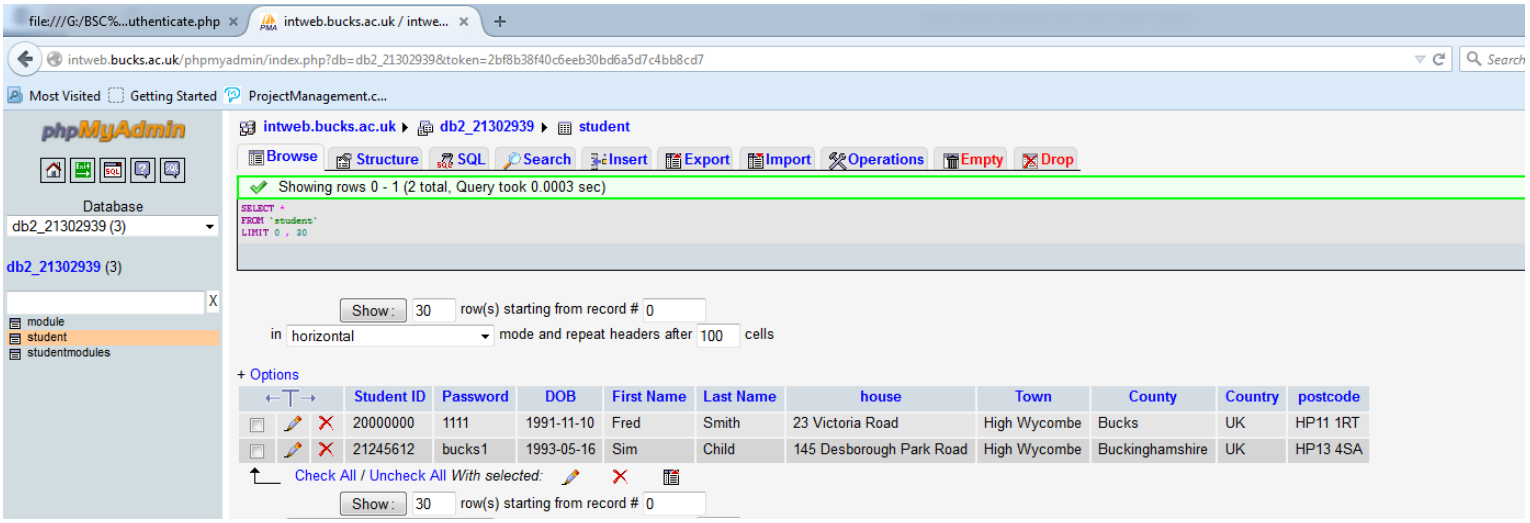
The new record has now been inserted manually using the php my admin tool



Evidence of showing new students added to the student table

One of the problems I got round in this project was to add students to the student table manually using the php my admin tool

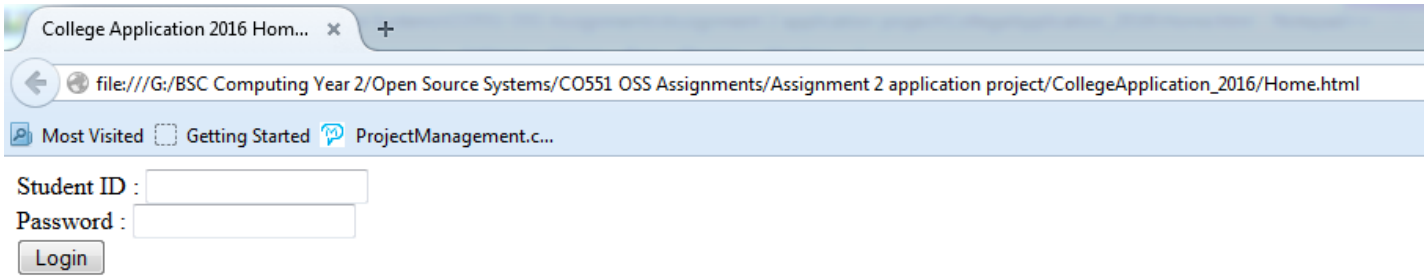


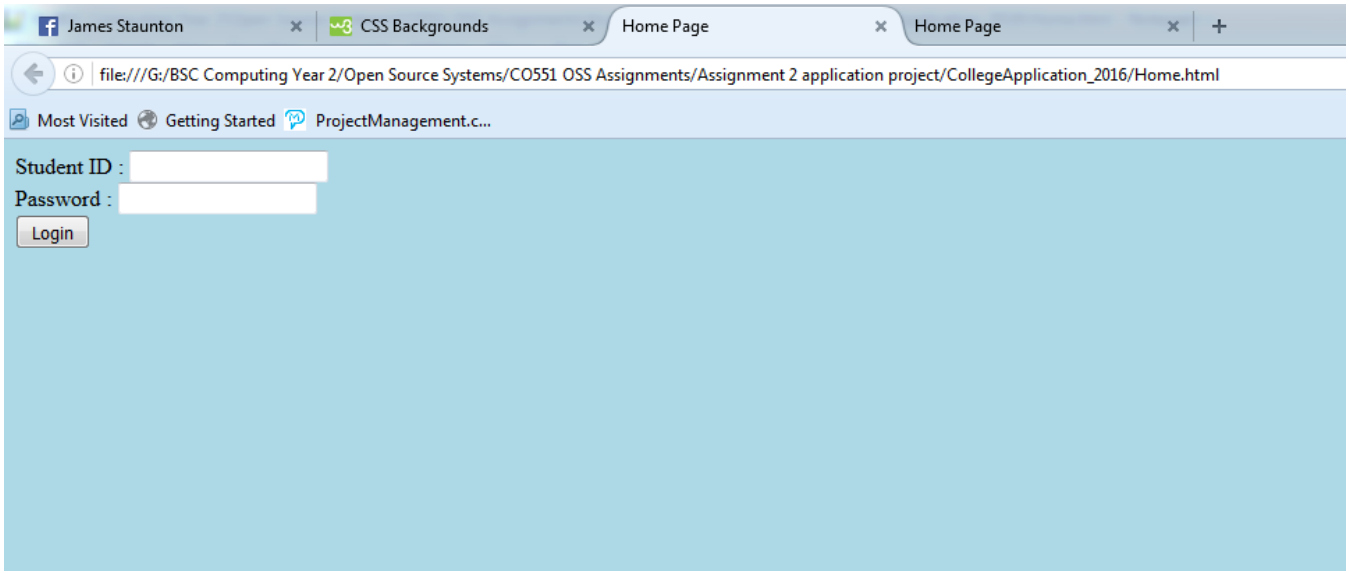


Task 6 -- Improving the UI/UX of the college application

There were a few things I wanted to change to make the system look more professional

Home Page background before and after





Source of: http://intweb.bucks.ac.uk/~21302939/UnAltared%20College%20App/Home.html - Mozilla Firefox

File Edit View Help

```
1  <html>
2  <head>
3  <title>Home  Page</title>
4  <head>
5  <body>
6     <form name="frmLogin" action="authenticate.php" method="post">
7           Student ID :
8      <input name="txtid" type="text" />
9           <br/>
10          Password :
11          <input name="txtpwd" type="password" /
12          <br/>
13          <input type="submit" value="Login" name="btnlogin" />
14    </form>
15 </body>
16 </html>
```

Where is the CSS code for a home page background this needed to be added?

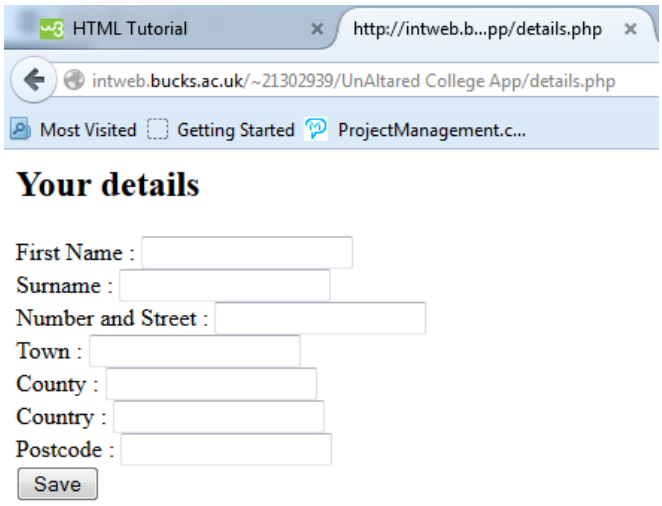
G:\BSC Computing Year 2\Open Source Systems\CO551 OSS Assignments\Assignment 2 application project\CollegeApplication_2016\Home.html - Notepad++

File Edit Search View Encoding Language Settings Macro Run Plugins Window ?

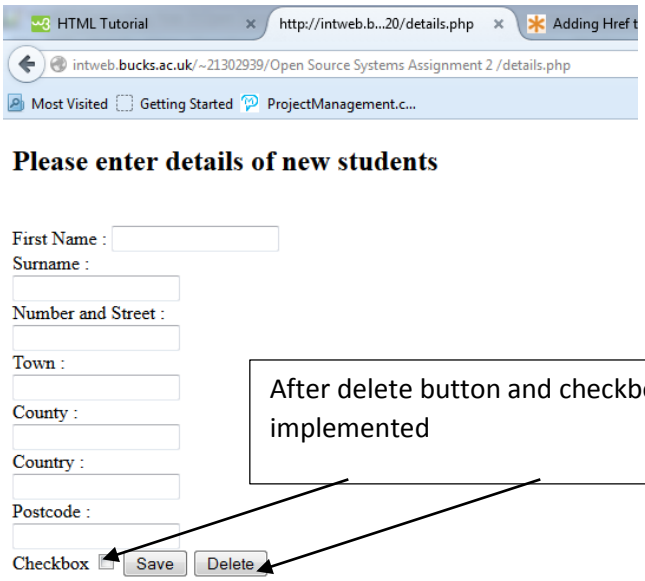
```
1  <html>
2  <head>
3   <title> College Application 2016 Home Page</title>
4  <head>
5  <body>
6
7  <style>        <!------- style tag implements a CSS background  11th May 2016 ------>
8
9   body {
10      background-color: lightblue;              // light blue background
11  }
12 </style>
13
14
15    <form name="frmLogin" action="authenticate.php" method="post">              <!------- create the form name it login and post the data to authenticate.php  ------>
16
17        Student ID :                                                            <!------- Get user input for the student ID  ------>
18     <input name="txtid" type="text" />
19        <br/>
20        Password :
21        <input name="txtpwd" type="password" />                                 <!------- Get user input for the password  ------>
22        <br/>
23        <input type="submit" value="Login" name="btnlogin" />                   <!------- Submit the inputted username and password to login to the system ------>
24    </form>
25 </body>
26 </html>
```

CSS code I found to change the home page CSS background colour

Implementing a checkbox and delete button to tell system user is new student and potential deletion of student records easier



Before delete button and checkbox where implemented



After delete button and checkbox where implemented

Source of: http://intweb.bucks.ac.uk/~21302939/UnAltared%20College%20App/details.php - Mozilla Firefox

File Edit View Help

```
<html>
<head>
</head>
<body>
  <h2>Your details</h2>
  <form name="frmdetails" action="" method="post">
     First Name :
 <input name="txtfirstname" type="text" value="" />
     <br/>
     Surname :
     <input name="txtlastname" type="text"  value="" />
 <br/>
     Number and Street :
 <input name="txthouse" type="text"  value="" />
     <br/>
     Town :
     <input name="txttown" type="text"  value="" />
 <br/>
     County :
 <input name="txtcounty" type="text"  value="" />
     <br/>
      Country :
 <input name="txtcountry" type="text"  value="" />
     <br/>
     Postcode :
     <input name="txtpostcode" type="text"  value="" />
     <br/>
     <input type="submit" value="Save" name="submit"/>
  </form>
</body>
</html>
```

Source code before delete button and checkbox where implemented

Source of: http://intweb.bucks.ac.uk/~21302939/Open%20Source%20Systems%20Assignment%202%20/details.php - Mozilla Firefox

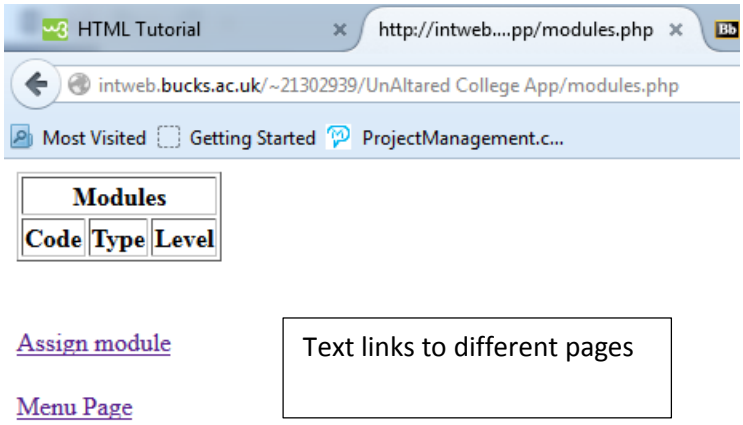
File Edit View Help

```
<html>
<head>
</head>
<body>
<style>          <!------- style tag implements a CSS background  11th May 2016 ------>

body {
    background-color: lightblue;               // light blue background
}
</style>
    <h2>Please enter details of new students </h2>
    <form name="frmdetails" action="" method="post">
    <br>
       First Name :
   <input name="txtfirstname" type="text" value="" />
       <br/>
       Surname :
        <br>
       <input name="txtlastname" type="text"  value="" />
   <br/>
       Number and Street :
        <br>
   <input name="txthouse" type="text"  value="" />
       <br/>
       Town :
        <br>
       <input name="txttown" type="text"  value="" />
   <br/>
       County :
        <br>
   <input name="txtcounty" type="text"  value="" />
       <br/>
        Country :
         <br>
   <input name="txtcountry" type="text"  value="" />
       <br/>
       Postcode :
        <br>
       <input name="txtpostcode" type="text"  value="" />
       <br/>

   <!-------------- This is the new inculcation of the delete button    10th May 2016     --------->

       Checkbox
       <input type="checkbox" type="text" value="" />


       <input type="submit" value="Save" name="submit"/>


       <!-------------- This is the new inculcation of the delete button    8th May 2016     --------->
```

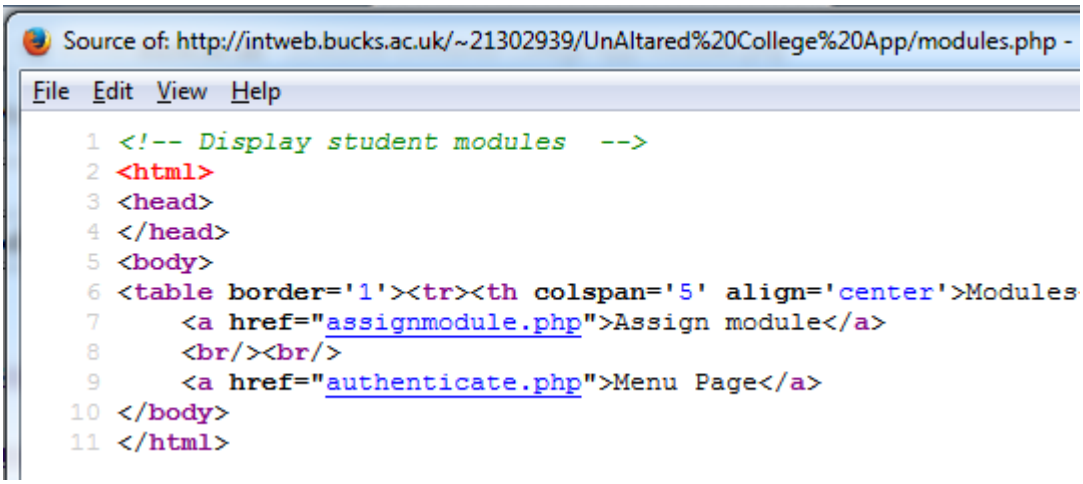
Source code after delete button and checkbox where implemented

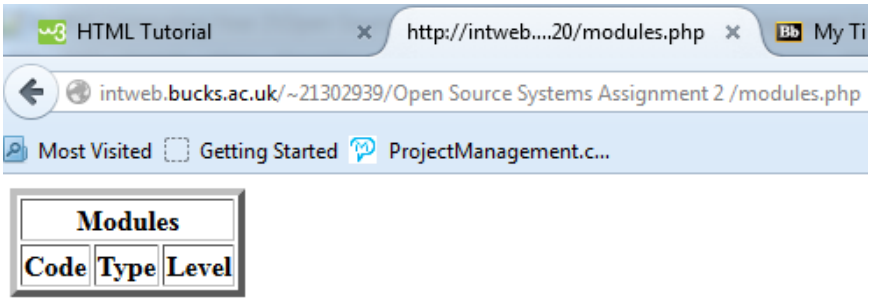
Hyperlinks to Official Text CSS Web Buttons

I decided to replace the html links to pages to professional web buttons the system would then look more professional and easier for the users to use



Source code before changing page links to button links





More professional button links to different pages

Source of: http://intweb.bucks.ac.uk/~21302939/Open%20Source%20Systems%20Assignment%202%20/modules.php - Mozilla Firefox

File Edit View Help

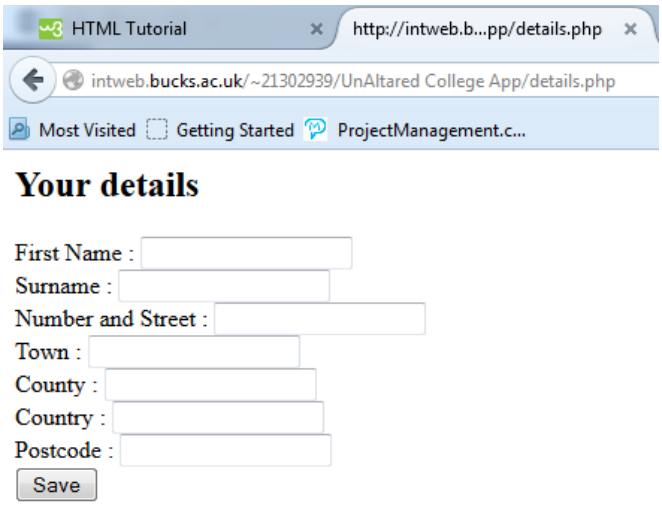
```
<!-- Display the student modules script  -->
<html>
<head>
</head>
<body>
<style>                          <!------- style tag implements a CSS background  11th May 2016 ------>

body
{
    background-color: lightblue;
}

</style>

<table border='4'><tr><th colspan='5' align='center'>Modules</th></tr><tr><th>Code</th><th>Type</th><th>Level</th></tr></table> <br/><br/>
          <a href="assignmodule.php"><button>Assign New Module</button></a>                    <!------- A button link looks more professional on a system 11th May 2016 ------>
    <br/><br/>
        <a href="Home.html"><button>Return to home screen</button></a>                         <!------- A button link looks more professional on a system 11th May 2016 ------>

</body>
</html>
```

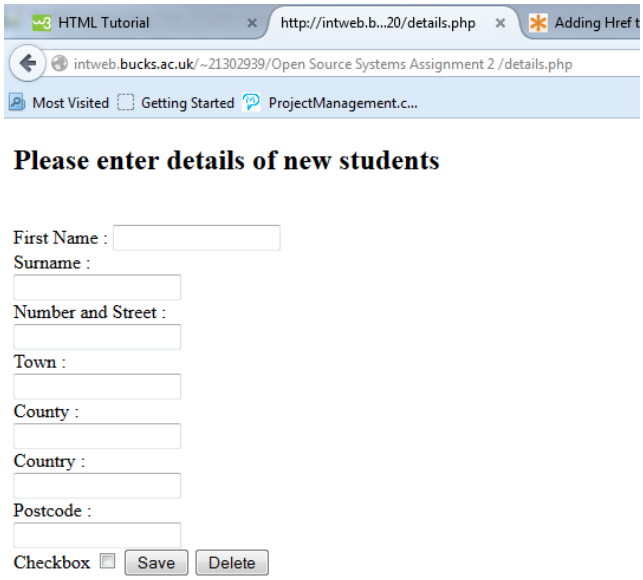
Source code after text links were changed into button links

Change of heading on details.php script

The title your details well that did not make much sense really so I changed it to something more relevant to the system I was implementing which was a College application database system storing student details such as personal details

The new title is **please enter details of new students**





Source Code Before

How would an operator even know what your details

Source Code After

```
<html>
<head>
</head>
<body>
<style>          <!------- style tag implements a CSS background  11th May 2016 ------>

body {
    background-color: lightblue;               // light blue background
}
</style>
    <h2>Please enter details of new students </h2>
     <form name="frmdetails" action="" method="post">
     <br>
        First Name :
    <input name="txtfirstname" type="text" value="" />
        <br/>
        Surname :
         <br>
        <input name="txtlastname" type="text"  value="" />
    <br/>
        Number and Street :
         <br>
    <input name="txthouse" type="text"  value="" />
        <br/>
        Town :
         <br>
        <input name="txttown" type="text"  value="" />
    <br/>
        County :
         <br>
    <input name="txtcounty" type="text"  value="" />
        <br/>
         Country :
          <br>
    <input name="txtcountry" type="text"  value="" />
        <br/>
        Postcode :
         <br>
        <input name="txtpostcode" type="text"  value="" />
        <br/>
```

More logical title heading

Task 7 Evaluation of PHP and ASP.net

PHP

PHP stands for hypertext preprocesser.

PHP was originally designed as a scripting tool that has quickly taken over the internet. This is largely down to its easy learning curve

PHP has a large developer community with over 244 million websites using the tool.

PHP is also very good for cost as it is free which is good because it means users and developers don't have to buy it for a lot of money this will also save development costs on writing scripts.

PHP wins over asp.net for support as it is supported well by open source developer communists online such as W3 Schools. This is a good because

When it comes to cost however php is the one should go for as its cheap and secure and also php works with code in other core web languages which is HTML to make websites dynamic and also the web services all come in one package so on a windows system it would be **Windows Apache my sql and php**

ASP.net [Active Server Pages]

Here I will be evaluating ASP.net by doing this I will be looking at the advantages and disadvantages with using the language

The first advantage of ASP.net is it is very much muti usable it terms of flexibility and it has object orientated features with other programming languages such VB.net and C# which means if you want to change the language of a written project you can and also muti developers can work on the same project to

All these are good benefits of ASP.net because it means developers could get projects finished sooner and they would be better quality

Another good benefit of using ASP is that its programming library is text based with it being organised into classes for precise tasks such as xml or image editing can save developers buckets of time which is good because it means projects might get finished on time or even ahead of time

ASP.net is bad however when it comes to cost as certain programs that run with the language such as Visual studio will cost a lot of money to keep upgrading to the latest versions e.g. 2013 Ultimate to 2015 Ultimate

Task 7 Evaluation of PHP and ASP.net continued

This section of task 7 I will talk about some of the key aspects when managing personal data on both the server side languages PHP and ASP.net

Key Security concerns - PHP

- Injection flaws
  This is a big concern because php passes to sql databases you run risks in web query's by inserting malicious code fragments form parameters an attacker will aim or disable the web server completely

- Cross Site Scripting **[XSS]**
  This will happen will hackers put in some JavaScript in a user form submitted content in an attempt to steal a user's data that can be deeply troublesome when on a user account or more a bad case on an admin account

- Encryption of data with Mcrypt
  These work just fine in a readable form but however, it's not always an option it offers you the chance to store details such as credit card details in encrypted formats in order to use it you will need to decrypt it
  This is being got round by something in the module named Mcrypt which is an add in for php that allows a developer to have high grade encryption

- Generating random passwords

People often guess passwords to try and hack and they get round this far too easily which means if someone forgot a password. However, if you are using MD5 hashes you will not be able to this is a concern as if you forget the password to a big system you will be locked out of it forever

Key Security concerns - ASP

- Authentication
  This answers the question who the person is accessing these might be the end users other services processes or computers

- Auditing
  This is a must and a concern which are server side developers have to bare in mind as you need to be able to set limits on things such as purchasing 15 copies of the same text

- Confidentiality
  You as the developer must have respect for privacy as in sites like Amazon people's addresses and credit card details must be encrypted

- Availability

This is a vital security thing as a server side developer as you need to make sure the system remains available for everyday users. The biggest concern is when attackers come along with denial of service attackers to crash the application so other users cannot access the application

Managing Personal data – ASP.net

With ASP.net which is Microsoft's server side language some of the key security aspects of managing personal data to be in mind are as follows

Managing Personal data Principle	**Concept overview**
Secure the weakest link	Is there a vulnerability at the network layer that an attacker can exploit?
Reduce the attack surface	If you do not use it, remove it or disable it. Reduce the surface area of attack by disabling or removing unused services, protocols, and functionality. Does your server need all those services and ports?
Never trust the user's input	If your application's user input is the attacker's primary weapon when targeting your application. Assume all input is malicious until proven otherwise, and apply a defense in depth strategy to input validation, taking particular precautions to make sure that input is validated whenever a trust boundary in your application is crossed.

Managing Personal data – php

Managing Personal data Principle	**Concept overview**
SQL injection	This perhaps one of the biggest security concerns for managing personal data when using the php as your server side scripting language SQL injection is usually targeted at database driven websites such as web applications which link to databases, the attack happens exploit vulnerabilities in the site's security to send special sql queries
Cross Side Scripting	This is probably the most common form of security concern related php, It will happen when hackers use a legitimates site to force a website to do certain things
Directory Traversal	This happens when people hack in to the root directory and attackers are able to view restricted files and use the web server be executing commands. The attack starts though a web browser by a user entering a url into the web address bar

CO551 Open Source Systems Assignment 2 References

Here are all my sources I used mainly for tasks 6 and 7

Reference 1 – Php security issues overview

Sharma S. (2016). 5 PHP Security Issues and What You Can do About Them? Available: http://blog.templatemonster.com/2014/05/08/php-security-issues/. Last accessed 11th May 2016.

Reference 2 – CSS Trick changing a text link to a button link syntax

Collcott R. (2016). CSS Tricks. Available: https://css-tricks.com/forums/topic/adding-href-to-button/. Last accessed 11th May 2016.

Reference 3 – Article on PHP Security concepts

Rizvi S. (2012). PHP Security. Available: http://www.codeproject.com/Articles/363897/PHP-Security. Last accessed 11th May 2016.

Reference 4 - Chapter 1 of Web Application Security Fundamentals [related to asp.net security concepts]

J.D. Meier, Alex Mackman, Michael Dunner, Srinath Vasireddy, Ray Escamilla and Anandha Murukan. (2003). Chapter 1 of Web Application Security Fundamentals. Available: https://msdn.microsoft.com/en-us/library/ff648636.aspx. Last accessed 11th May 2016.

Reference 5 – CSS Background Syntax Find for home page for College Application System 2016

Collcott R. (2016). CSS Backgrounds. Available: http://www.w3schools.com/css/tryit.asp?filename=trycss_background-color_body. Last accessed 11th May 2016.