CS2102 Project

Module Bidding System

Specially Designed For Students To Register Modules…

Group 9

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Web server

Web server used is Zone. (We used local server to test also).

Server page language

Server Page Language: php.

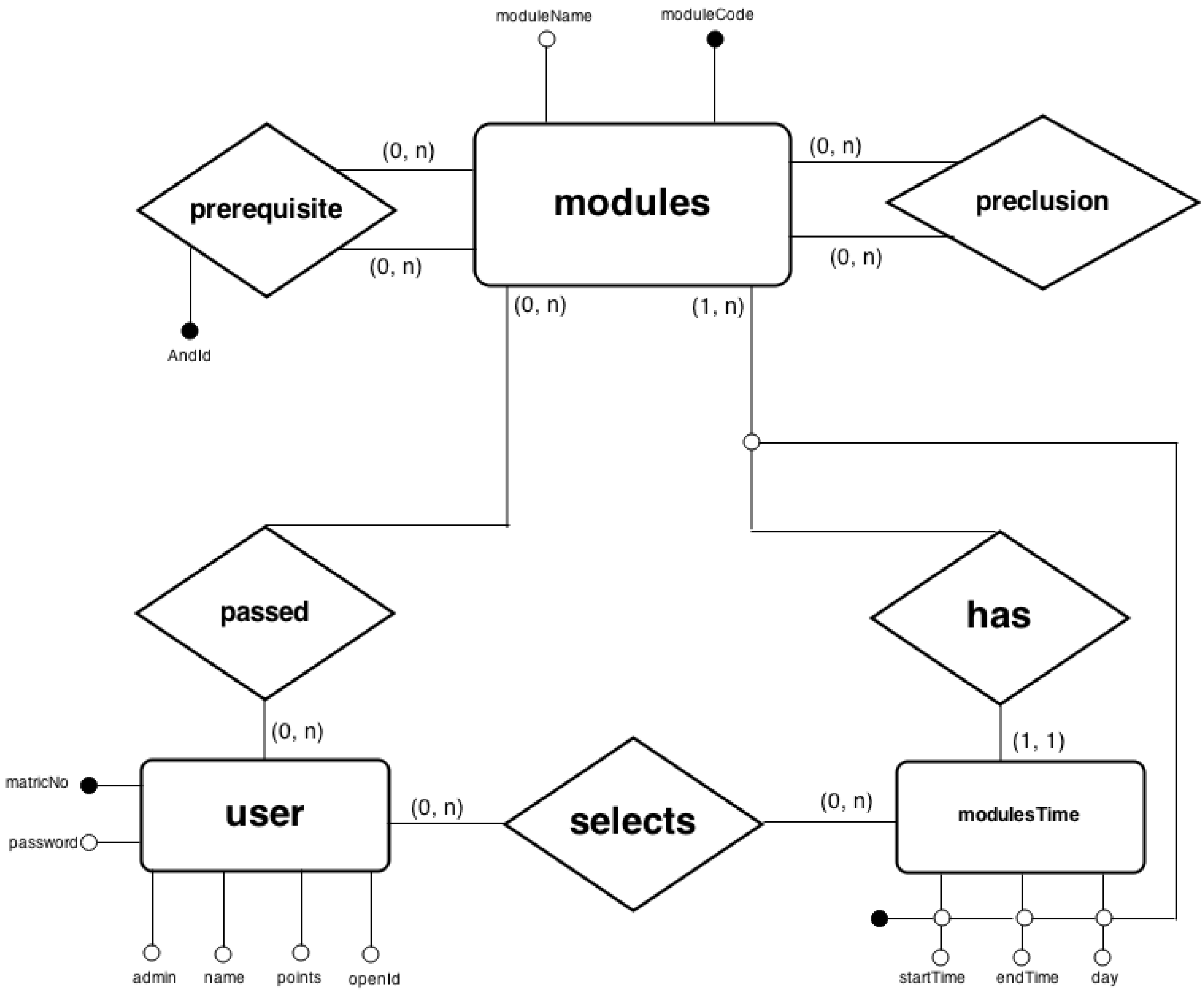
Frontend: Html, CSS

Database management system used

Query language used is SQL.

Database Management System is Oracle.

ER diagram



Relational Schema

Modules:

The table “modules” is created to save the details of a module.

```
CREATE TABLE modules (
moduleCode VARCHAR (16),
moduleName VARCHAR (128),
PRIMARY KEY (moduleCode)
);
```

Prerequisite:

The table “prerequisite” is created to save which module is which module’s prerequisite. (It’s a relation of an instance of “modules” and another instance of “modules”.)

```
CREATE TABLE prerequisite (
andId INT,
module VARCHAR (16),
requiredModule VARCHAR (16),
FOREIGN KEY (module) REFERENCES modules(moduleCode) ON DELETE CASCADE,
FOREIGN KEY (requiredModule) REFERENCES modules(moduleCode) ON DELETE CASCADE,
PRIMARY KEY (andId, module, requiredModule));
```

Preclusion:

The table “preclusion” is created to save which module is which module’s preclusion. (It’s a relation of an instance of “modules” and another instance of “modules”.)

```
CREATE TABLE preclusion(
module VARCHAR (16),
excludedModule VARCHAR (16),
FOREIGN KEY (module) REFERENCES modules(moduleCode) ON DELETE CASCADE,
FOREIGN KEY (excludedModule) REFERENCES modules(moduleCode)  ON DELETE CASCADE,
PRIMARY KEY (module, excludedModule)
);
```

ModulesTime:

The table “modulesTime” is created to save different timeslots of a module that is able to be bided by the student.

```
CREATE TABLE modulesTime (
moduleCode VARCHAR (16),
startTime INT
CHECK(
(FLOOR(startTime/100)<=23) AND
(FLOOR(startTime/100)>=0) AND
(MOD(startTime,100)>=0) AND
(MOD(startTime,100)<=59)),
endTime INT
CHECK(
(FLOOR(endTime/100)<=23) AND
(FLOOR(endTime/100)>=0) AND
(MOD(endTime,100)>=0) AND
(MOD(endTime,100)<=59)),
day CHAR (3)
CHECK (
lower(day) LIKE ('mon') OR
lower(day) LIKE ('tue') OR
lower(day) LIKE ('wed') OR
lower(day) LIKE ('thu') OR
lower(day) LIKE ('fri') OR
lower(day) LIKE ('sat') OR
lower(day) LIKE ('sun') ),
maxVacancy INT NOT NULL,
FOREIGN KEY (moduleCode) REFERENCES modules (moduleCode) ON DELETE CASCADE,
PRIMARY KEY (moduleCode, startTime, endTime, day)
);
```

Users:

The table “users” is created to save the details of a user.

```
CREATE TABLE users (
matricNo VARCHAR(10),
admin INT DEFAULT '0' CHECK (admin = 0 OR admin = 1),
name varchar(64) NOT NULL,
points INT NOT NULL,
openId INT DEFAULT '1' CHECK (openId = 0 OR openId = 1),
password CHAR (64),
PRIMARY KEY (matricNo)
);
```

Passed:

The table “passed” is created to record down whether the students have passed the modules or not. (It is the relation between an instance of “users” and an instance of “modules”.)

```
CREATE TABLE passed (
matricNo VARCHAR(10),
moduleCode VARCHAR(16),
FOREIGN KEY (matricNo) REFERENCES users(matricNo) ON DELETE CASCADE,
FOREIGN KEY (moduleCode) REFERENCES modules(moduleCode) ON DELETE CASCADE,
PRIMARY KEY (matricNo, moduleCode)
);
```

Selected:

The table “selected” is created to record down which modules are selected by the students during the bidding session. (Relation between an instance of “student” and an instance of “modulesTime”.)

```
CREATE TABLE selected(
matricNo VARCHAR(10),
moduleCode VARCHAR(16),
startTime INT,
endTime INT,
day CHAR(3),
bidpoints INT NOT NULL,
bidTime TIMESTAMP NOT NULL,
success INT DEFAULT '0' NOT NULL CHECK (success = 0 OR success = 1),
FOREIGN KEY (matricNo) REFERENCES users(matricNo) ON DELETE CASCADE,
FOREIGN KEY (moduleCode, startTime, endTime, day) REFERENCES
modulesTime(moduleCode, startTime, endTime, day) ON DELETE CASCADE,
PRIMARY KEY (matricNo, moduleCode, startTime, endTime, day)
);
```

Session Bit:

The table “session bit” is created to record down the states of the bidding session. It is 0 if the bidding session is close and 1 if the bidding session is opened.

```
CREATE TABLE sessionBit (

sessionB INTEGER default '0',

PRIMARY KEY (sessionB)

);
```

Sample and representative SQL code

Tracking of Bidding Session:

To keep track of the bidding session, we actually use the sessionBit table, we insert the value into sessionBit table first then keep updating it:

```
-   "INSERT INTO sessionBIT VALUES ('0') "
```

Show all modules data:

The below statement helps to retrieve all the available modules data and display out at the administrator page:

```
-   "SELECT * FROM modules order by moduleCode"
```

Add new modules data:

The below statement helps to add new module data base on module code and module name into the database:

```
-   "INSERT INTO modules values('$varmoduleCode','$varmoduleName')"
```

Remove a timeslot:

The below statement removes a data or t-uple from modulesTime, which is a table where module available timeslots are kept, based on the array $piece[], which consists of many values.

```
-   "DELETE FROM modulesTime where moduleCode='$pieces[0]'and
    startTime='$pieces[1]' and endTime='$pieces[2]' and day='$pieces[3]'"
```

Check if time clashes:

In order to prevent time clashes of selected modules and recently chosen modules. The query will return 'True' if the recently chosen modules intersect with any selected modules.

```
-   SELECT 'True'
    FROM selected s1
    WHERE EXISTS (
    SELECT s2.moduleCode
            FROM selected s2
            WHERE s2.matricNo = '$matric'
            AND s2.day = '$day'
            AND ((s2.startTime >= '$startTime' AND s2.startTime < '$endTime')
            OR (s2.endTime > '$startTime' AND s2.endTime <= '$endTime')
    );
```

Prerequisite testing:

The following statement is written to check if the student ($matric) met the requirements to add a module ($moduleCode).

-
  ```
  " SELECT 'True'
  FROM prerequisite p
  WHERE EXISTS(
          SELECT p2.andId
          FROM prerequisite p2
          WHERE p2.module = p.module
          AND p2.andId = p.andId
          AND p2.requiredModule IN (
                  SELECT ps.moduleCode
                  FROM passed ps
                  WHERE ps.matricNo = '$matric'
          )
          GROUP BY p2.andId
          HAVING COUNT(p2.requiredModule) = (
                  SELECT COUNT(p3.requiredModule)
                  FROM prerequisite p3
                  WHERE p3.module = p.module
                  AND p3.andId = p.andId
          )
  )
  AND p.module = '$moduleCode'"
  ```

Showing bidding statistics:

The following statement is written to get all the necessary information to show all the bidding statistics.

```
-   " SELECT s.moduleCode, m.moduleName, s.startTime, s.endTime, s.day,
    s.bidpoints, s.bidTime,
    COUNT(CASE WHEN s2.bidpoints > 0 AND s2.success = 0 THEN 1 END) AS
    NoBidder, mt.maxvacancy, MAX(s2.bidpoints) AS highestBidPts
    FROM selected s, selected s2, modules m, modulestime mt
    WHERE s.matricNo = '$matric'
    AND s2.moduleCode = s.moduleCode
    AND s2.startTime = s.startTime
    AND s2.endTime = s.endTime
    AND s2.day = s.day
    AND s.success = '0'
    AND s.moduleCode = m.moduleCode
    AND s.moduleCode = mt.moduleCode
    AND s.starttime = mt.starttime
    AND s.endtime = mt.endtime
    AND s.day = mt.day
    GROUP BY s.moduleCode, m.moduleName, s.startTime, s.endTime, s.day,
    s.bidpoints, s.bidTime, mt.maxvacancy

ORDER BY s.moduleCode"
```

Generating bidding result:

In order to find out which student has successfully bid the result, we have to compare the value of bidpoints and bidtime: the one who has the higher bidpoints won, and if their bidpoints are the same, the one who bids earlier wons. (The $mc is the module code, $st is the start time, $et is the end time and $d is the day, they are the primary key of moduleTimes.)

```
-   "SELECT s2.matricNo as MN2, s2.moduleCode as MC2,
    s2.startTime as ST2, s2.endTime as ET2, s2.day as D2
    FROM (  SELECT *
            FROM selected sTemp
            WHERE sTemp.bidpoints > 0
            AND sTemp.moduleCode = '" . $mc . "'
            AND sTemp.startTime = '" . $st . "'
            AND sTemp.endTime = '" . $et . "'
            AND sTemp.day = '" . $d . "'
            ORDER BY sTemp.bidpoints DESC, sTemp.bidTime) s2
    WHERE ROWNUM <= (
            SELECT mt.maxVacancy
            FROM modulesTime mt
            WHERE mt.moduleCode = s2.moduleCode
            AND mt.startTime = s2.startTime
            AND mt.endTime = s2.endTime
            AND mt.day = s2.day)"
```

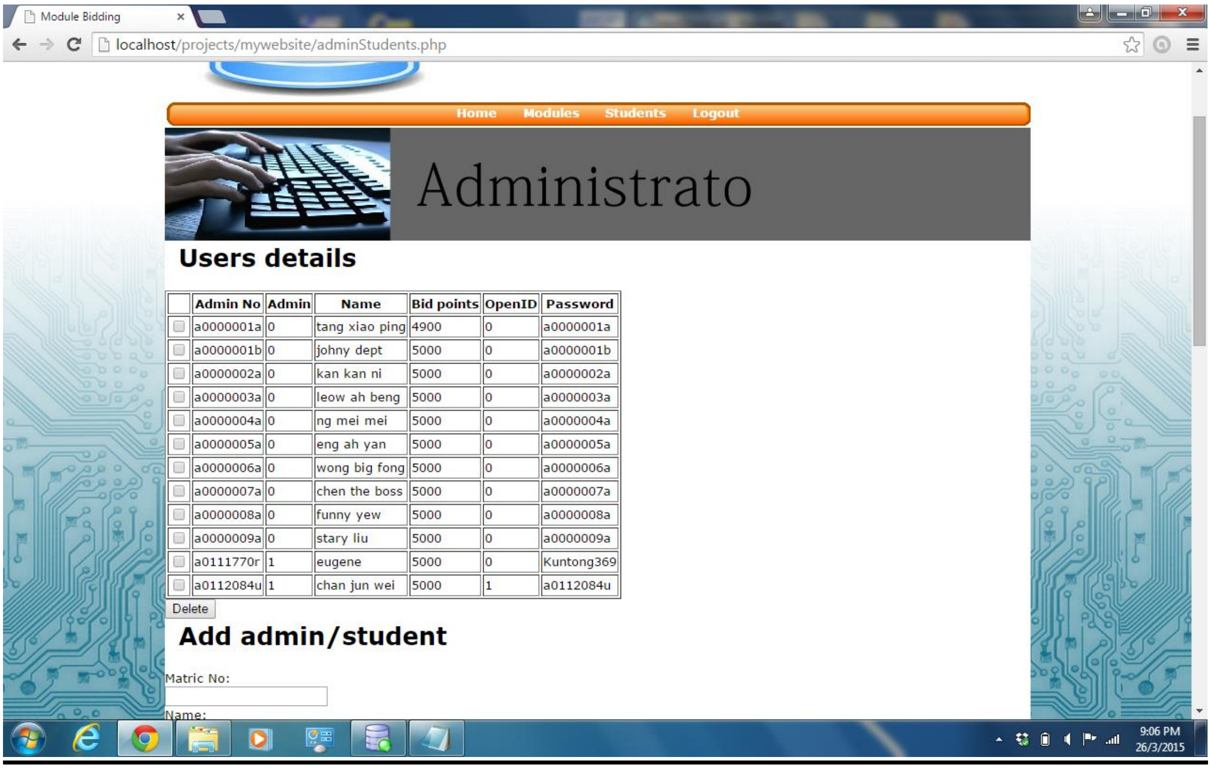
Showing bidding result:

The following statement is written to get all the necessary information to show all the bidding history.

-
  ```
  " (SELECT m.moduleName, mt.moduleCode, mt.startTime, mt.endTime,
  mt.day, mt.maxVacancy, COUNT (s.matricNo), MAX(s.bidpoints), MIN(s.bidpoints)
  FROM modules m, modulesTime mt, selected s
  WHERE m.moduleCode = mt.moduleCode
  AND mt.moduleCode = s.moduleCode
  AND mt.startTime = s.startTime
  AND mt.endTime = s.endTime
  AND mt.day = s.day
  GROUP BY m.moduleName, mt.moduleCode, mt.startTime, mt.endTime, mt.day,
  mt.maxVacancy)
  UNION
  (SELECT m2.moduleName, mt2.moduleCode, mt2.startTime,
  mt2.endTime, mt2.day, mt2.maxVacancy, 0, 0, 0
  FROM modules m2, modulesTime mt2
  WHERE m2.moduleCode = mt2.moduleCode
  AND NOT EXISTS (
  SELECT *
  FROM selected s2
  WHERE s2.moduleCode = mt2.moduleCode
  AND s2.startTime = mt2.startTime
  AND s2.endTime = mt2.endTime
  AND s2.day = mt2.day
  )) "
  ```

Web interface screenshots

Admin: Students Page



localhost/projects/mywebsite/adminStudents.php

Users details

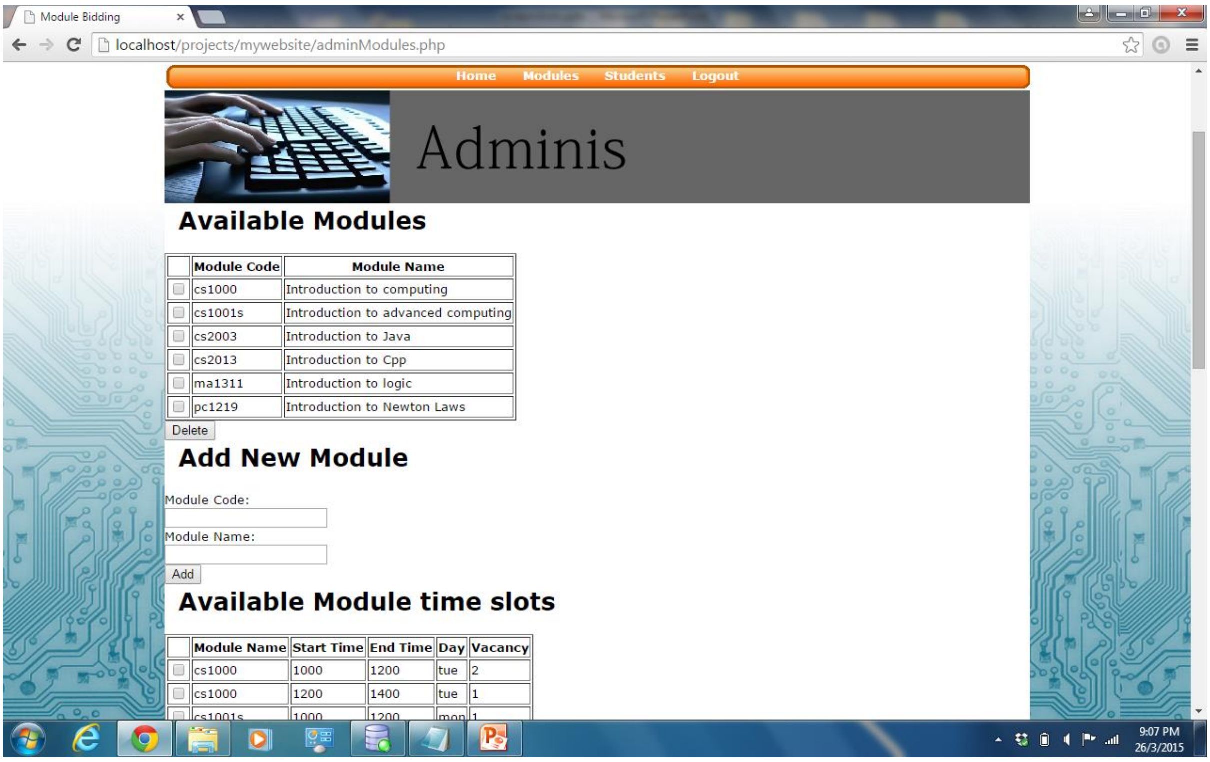
	Admin No	Admin	Name	Bid points	OpenID	Password
□	a0000001a	0	tang xiao ping	4900	0	a0000001a
□	a0000001b	0	johny dept	5000	0	a0000001b
□	a0000002a	0	kan kan ni	5000	0	a0000002a
□	a0000003a	0	leow ah beng	5000	0	a0000003a
□	a0000004a	0	ng mei mei	5000	0	a0000004a
□	a0000005a	0	eng ah yan	5000	0	a0000005a
□	a0000006a	0	wong big fong	5000	0	a0000006a
□	a0000007a	0	chen the boss	5000	0	a0000007a
□	a0000008a	0	funny yew	5000	0	a0000008a
□	a0000009a	0	stary liu	5000	0	a0000009a
□	a0111770r	1	eugene	5000	0	Kuntong369
□	a0112084u	1	chan jun wei	5000	1	a0112084u

Add admin/student

Matric No:

Name:

Admin: Modules Page



localhost/projects/mywebsite/adminModules.php

Available Modules

	Module Code	Module Name
□	cs1000	Introduction to computing
□	cs1001s	Introduction to advanced computing
□	cs2003	Introduction to Java
□	cs2013	Introduction to Cpp
□	ma1311	Introduction to logic
□	pc1219	Introduction to Newton Laws

Add New Module

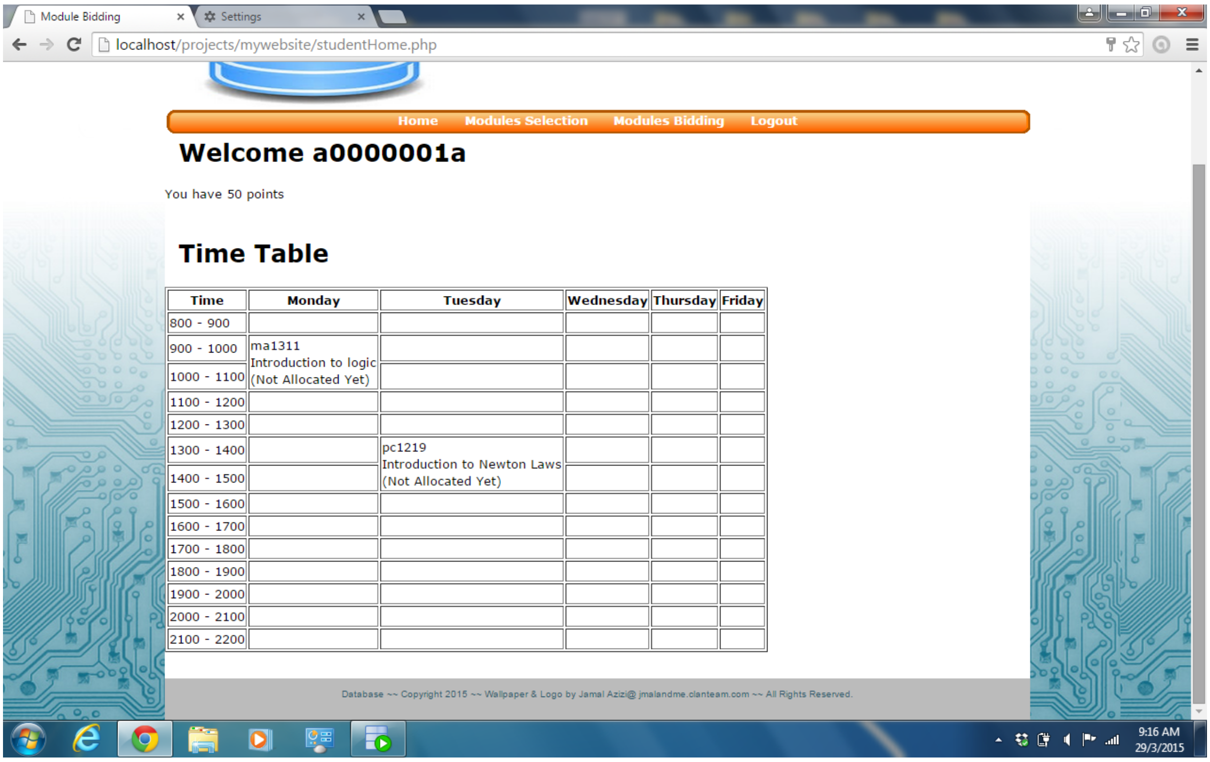
Module Code:

Module Name:

Available Module time slots

	Module Name	Start Time	End Time	Day	Vacancy
□	cs1000	1000	1200	tue	2
□	cs1000	1200	1400	tue	1
□	cs1001s	1000	1200	mon	1

Student: Home Page



Welcome a0000001a

You have 50 points

Time Table

Time	Monday	Tuesday	Wednesday	Thursday	Friday
800 - 900					
900 - 1000	ma1311 Introduction to logic (Not Allocated Yet)				
1000 - 1100					
1100 - 1200					
1200 - 1300					
1300 - 1400		pc1219 Introduction to Newton Laws (Not Allocated Yet)			
1400 - 1500					
1500 - 1600					
1600 - 1700					
1700 - 1800					
1800 - 1900					
1900 - 2000					
2000 - 2100					
2100 - 2200					

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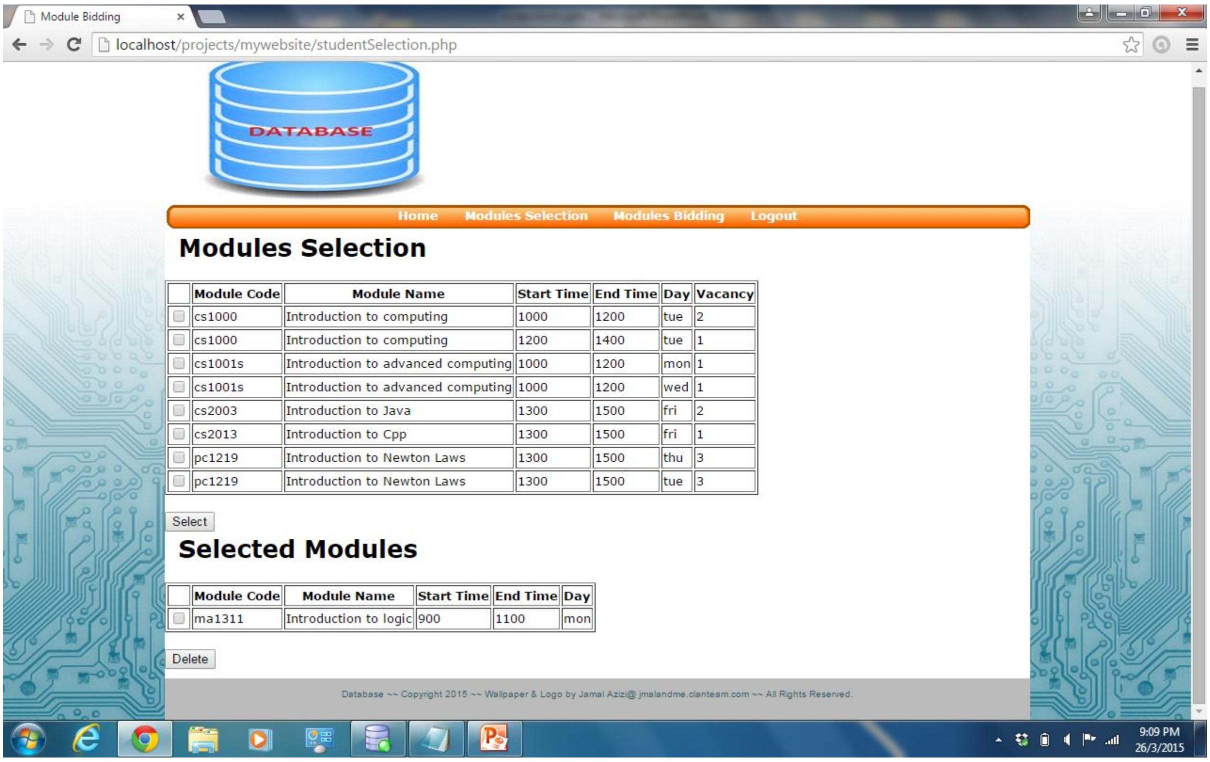
Student: Modules Selection Page



Modules Selection

	Module Code	Module Name	Start Time	End Time	Day	Vacancy
□	cs1000	Introduction to computing	1000	1200	tue	2
□	cs1000	Introduction to computing	1200	1400	tue	1
□	cs1001s	Introduction to advanced computing	1000	1200	mon	1
□	cs1001s	Introduction to advanced computing	1000	1200	wed	1
□	cs2003	Introduction to Java	1300	1500	fri	2
□	cs2013	Introduction to Cpp	1300	1500	fri	1
□	pc1219	Introduction to Newton Laws	1300	1500	thu	3
□	pc1219	Introduction to Newton Laws	1300	1500	tue	3

Select

Selected Modules

	Module Code	Module Name	Start Time	End Time	Day
□	ma1311	Introduction to logic	900	1100	mon

Delete

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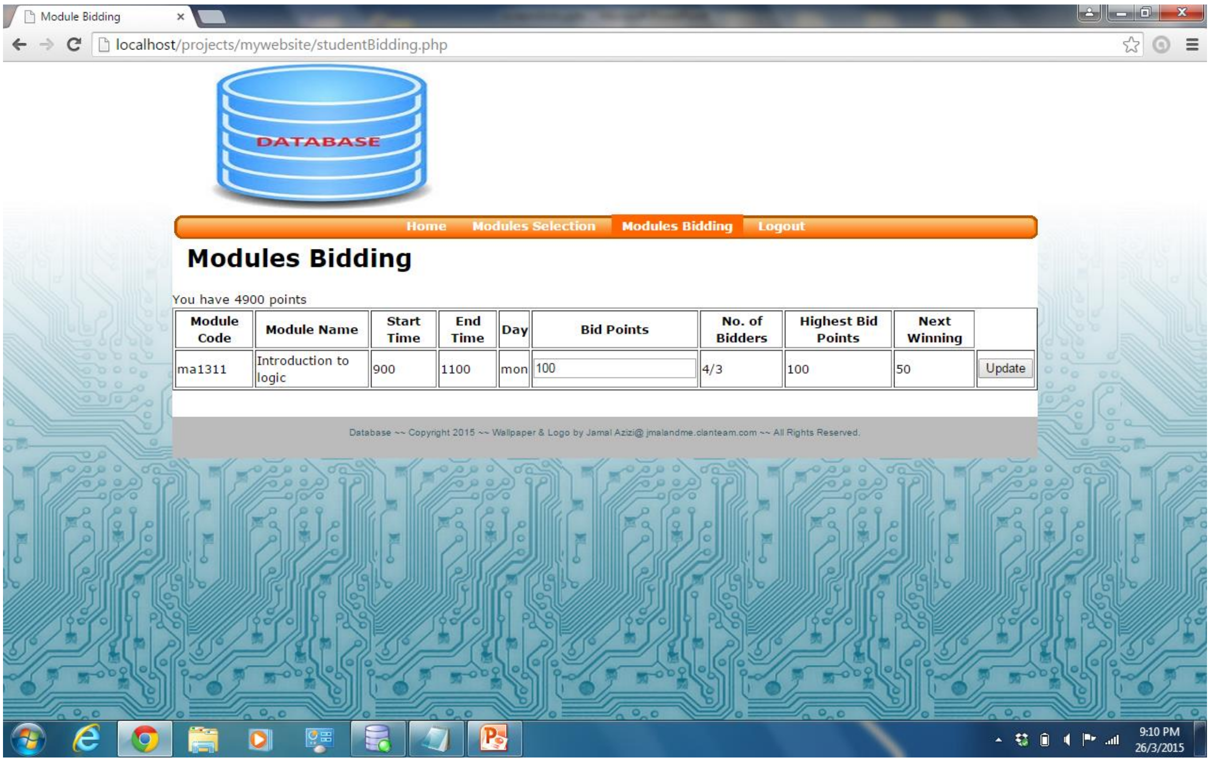
Student Modules Bidding Page



Modules Bidding

You have 4900 points

Module Code	Module Name	Start Time	End Time	Day	Bid Points	No. of Bidders	Highest Bid Points	Next Winning	
ma1311	Introduction to logic	900	1100	mon	100	4/3	100	50	Update

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Special Thanks To:

LightOpenID: We used it to implement Open Id.

http://www.w3schools.com/

http://www.iconshock.com/img/product/IS_clean_database_1.jpg

http://php.net/manual/en/language.basic-syntax.php

http://www.oracle.com/webfolder/technetwork/tutorials/obe/db/oow10/php_db/php_db.htm

http://php.net/manual/en/function.oci-connect.php

https://www.youtube.com/watch?v=hMhkD43yUzI

https://www.youtube.com/watch?v=IJ10-XCR4H4

https://www.youtube.com/watch?v=Gb5QSw9eE2E

http://stackoverflow.com/questions/17627827/updating-sql-table-for-selected-check-box-values

http://stackoverflow.com/questions/14475096/delete-multiple-rows-by-selecting-checkboxes-using-php

http://www.tizag.com/htmlT/forms.php

http://stackoverflow.com/questions/18753180/passing-two-values-for-same-checkbox-field-in-get-form

http://www.html-form-guide.com/php-form/php-form-select.html