Internet Programming

Classroom reservation management system

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Architecture

Technologies used for this projects are:

* MySQL for the database
* Php for querying the database.
* HTML for content
* CSS for appearance. The css theme used is chosen from <https://www.w3schools.com/> site and more specifically CV Template in <https://www.w3schools.com/w3css/tryw3css_templates_cafe.htm>. The template used is responsive. Some changes and additions were made for adapting it to the project’s needs.
* JavaScript for some tasks requiring code in client side. For example, when user selects a classroom to add a reservation all other timetables hide and the specific’s classroom’s appears via JavaScript.

Execution

Steps for Linux users are:

1. Go to <https://panel.000webhost.com/> and sign up
2. Create new database in database manager after creating new free account in webhosting
3. Go to created database and click to phpMyAdmin
4. Dump in phpMyAdmin the db.sql
5. Change the db.php the credentials for created account and user (my case: servername = "localhost", database username (000 webhosating ), username = "id21288655\_firujzon", database password ("" in 000 Webhosting), password = "ClaSSr00M12#", database name dbname = "id21288655\_db";)
6. start website by clicking “view site” in 000webhosting page (https://classroomssystem.000webhostapp.com/index.php)

Steps needed for Windows Users are:

Software used is XAMPP, <https://www.apachefriends.org/>. It is not installed in a server and therefore database, file db.sql, attached, and code, file code.zip must be correctly installed.

1. Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, εικονίδιο υπολογιστή

   Περιγραφή που δημιουργήθηκε αυτόματαInstall XAMPP
2. Execute it, start Apache and MySQL server
3. Visit phpMyAdmin, either by pressing Admin in MySQL or visiting <http://localhost/phpmyadmin/>
4. Select New and create database with name db.
5. Import db.sql file (Import menu)
6. Unzip folder code.zip in C:\xampp\htdocs folder or the folder in which xampp is installed.

Access the page visiting <http://localhost/code/>.

Aditional information for execution

I will add the db.php for xampp as well in case if user for windows can’t configure the db.php

Requirements

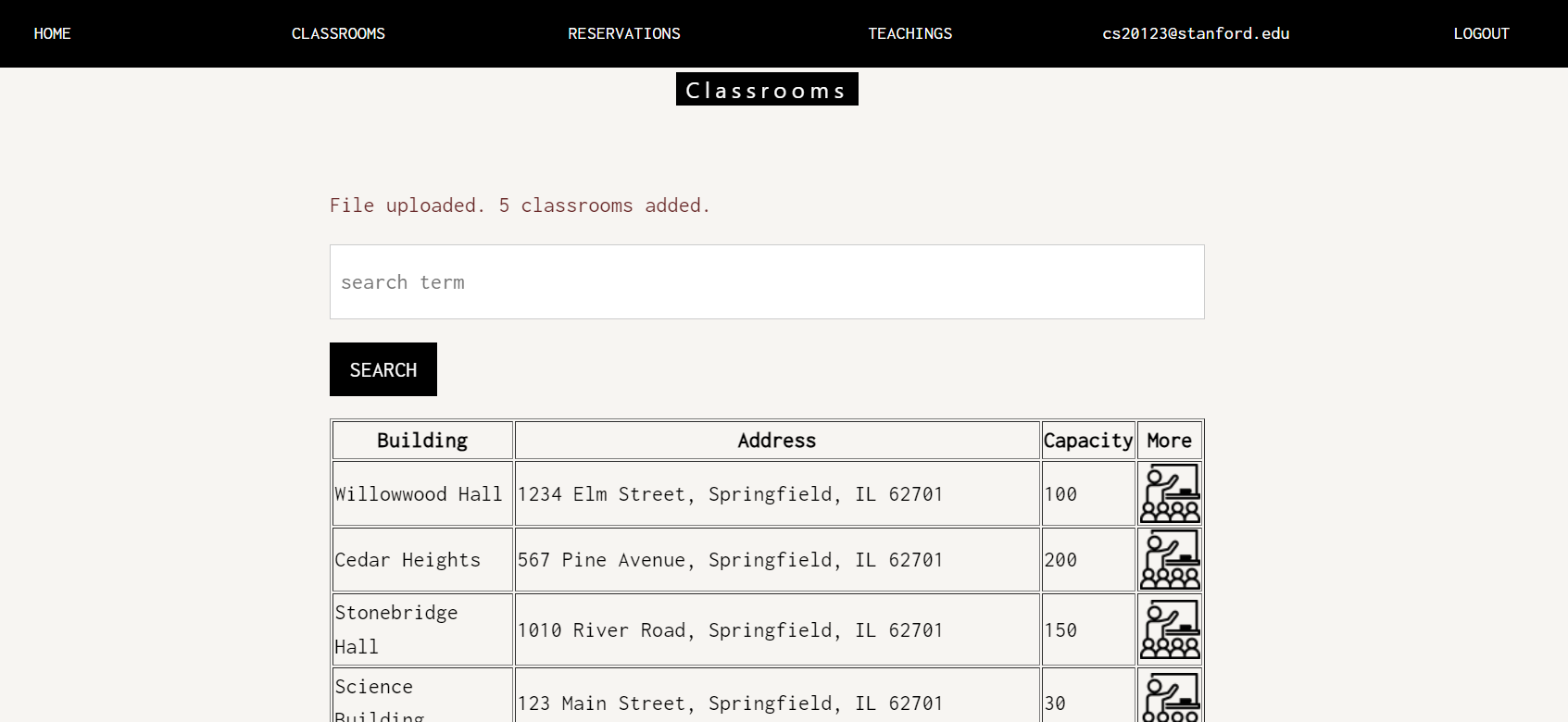
* Classrooms:
  + **Insertion**: Only if a user has the role of reservationsadmin, pressing the add button in classrooms page he visits the add classroom page. He can there select and type a new classroom details.

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, λογισμικό πολυμέσων

Περιγραφή που δημιουργήθηκε αυτόματα

page: classroomadd.php

* + **Multiple insertion**: Classrooms can be added from a csv file also. There is a load classrooms button after the classrooms table. This is also appears only for the reservationsadmin. There is an attached file called classrooms.csv which is semicolon separated values.



page: classrooms.php after uploading classrooms.csv file

* + **Display**: When user, even not logged in ones, select classrooms for the main menu, a list of all classes with some information appears. Every user can select a specific class to view more information. A visit in classroom page with no classroom selection or wrong id will lead users back to classrooms page with an error message.
    - You must select a specific classroom to view details.
    - No classroom with given id exists.

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, αριθμός

Περιγραφή που δημιουργήθηκε αυτόματα

page: classroom.php

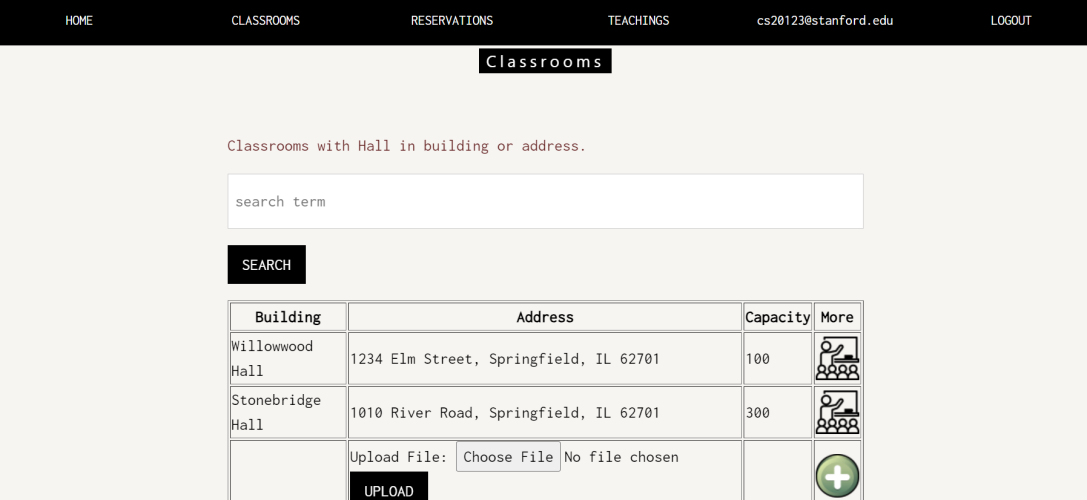
* + **Update**: In the same, classroom page, where, as shown before, there is an uneditable form, if the user logged in has the reservationsadmin role, the form is editable and he can either update or delete the classroom.

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, λογισμικό

Περιγραφή που δημιουργήθηκε αυτόματα

page: classroom.php when reservationsadmin is logged

* + **Search**: There is a search bar in classrooms page. Search is applied to building and address of classrooms.



page: classrooms.php after searching Hall

* + **Delete**: Again, in classroom page the reservationadmin can select to delete the classroom and not only update it.
* Reservations: There is a simplification for the reservation system. We suppose that there is only one semester and every reservation is made for a repeated teaching through this semester. So there is no need for dates or for setting repeated reservations. Every reservation is repeated.
  + **Insertion**: Reservationuser can add a reservation selecting one of the department’s teaching and a classroom. When he selects a classroom a table with the timetable of the classroom appears. If classroom and day, hours chosen aren’t available a message appears.
    - Classroom not available.

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

reservationadd.php

* + **Update**: The reservationadmin can only update classroom, day, hour and duration of the reservation. Only if new hour and duration is applicable reservation updates.

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, αριθμός

Περιγραφή που δημιουργήθηκε αυτόματα

reservation.php when reservationadmin logged in

* + **Deletion**: Only reservationadmin can delete a reservation. Same page as above.
  + **Display**: A logged in user can view a list of all reservation and select one to view more details.

Εικόνα που περιέχει κείμενο, λογισμικό, στιγμιότυπο οθόνης

Περιγραφή που δημιουργήθηκε αυτόματα

reservations.php

Εικόνα που περιέχει κείμενο, λογισμικό, γραμματοσειρά, αριθμός

Περιγραφή που δημιουργήθηκε αυτόματα

reservation.php for a teacher user

* Teachings:
  + **Insert**: Only reservationadmin can update a teaching

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, εικονίδιο υπολογιστή

Περιγραφή που δημιουργήθηκε αυτόματα

page: teachingadd.php

* + **Update**: Only reservationadmin can update a teaching
  + **Delete**: Same as above

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, λογισμικό πολυμέσων

Περιγραφή που δημιουργήθηκε αυτόματα

page: teaching.php

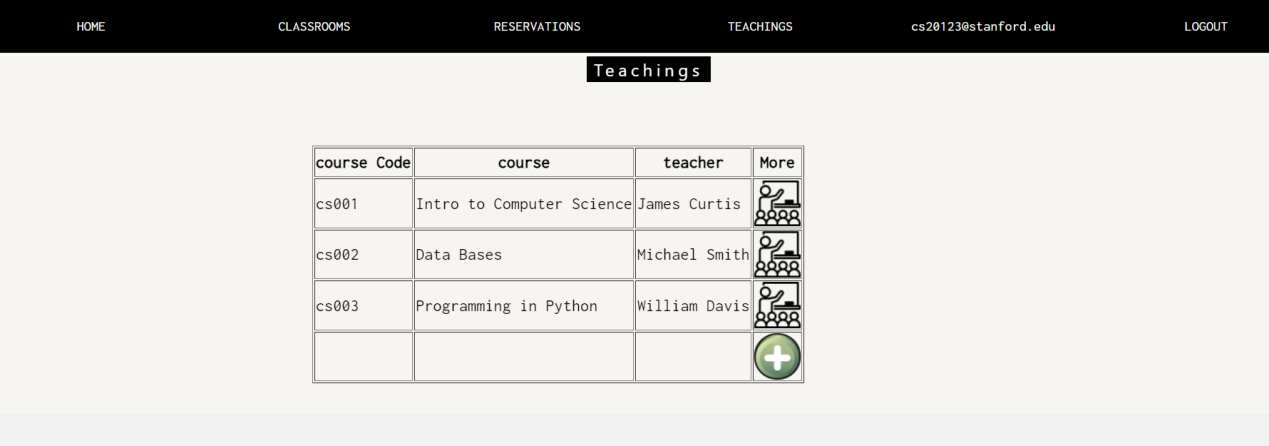
* + **Display**: Each teaching can be accessed by selecting it in the teachings list. If logged in is a user he can just view teaching info and not update it.

Εικόνα που περιέχει κείμενο, λογισμικό, στιγμιότυπο οθόνης

Περιγραφή που δημιουργήθηκε αυτόματα

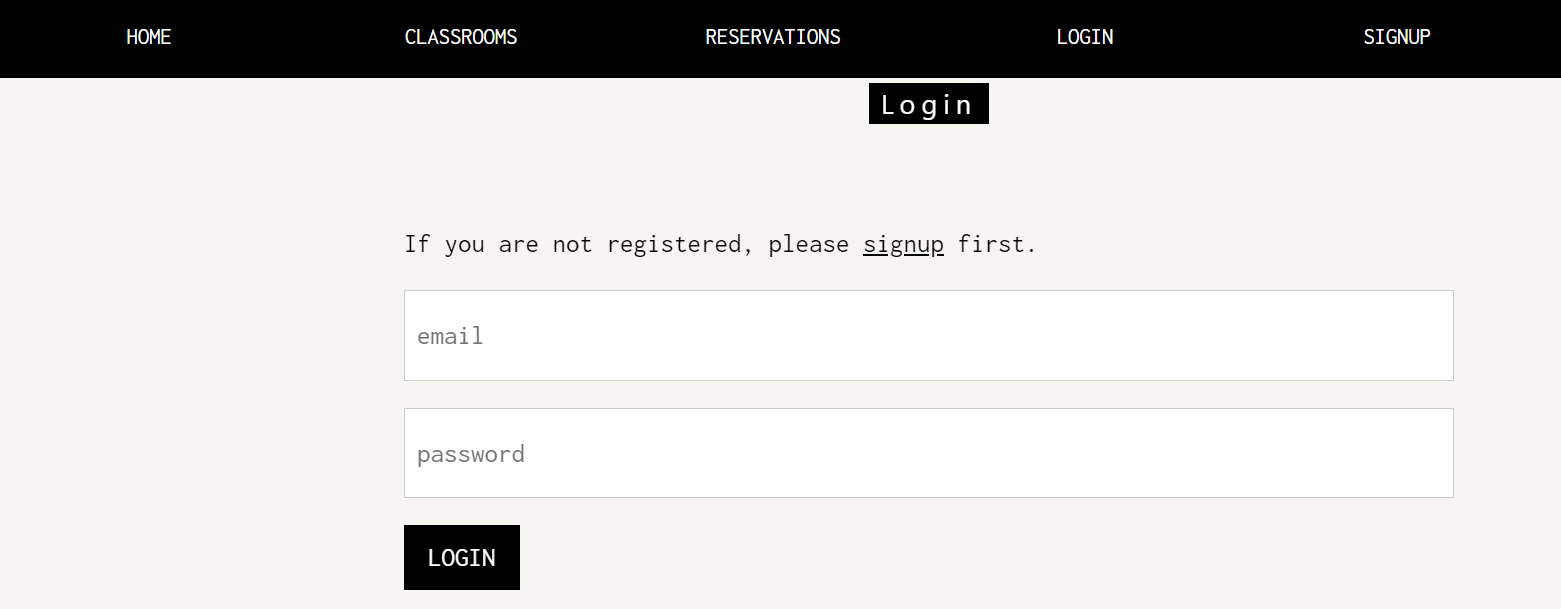
page: teaching.php

* + **Display List**: Every logged user of a department with either teacher or reservation admin role can access teachings of the department.



teachings.php

* Users:
  + **Login**: Only when a user is approved he can log in. There are a couple of error message when something goes wrong:
    - Email cs241001@stanford.edu not registered.
    - Password for cs231001@stanford.edu not correct.
    - User with email cs231001@stanford.edu not approved yet.



*page: login.php*

* + **Sign up**: User can request signing up as one or more of the user roles. They cannot login immediately though. A user with role useradmin must approve them. There are also a couple of error message when something goes wrong. Emails are unique, cannot register twice with same email, at least one role must be selected.
    - Email cs231001@stanford.edu is already registered.
    - You must select at least one role.

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, γραμματοσειρά

Περιγραφή που δημιουργήθηκε αυτόματα

*page: signup.php*

* + When logged in, after approval, a user can see specific pages depending on his roles. If a page is visited with no appropriate writes, visitor is redirected in home page and an error message appears.
  + User admin: if the user logged in has the role useradmin, he can access the users page where he can approve or delete new users. He cannot do that in already approved users. When an action is selected after the action a message appears:
    - User with Email cs15324@stanford.edu is approved.
    - User with Email cs15123@stanford.edu is deleted.

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, γράφημα

Περιγραφή που δημιουργήθηκε αυτόματα

page: users.php

* + A logged in users can access his profile’s info by selecting the email link in the main menu. He cannot change his role, email and password. Only full name and type if he is a teacher.

Εικόνα που περιέχει στιγμιότυπο οθόνης, κείμενο, λογισμικό, λογισμικό πολυμέσων

Περιγραφή που δημιουργήθηκε αυτόματα

page: profile.php

Database

The following database tables are used:

* user
  + **email (primary key)**: Unique email, primal key of user array.
  + **password**: Password of the user.
  + **fullname**: Full name of the user.
  + **role**: (useradmin, reservationadmin, teacher): It’s a set, each user can have more than one role.
  + **department**: This is the id of the department this user belongs to.
  + **type** (lecturer, instructor, professor): Mandatory only if teacher is selected.
  + **approved:** If the user’s request for signing up is approved.
* classroom
  + **id (primary key)**: It’s an autoincrement value.
  + **building**: A Varchar
  + **address**: Also a varchar
  + **capacity**: An integer.
  + **hourlyAvailability**: It’s a set of every hour from 09:00 – 21:00
  + **dailyAvailability**: It’s a set of every weekday, Monday through Friday.
  + **type**: lab or teaching enum.
  + **computers**: An integer, applicable only if classroom is a lab.
  + **projector**: bool
  + **locked**: bool
* reservation
  + id **(primary key)**: it’s an autoincrement value.
  + teaching: foreign key to a teaching.
  + teacher: foreign key to a teacher.
  + classroom: foreign key to a classroom.
  + day: day for the reservation. Can be Monday or Tuesday etc.
  + hour: Beginning of reservation. Can be 09:00, 10:00 etc
  + duration: Duration of reservation.
* teaching
  + **id (primary key)**: it’s an autoincrement value.
  + **courseCode**: a Unique code for every course
  + **course**: Name of the course
  + **teacher**: Only one teacher is supported for every course. So a foreign key with the user table, the email of the user, is enough.
  + **type**: can be theory or lab.
  + **semester**: an integer number, Via html input fields only 1 – 12 is a valid semester number.
  + **department**: a course is offered by a department
  + **hours**: teaching hours for the course.
* **department**
  + **id (primary key)**: it’s an autoincrement value:
  + **name**: Name of the department

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, αριθμός

Περιγραφή που δημιουργήθηκε αυτόματα

Data Base scheme