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| CMSE353 TERM PROJECT |  |
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PROBLEM DEFINITION

We have to create a Secure Student Attendance Tracking System which is

SSATS.

The modules and functions are wanted from us :

Mandatory Actors

Student, Teacher , Chair , Parent and System Administrator.

Privilege-Application Settings

Student can view only his/her record

Teacher can enter/modify attendance of students in his/her groups.

Chair can view only all Departmental students records.

Parent can view only records of his/her children-students.

System Administrator can create only course-group attendance tables.

Data tables are kept on the disk DES-Encrypted.

Keys for encryption/decryption are created/periodically updated by System

Administrator .

System Administrator also introduces new user and grants/revokes their privileges.

Work Breakdown And Task Distrubution

Team Members : -Emir Sinan İşler

-Aral Oprukçu

-Seçkin Hakkı Yüksekbaş

Group Management/AES Implementation/Tester : Emir Sinan İşler

Technical Coder/Creator of User Guide/Tester : Seçkin Hakkı Yüksekbaş

Coder /Database Management / Tester: Aral Oprukçu

In this project, team members helping each other every steps.

Group members researched the sources together and did the testing phases together.

Group members discussed the course of our project by setting meetings at certain

periods.

Since a change in a certain part of the project affects the whole project, we unanimously

agreed to the change issue.

DESCRYPTION OF ALGORITHM

The algorithm consists of 3 basic terms. These are actors, privileges and setting functions.

First, we have to create our basis actors such as -student-teacher-parent-chair-admin. Then we design

each of these

actors to have different privileges. We are using python for technical coding, and MySQL with a

connector. Once we create the actors in our case , then we are designed the privilege part and put

different functions. These functions are useful for their own actors. So, we must connect actors and

privileges with functions.

Text

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As you can see here (as a sample) , we are creating our user functions for admin. Admin can do

anything in this list.

This is about the privilege of Admin. Then we authorized the other actors for their own functions.

We are going to encrypt our files with MySQL for security ,

Text

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For the user interfaces part , we have to create a login section, so we are creating 5 different login for

each actors. And give them special privileges for access control .

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Description Of Database Structure Designed

MySQL is a multi-threaded, multi-user, fast and robust database management system installed

on more than six million systems.

We are using a connector code for connect python and MySQL We are using localhost for trying to

project from our computers when project will be published then we transfer our localhost to public

host like domain or host servers. MySQL has many options to create a useful database. We are using

phpMyAdmin panel so we can control users, and project will be updateable because MySQL support

different web applications (etc. WordPress).

Our structure :

Graphical user interface, application

Description automatically generatedDiagram

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Description of Tools-Installation and Preparation

1-PYTHON

First we have to download python’s proper version. For this we are going to <https://www.python.org> Then install latest 3.10.9 version of python .

A screenshot of a computer

Description automatically generated with medium confidence



Text

Description automatically generated with medium confidence

If you are chose includes idle it would be better for other supportive programs like virtual studio.

2- VISUAL STUDIO CODE (OPTIONAL)

You can download Visual studio code in here <https://code.visualstudio.com> which is an

optional. Because you don’t need to download but for the benefits we recommend you visual studio

code. Also you may download python here too . Visual studio code got a huge library for applications.

Graphical user interface, text

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3- XAMMP CONTROL PANEL (MANDATORY FOR MYSQL)

You need to XAMPP control panel because we are using local host MySQL.

If you have Windows for installation :

You can download it here

Graphical user interface, application

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If you have Linux for installation:

You can download it here

Graphical user interface, text, application

Description automatically generated

Once you download XAMPP you need to set some settings for program :

Graphical user interface, application

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You need to start Apache and MySQL , and you can easily reach your local host.

You can connect with python and localhost with a single code :



DESCRIPTION OF DEVELOPED PROGRAM

The program has 5 actors. These are: Admin, Student, Parent, Chair, Teacher.

All actors have different roles and privileges (as consumer-company wants ) . Program has

Text

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We have authorize program which is all actors have , login program.

Text

Description automatically generated

You can choose whichever you want , but you have to be authorized for reaching the rolls .

We have session for each actors , for example these teacher session.

Text

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We said before each actor has/her own roll. For example we can see the teacher’s menu here .

Teacher can mark attendance , view and logout . These are functions of being Teacher in this

program.

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Text

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Also, the teacher can see student registers.

For example: This is an admin panel

If you authorized truly, you are an admin, you can do these functions. And all of them work.

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You should be press which action do you want in all actors. If your access is enough for these service , you can do it all. Admin has all permissions for these actions.

You can check the student , teacher , chair parent etc. systems here in MySQL table.

If you are primary admin and you can reach the MySQL, you can design these rolls here too .

Graphical user interface

Description automatically generated

USER GUIDE

For the user part , we are using python terminal. We can easily select all options we have,

design and see the status in python terminal.

Graphical user interface, text

Description automatically generated

When we run our code, we can reach here , as an example we are going to parent here.

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When we choose 4. Part, the program asks us for username and password. And if it is true, you can view

your student status, or logout and login as a new actor.

Text

Description automatically generated

When you press 1 , you can easily reach the student hakki is present.

We just select actor, which is created by admin , and if you know the admin id and password you can

easily create new actors

Text

Description automatically generated

But again , there is a warning here , you have to know the password. If you entered password wrong, it gives an error, lets try :

Text

Description automatically generated

If you are in the correct actor, you can do whatever you want. ( with permissions of course )

Conducted Tests and Their Results

Let’s try all actors here :

Text, chat or text message

Description automatically generated

First, this is our login panel, we are choosing our actor as a student first .

Text

Description automatically generated

When we choose student, we can easily see our attendance here .

Then second , we choose as a teacher :

Text

Description automatically generatedGraphical user interface, application

Description automatically generated

We can see the status is changing so function is work, and you can see the date as well.

Text

Description automatically generated

And also the second option is very useful , teacher can reach all the register attendance and dates.

Lets try the chair too :

Text

Description automatically generated

As you can see chair can view all student registers.

Lets try to fourth one , parent :

Text

Description automatically generated

As we can see here , parent is only can see his child status .

Now the last one, and most functional one admin :

Text

Description automatically generated

As you can see admin has many option to do something, lets try it one by one .

Text

Description automatically generated

We choose option 1 and create new student , lets check on database side.

Graphical user interface, application

Description automatically generated

As you can see here , new student has been registered with no errors.

Text

Description automatically generated

Now we choose option 2 and create a new teacher , lets check on database side.

Graphical user interface, application

Description automatically generated

As you can see here , new teacher has been registered with no errors.

Text

Description automatically generated

Now we are going to choose option three which is register new chair, lets check on database

Graphical user interface, application

Description automatically generated

As you can see here , new chair has been registered with no errors.

Text

Description automatically generated

Now we are choosing option 4 which is new parent , and we create a child because parent can only see his/her child.

Graphical user interface, application

Description automatically generated

As you can see here , new parent registered with no errors. (With his child)

Now when we are determine a student named by newchild this parent can only see his/her status.

We see the registrations has been complete, lets check the delete existing users.

Text

Description automatically generated

We choose option 5 here which is delete existing student , lets check on database side.

Graphical user interface, application

Description automatically generatedGraphical user interface, application

Description automatically generated

As we can see in these 2 images , new student has been deleted with no errors.

Lets check option 6 which is Delete existing teacher :

Text

Description automatically generated

We choose option 6 which is delete existing teacher, lets check on database side.

Graphical user interface, application

Description automatically generatedGraphical user interface, application

Description automatically generated

As we can see in this 2 images , new teacher is completely deleted

Lets check option 7 which is delete existing Chair :

Text

Description automatically generated

We choose option 7, delete existing chair, lets check on database side.

Graphical user interface, application

Description automatically generatedGraphical user interface, application

Description automatically generated

As we can see here , new chair has been deleted completely

Now we coming our last function which is delete existing parent :

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We choose option 8 , this option is important , because when 2 parents names are same , this options wants too child username too. So its separate the same names parents as well.

Graphical user interface, application

Description automatically generatedGraphical user interface, website

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As we can see here, parent username : aral , has been completely deleted with no errors.

CONCLUSION

As a conclusion , we collect our data and problems , we solve the problems step

by step and one by one , we are testing each step of our project and write to results as

well . We create meetings for the details and errors, we strengthened our teamwork in

meetings as well. Each day-week we solve some problems and we analyzed other

programs to improve our code , program. We use python for programming (with visual

studio ofc) , We learn database management and MySQL details , We can say that we

currently have a fully functioning college system , thanks to our team and sources.

##### REFERENCESS

1- https://stackoverflow.com/questions/51134744/how-to-use-implement-aes-decrypt-of-mysql-by-python

2- https://stackoverflow.com/questions/69533378/error-1064-42000-you-have-an-error-in-your-sql-syntax-check-the-manual-that

3- https://www.w3schools.com/python/python\_mysql\_where.asp

4- https://stackoverflow.com/questions/11155489/mysql-the-right-syntax-to-use-near-at-line-1-error

5- <https://stackoverflow.com/questions/22009582/error-1064-42000-you-have-an-error-in-your-sql-syntax-check-the-manual-that>

6-https://stackoverflow.com/questions/19952356/how-do-i-write-multiple-conditions-in-single-sql-query-to-get-data-python-mysq

7-https://stackoverflow.com/questions/73643859/des-encryption-using-python

8-https://stackoverflow.com/questions/46290018/how-to-group-rows-containing-similar-element-from-a-table-using-mysql-python

9-https://stackoverflow.com/questions/4602083/sql-how-to-compare-two-tables-for-same-data-content

10- <https://www.tutorialspoint.com/python_data_access/python_mysql_where_clause.htm>

11- <https://www.maykinmedia.nl/blog/2012/nov/15/mysql-aes_encrypt-python/>

12- <https://learn.microsoft.com/en-us/sql/relational-databases/backup-restore/backup-encryption?view=sql-server-ver16>

13- <https://digitalrecovery.com/en/recover-mysql-encrypted-by-ransomware/>

14- <https://dev.mysql.com/doc/connector-python/en/connector-python-api-mysqlcursor-executemany.html>

15- https://www.geeksforgeeks.org/python-mysql-where-clause/