Online Quiz Application

PROJECT LINK
https://github.com/santha19/CRUD_QuizApp.git

Project by

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Course Title

CRUD Project in Python using MySQL

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ABSTRACT

The Quiz Application is a Python-based application that allows users to participate in quizzes and provides an administrative interface for managing quiz questions and user reports. The application utilizes the PyMySQL library to interact with a MySQL database for data storage and retrieval. The application consists of two main user roles: admin and user. The admin has privileges to add, update, and delete quiz questions, as well as view a report of user quiz results. The user can register, login, take quizzes, view their quiz results, and logout. Finally, upon finishing all the activities the user may either Logout or Exit the app.

<u>INTRODUCTION</u>

WHAT IS A CRUD APP?

CRUD apps are the user interface that we use to interact with databases through APIs. It is a specific type of application that supports the four basic operations: Create, Read, Update, Delete. Broadly, CRUD apps consist of the database, the user interface, and the APIs.

Modern web applications have a user perform at least one of the following operations on a database – creating (new record), read/view (existing records), update (existing records), or delete (a record). Or shortly, CRUD. If you have worked with a database, you have most likely worked with CRUD without realizing.

CRUD apps are used daily by several businesses and organizations to maintain their day-to-day workflows. HR uses CRUD apps to manage staff records and track keeping of employee leaves, attendance. Sales uses CRUD to manage lean information, customer success uses CRUD apps to resolve customer tickets, and so on. Have a look at blogging sites. You as a user can Create/Publish a post, Read/Show your post, Update/Edit your post and Delete your post. Blogs are classic CRUD apps.

SOFTWARE USED:

- PYTHON V3.11
- MySQL v8.0

HARDWARE USED:

- Lenovo Ideapad GAMING 3
- RAM: 8Gb
- ROM: 1tb HDD & 256 Gb SDD
- Processor: AMD Ryzen 7 5800H

IDE USED:

- MySQL Workbench 8.0 CE

MAJOR CONCEPTS USED:

- Modules
- File handling
- Regular Expressions
- OOPs Concept
- Python – MySQL Connectivity

APP OVERVIEW

In this CRUD application Python is used a Front-end tool. User can use and access the app by entering the input in the Python Interface. MySQL is used as a Back-end tool. The database will be retrieved from the MySQL database to the Python. Initially if the user has already created the account, then they can login to the app. Otherwise the user must create an account, in order to continue to the app. After Login process, the user can Create, Update, Read/View, and Delete the Entries.

The app has multiple pages and it is built in such a way that it will exit the app only when the user enters an option to exit the app. Otherwise it will keeps redirecting to the various pages inside it.

The multiple pages are as follows:

- Homepage
- Main Menu of Admin Quiz Application
- Admin Login Page
- User Registration Page
- User Login Page
- User Quiz Test Page
- Display Quiz Result Page
- User Logout Page
- Admin Exit Page

HOME PAGE

The homepage will welcome the users and display the three options such as Admin Login, User Registration, User Login and Exit app. Suppose if the Admin enters the invalid Choice & Try again. If the Admin enters the option 1 it will redirect to a Admin Login page. If the Admin enters the option 2 it will redirect to a User Registration Page. If the Admin enter the option 3 it will redirect the User Login Page . If the Admin enter the option 4 it will exit the app.

```
C:\Users\D.SANTHA KUMAR\Desktop>py QuizApp.py

***** QUIZ APPLICATION *****
1. Admin Login
2. User Registration
3. User Login
4. Exit
Enter your choice: 6
Invalid choice. Try again.
```

MAIN MENU OF ADMIN QUIZ APPLICATION

On entering the Admin Login correct user id and password, the users name is obtained from the database and the main menu welcomes the Admin with the username and password.

```
C:\Users\D.SANTHA KUMAR\Desktop>py QuizApp.py

***** QUIZ APPLICATION *****
1. Admin Login
2. User Registration
3. User Login
4. Exit
```

ADMIN LOGIN PAGE

On enter the option 1 it redirects to the Admin Login Page which is the view options from the crud app. First it checks for the available data entries in the table which the Admin's id, Username and password.

```
C:\Users\D.SANTHA KUMAR\Desktop>py QuizApp.py

***** QUIZ APPLICATION *****
1. Admin Login
2. User Registration
3. User Login
4. Exit
Enter your choice: 1
Enter admin username: santha
Enter admin password: sakum14
Admin login successful!
```

Database created for Admin login .

```
mysql> create table admin(
    -> id int primary key,
    -> username varchar(50),
    -> password varchar(50)
    -> );
Query OK, 0 rows affected (0.06 sec)
```

Database table for Admin login Username and password.

```
mysql> select * from admin;
+----+----------+----------+
| id | username | password |
+----+----------+----------+
|  1 | santha   | sakum14  |
+----+----------+----------+
1 row in set (0.00 sec)
```

QUIZAPP   Page | 9

On enter the option 1 it redirects to the Admin Login Page which is the view options from the crud app. First it checks for the available data entries in the table which the Admin's id, Username and password.

After, Entering the all fields username and password . It will redirect to the "Admin Pannel" to show the multiple choice to the Admin.

ADMIN PANNEL:

```
***** ADMIN PANEL *****
1. Add Question
2. Update Question
3. Delete Question
4. View Questions
5. List of Quiz Taken User Report
6. Logout
```

When we enter the option 1 it will redirects to the Add Question page form Admin Pannel to set the questions by the "Admin" to users.

Add Questions:

```
***** ADMIN PANEL *****
1. Add Question
2. Update Question
3. Delete Question
4. View Questions
5. List of Quiz Taken User Report
6. Logout
Enter your choice: 1
Enter the question: 01. A _____ is the step-by-step method followed to develop a software.
Enter the correct answer: SDLC
Question added successfully!
```

When we enter the option 2 it will redirects to the Update Question from Admin Pannel to update the questions by the admin.

Update Question:

```
***** ADMIN PANEL *****
1. Add Question
2. Update Question
3. Delete Question
4. View Questions
5. List of Quiz Taken User Report
6. Logout
Enter your choice: 2
Enter the question ID to update: 3
Enter the updated question: 02. How many stages are available in spiral
Enter the updated correct answer: 4
Question updated successfully!
```

When we enter the option 3 it will redirects to the Delete Question from Admin Pannel to delete the questions by the admin. When we are trying to delete the question . It will ask the Question ID to delete the question by the admin. After entering the question ID it will delete that question which is created by admin.

Delete question:

```
***** ADMIN PANEL *****
1. Add Question
2. Update Question
3. Delete Question
4. View Questions
5. List of Quiz Taken User Report
6. Logout
Enter your choice: 3
Enter the question ID to delete: 12
Question deleted successfully!
```

When we enter the option 4 it will redirects to the View Questions from Admin Pannel to view the questions to the admin which admin has set the questions to the user.

View Questions:

```
***** ADMIN PANEL *****
1. Add Question
2. Update Question
3. Delete Question
4. View Questions
5. List of Quiz Taken User Report
6. Logout
Enter your choice: 4
ID: 2, Question: 01. A ____ is the step-by-step method followed to develop a software., Correct Answer: SDLC
ID: 3, Question: 02. How many stages are available in spiral, Correct Answer: 4
ID: 4, Question: 03. SDLC follows step by step process? (yes/no), Correct Answer: yes
ID: 5, Question: 04. What do you call a technical person who is capable of understanding the basic requirements? , Correct Answer: analyst
ID: 6, Question: 05. which document describes what exactly the customer wants?, Correct Answer: BRS
ID: 7, Question: 06. SDD (System design document) is, Correct Answer: HLD+LLD
ID: 8, Question: 07. Bug fixes and upgrades are happen in?, Correct Answer: maintenance
ID: 9, Question: 08. which model is combination of iterative and incremental model?, Correct Answer: agile model
ID: 10, Question: 09. when requirement is not clear , which model is preferable?, Correct Answer: prototype model
ID: 11, Question: 10. What is full form of SDLC?, Correct Answer: software development life cycle
```

When we enter the option 5 it will redirects to the user report from Admin Pannel to list the quiz taken by the user to the admin. The admin can check how many times user have taken the quiz by using "USER ID" to check.

List of Quiz taken by user:

```
***** ADMIN PANEL *****
1. Add Question
2. Update Question
3. Delete Question
4. View Questions
5. List of Quiz Taken User Report
6. Logout
Enter your choice: 5
Enter the user ID to results: 101
Quiz ID: 1, Score: 10/10
Quiz ID: 2, Score: 0/10

***** ADMIN PANEL *****
1. Add Question
2. Update Question
3. Delete Question
4. View Questions
5. List of Quiz Taken User Report
6. Logout
Enter your choice: 5
Enter the user ID to results: 104
Quiz ID: 3, Score: 7/10
```

When we enter the option 6 it will redirects to the Logout page from Admin Pannel . The logout option is to exit the page from "ADMIN PANNEL" after setting the all options by the Admin.

Admin Logout page:

```
***** ADMIN PANEL *****
1. Add Question
2. Update Question
3. Delete Question
4. View Questions
5. List of Quiz Taken User Report
6. Logout
Enter your choice: 6
```

When we enter option 6 it will logout from the admin pannel and it will redirect to the Home page "Quiz Application" page.

```
***** QUIZ APPLICATION *****
1. Admin Login
2. User Registration
3. User Login
4. Exit
```

USER REGISTRATION PAGE

When the users entered a option number 2 it will be redirected to the User Registration page. In the User Registration page it asks for the user's name, user's password.

When the username is entered in correct format, it will check the availability of the username in the database. After entering the unique username it asks for the password and if the password is mismatching and asks to re-enter the password . after all the details are entered correctly it will redirect to the registration page successfully.

User Registration Page:

```
***** QUIZ APPLICATION *****
1. Admin Login
2. User Registration
3. User Login
4. Exit
Enter your choice: 2
Enter username: username
Enter password: password
User registered successfully!
```

USER LOGIN PAGE

On enter the option 3 from the Quiz application page it redirects to the User Login Page which is the view options from the crud app. First it checks for the available data entries in the table which the user id, Username and password.

```
***** QUIZ APPLICATION *****
1. Admin Login
2. User Registration
3. User Login
4. Exit
Enter your choice: 3
Enter username: gokul
Enter password: gk11
User login successful!
```

Database created for user login:

```
mysql> create table user(
    -> id int primary key,
    -> username varchar(50),
    -> password varchar(50)
    -> );
```

Database table for User login Username and password:

```
mysql> select * from user;
+-----+----------+----------+
| id  | username | password |
+-----+----------+----------+
| 101 | gokul    | gk11     |
| 102 | maddy    | md44     |
| 103 | mukul    | mk07     |
| 104 | dhoni    | ms07     |
| 105 | lohitha  | lo19     |
+-----+----------+----------+
5 rows in set (0.00 sec)
```

Take Quiz BY USER

When the user entered a option 1 it will be redirected to the Take Quiz page . The user can take the test which the admin prepared the quiz question .

User's can take the quiz test and after completing the quiz it will submit and also it will show your score of the quiz test to user.

Take Quiz:

```
***** USER PANEL *****
1. Take Quiz
2. Display Quiz Results
3. Logout
Enter your choice: 1
Question: 01. A _____ is the step-by-step method followed to develop a software.
Your answer: sdlc
Question: 02. How many stages are available in spiral
Your answer: 4
Question: 03. SDLC follows step by step process? (yes/no)
Your answer: yes
Question: 04. What do you call a technical person who is capable of understanding the basic requirements?
Your answer: analyst
Question: 05. which document describes what exactly the customer wants?
Your answer: brs
Question: 06. SDD (System design document) is
Your answer: hld+lld
Question: 07. Bug fixes and upgrades are happen in?
Your answer: maintenance
Question: 08. which model is combination of iterative and incremental model?
Your answer: agile model
Question: 09. when requirement is not clear , which model is preferable?
Your answer: prototype model
Question: 10. What is full form of SDLC?
Your answer: software development life cycle
Quiz submitted. Your score: 10/10
```

DISPLAY QUIZ RESULTS

When the user entered a option 2 it will be redirected to the Quiz Result page .

When user entered with his user id, username & password . After completing the quiz test . The user can see there results by entering option 2 and user can check the results that how many times has taken the quiz and marks also.

Quiz Results:

```
***** USER PANEL *****
1. Take Quiz
2. Display Quiz Results
3. Logout
Enter your choice: 2
Quiz ID: 1, Score: 10/10
Quiz ID: 2, Score: 0/10
```

```
***** USER PANEL *****
1. Take Quiz
2. Display Quiz Results
3. Logout
Enter your choice: 2
Quiz ID: 3, Score: 7/10
```

USER LOGOUT PAGE

When we entered option 3 from user pannel . It will logout from the user page from user pannel .

Then it will return to the main menu page to Quiz Application page. User will be come out after completing the quiz test and checking the results of the user.

User Logout Page:

```
***** USER PANEL *****
1. Take Quiz
2. Display Quiz Results
3. Logout
Enter your choice: 3

***** QUIZ APPLICATION *****
1. Admin Login
2. User Registration
3. User Login
4. Exit
```

ADMIN EXIT PAGE

When we entered option 4 from the main menu page it will exit from the quiz application page . After completing the quiz from the user side . Then the admin will check the quiz status and marks and how many attended and results by the admin.

Exit page :

```
***** QUIZ APPLICATION *****
1. Admin Login
2. User Registration
3. User Login
4. Exit
Enter your choice: 4
Thank you for using the Quiz Application. Goodbye!
```

CODE DISCUSSION

- Initially we run the main.py file where it contains the imported file named hompepage.py which has the function QUIZ APPLCATION( ). This function Quiz Application the user and asks the user to enter the option for Admin login , user registration, user Login or exit the Quiz app. It also defines the exceptional handling to check the entered option. Quiz app( ) function is called frequently again and again when the exception is there or user enters the wrong option by using Recursion function.

- If the user enters the correct option, it calls the respective functions by using match case. If option 1 is selected it calls the function from the module named admin login.py which has the function named newUser( ). This function is used to get the username, UserId and User password. It also checks the users input by match function in the Regular Expression module and allows the user only when it matches with the correct format using while loop.

- When all the entries right it stores in variables and supply it in a function belongs to the Class named create_user(userid) which is inherited by the super class named userid( ). The super class userid( ) has the constructor which defines the connection between the MySQL database and Python Interface using pymysql module.

- The constructor in the inherited class creates_user(userid) is supplied with function arguments of user's input and the function create_user( ) is used to store the username, UserId, User password in the table named USER in MySQL database and also it creates the separate table in the name of User to store the user's Data Entries.

- After successful admin login, the function main menu_page(admin) with UserId as an argument is called where it asks the user to enter options in main menu. It is operated using a match case with the respective functions called.

- If the entered option is 1, it redirects to function Add Questions(uid) in the crud_r.py module. If the entered option is 2, it redirects to function Update Questions(uid) in the crud_c.py module. If the entered option is 3, it redirects to function Delete Questions(uid) in the crud_u.py module. If the entered option is 4, it redirects to function View Questions(uid in the crud_d.py module. If the entered option is 5, it redirects to function User Reports(uid) in the homepage.py module. If the entered option is 6, it redirects to function Logout App from admin page( ) in the quit.py module.

- The Class users_table( ) is created in the mysql_entries.py module with constructor to connect to the database using pymysql module and various functions in user login, user id, username and password the entries of the database.

- The function exit quizApp( ) from the quit.py module will finish all the process and exit the python interface with the exit code 0 and no errors will be taken place.

CONCLUSION

Herby we can conclude that the CURD app has been created and implemented successfully without any errors. We can use this app to store and access all the options in the app by using CURD operation. From the foundation of account creation process and Login process to all the CURD operation of Create, Read, Update and Delete operations has been performed fluently without any errors. This app built in a way without any complication that the user has to just enter the option and values accordingly. All the CURD operation are done with Python interface as a front-End and the MySQL Database as Backend tools.