Employee Management System

Python and MySql based Application

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Project Overview

Introduction:

- An Employee Management System built using Python and MySQL.
- Designed to manage employee data, including adding, viewing, updating, and deleting records.

Tech Stack

Programming Language: Python

Database: MySQL

Libraries/Modules:

- `mysql.connector` for database connectivity.
- `hashlib` for password hashing (SHA-256).
- `tabulate` for displaying data in tabular form.

Key Features

Admin Panel:

- Register new employees.
- View, update, and delete employee details.
- Reset admin password.

Employee Panel:

- View personal profile.
- Update personal information.

Security:

- Passwords are hashed using SHA-256.
- Secure login functionality.

Database Structure

Table: `employees`

- `id` (Primary Key)
- `email` (Unique)
- `name`
- `password` (hashed)
- `salary`
- `dept` (department)

Code Overview : Database Connection

Function: `establish_connection()`

- ○ Connects to the MySQL database.
- ○ Returns connection object if successful, otherwise prints an error.

Code Overview : Admin Panel

Features:

- Registering new employees.
- Viewing all employee details using `tabulate` library.
- Updating employee records.
- Removing employees from the system.
- Reset admin password
- Logout

Code Snippet:

- Show a snippet of `admin_panel()` function.

```
D:\employee management>env\Scripts\activate

(env) D:\employee management>python demo.py
Select your role:
1. Admin
2. Employee
Enter your choice (1 or 2): 1
Enter admin password: admin123


============================================
            ADMIN DASHBOARD
============================================
1. Register Employee
2. View Employee Details
3. List All Employees
4. Update Employee Details
5. Delete Employee
6. Reset Admin Password
7. Logout
============================================
Enter your option:
```

Code Overview : Employee Panel

Features:

- View profile details.
- Update personal information.
- Logout

Code Snippet:

- Show a snippet of `employee_panel()` function.

```
================================================
        EMPLOYEE DASHBOARD
================================================
1. View Profile
2. Update Profile
3. Logout
================================================
Select an option: 2


================================================
        MODIFY PROFILE
================================================
Update name (press Enter to skip):
Update salary (press Enter to skip): 25000
Update department (press Enter to skip):
Update password (press Enter to skip):
Profile updated successfully!
================================================
```

```
================================================
Enter your option: 1


================================================
            ADD NEW EMPLOYEE
================================================
Enter email: sam@gmail.com
Enter name: sam
Enter password: password
Enter salary: 20000
Enter department: IT
New employee added successfully!

================================================
```

```
Enter your option: 3

List of Employees:
+--------+-----------------------------------+-----------------------+----------------+------------+
|   ID | Name                              | Email                 | Department     |   Salary |
+========+===================================+=======================+================+============+
|    1 | emily.dickinson@example.com       | Emily Dickinson       | Engineering    |   50000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|    2 | walt.whitman@example.com          | Walt Blackman         | Marketing      |   30000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|    3 | robert.frost@example.com          | Robert Frost          | Sales          |   55000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|    4 | maya.angelou@example.com          | Maya Angelou          | HR             |   48000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|    5 | william.wordsworth@example.com    | William Wordsworth    | Finance        |   70000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|    6 | sylvia.plath@example.com          | Sylvia Plath          | Engineering    |   52000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|    7 | pablo.neruda@example.com          | Pablo Neruda          | Marketing      |   59000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|    8 | langston.hughes@example.com       | Langston Hughes       | Sales          |   51000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|    9 | elizabeth.bishop@example.com      | Elizabeth Bishop      | HR             |   68000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|   10 | john.keats@example.com            | John Keats            | Finance        |   62000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|   11 | ts.eliot@example.com              | T.S. Eliot            | Engineering    |   54000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|   12 | phillis.wheatley@example.com      | Phillis Wheatley      | Marketing      |   63000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|   13 | edgar.allanpoe@example.com        | Edgar Allan Poe       | Sales          |   56000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|   14 | anne.sexton@example.com           | Anne Sexton           | HR             |   50000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|   15 | lord.byron@example.com            | Lord Byron            | Finance        |   71000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
|   16 | emily.bronte@example.com          | Emily Bronte          | Engineering    |   58000 |
+--------+-----------------------------------+-----------------------+----------------+------------+
```

```
===========================================
          ADMIN DASHBOARD
===========================================
1. Register Employee
2. View Employee Details
3. List All Employees
4. Update Employee Details
5. Delete Employee
6. Reset Admin Password
7. Logout
===========================================
Enter your option: 6

Enter new admin password: admin#321
Confirm new password: admin#321
Admin password reset successfully!

===========================================
```

```
Select your role:
1. Admin
2. Employee
Enter your choice (1 or 2): 2
Enter your email: sam@gmail.com
Enter your password: password
Welcome, Employee!


==========================================
          EMPLOYEE DASHBOARD
==========================================
1. View Profile
2. Update Profile
3. Logout
==========================================
Select an option: 1


==========================================
          VIEW PROFILE
==========================================


Employee Information:
+------+----------------+--------+-----------------+----------+
|  ID  | Name           | Email  | Department      |  Salary  |
+======+================+========+=================+==========+
|  22  | sam@gmail.com  | sam    | IT              |   20000  |
+------+----------------+--------+-----------------+----------+
==========================================
```

Security Implementation

Password Hashing:

- Uses SHA-256 for hashing user passwords.

Function: `generate_password_hash()`

- Show a code snippet of how passwords are hashed before being stored in the database.

Future Improvements

- Web-based interface.
- Role-based access control (different permissions for HR, manager, etc.).

Thank You!

If you have any questions, feel free to ask.