Employee Management System

# Introduction

The **Employee Management System** is a software solution that helps businesses manage employee data efficiently. It allows organizations to add, select, update, and delete employee information, such as personal details like name, date of birth, address, contact in a centralized database, MySQL.

The system streamlines HR processes like adding, updating, and removing employees, ensuring accurate record-keeping and improving operational efficiency.

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# Codes and Outputs

1. **Database Creation:**

import mysql.connector

database = mysql.connector.connect(

    host = "localhost",

    user = "root",

    passwd="mysql123"

)

# preparing a cursor object

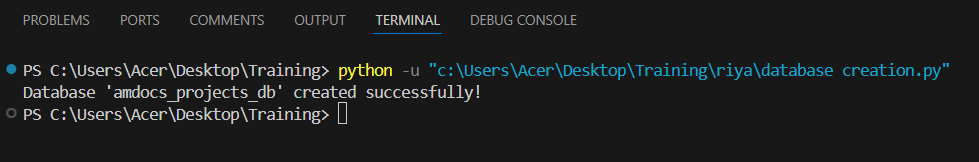
cursorObject = database.cursor()

# creating database

cursorObject.execute("CREATE DATABASE amdocs\_projects\_db")

# Success message

print("Database 'amdocs\_projects\_db' created successfully!")

Output:

1. **Employee table creation:**

import mysql.connector

# establish connection to the database

database = mysql.connector.connect(

    host="localhost",

    user="root",

    password="mysql123",

    database="amdocs\_projects\_db"

)

# preparing a cursor object

cursorObject = database.cursor()

# creating employee table

employeeRecord = """CREATE TABLE EMPLOYEES(

ID INT AUTO\_INCREMENT PRIMARY KEY,

FIRST\_NAME VARCHAR(45) NOT NULL,

LAST\_NAME VARCHAR(45) NOT NULL,

DATE\_OF\_BIRTH DATE NOT NULL,

ADDRESS VARCHAR(255),

CONTACT VARCHAR(15),

PASSWORD VARCHAR(20)

)

"""

# table created

cursorObject.execute(employeeRecord)

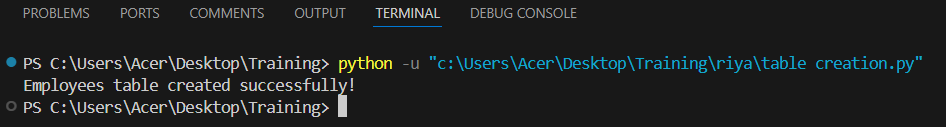
# Success message

print("Employees table created successfully!")

# disconnecting from server

database.close()

Output:



1. **Project menu**

import mysql.connector

import time

from registerEmployee import register

from loginEmployee import login

from viewEmployees import viewAllEmployees

from viewEmployeeById import viewEmployeeById

from updateEmployee import updateEmployee

from deleteEmployee import deleteEmployee

database = mysql.connector.connect(

    host="localhost",

    user="root",

    password="mysql123",

    database="amdocs\_projects\_db"

)

# preparing a cursor object

cursorObject = database.cursor()

def menu():

    while True:

        print("\n----- Employee Management System -----")

        print("1. Register New Employee")

        print("2. Login")

        print("3. View All Employees")

        print("4. View Employee By ID")

        print("5. Update Employee")

        print("6. Delete Employee")

        print("7. Exit")

        choice = input("Enter your choice: ")

        match choice:

            case '1':

                print("\n----- REGISTRATION -----")

                register()

                time.sleep(2)  # Pause for 2 seconds after registering

            case '2':

                print("\n----- LOGIN -----")

                login()

                time.sleep(2)

            case '3':

                print("\n----- VIEW EMPLOYEE DATA -----")

                print(viewAllEmployees())

                time.sleep(4)

            case '4':

                print("\n----- VIEW EMPLOYEE DATA BY ID -----")

                viewEmployeeById()

                time.sleep(3)

            case '5':

                print("\n----- UPDATE EMPLOYEE DETAILS -----")

                updateEmployee()

                time.sleep(2)

            case '6':

                print("\n----- DELETE EMPLOYEE DATA-----")

                deleteEmployee()

                time.sleep(2)

            case '7':

                print("\n----- EXIT -----")

                print('Exiting the system. Goodbye!')

                break

            case \_:

                print("Invalid choice. Please try again!")

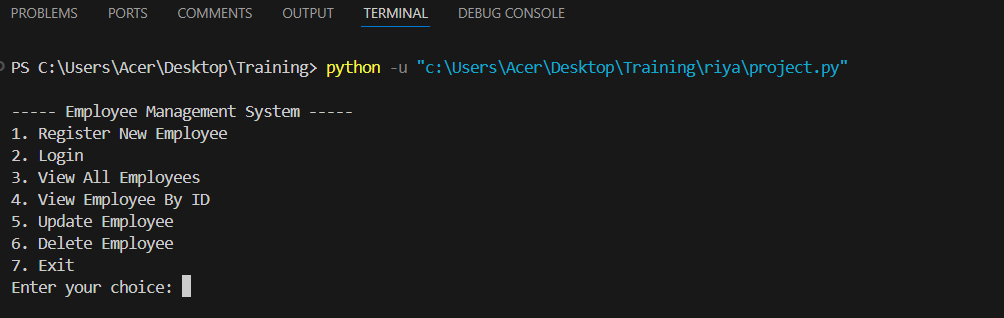
                time.sleep(2)

menu()

# disconnecting from server

database.close()

Output:

****

1. **Register new employee**

import mysql.connector

database = mysql.connector.connect(

    host="localhost",

    user="root",

    password="mysql123",

    database="amdocs\_projects\_db"

)

# preparing a cursor object

cursorObject = database.cursor()

def register():

    # Get employee data from user input

    fname = input("Enter your first name: ")

    lname = input("Enter your last name: ")

    dob = input("Enter your date of birth (YYYY-MM-DD): ")

    address = input("Enter your address: ")

    contact = input("Enter your contact number: ")

    # SQL query for inserting data into the EMPLOYEES table

    sql = "INSERT INTO EMPLOYEES(FIRST\_NAME, LAST\_NAME, DATE\_OF\_BIRTH, ADDRESS, CONTACT) \

    VALUES(%s, %s, %s, %s, %s)"

    val = (fname, lname, dob, address, contact)

    # execute the query and commit changes

    cursorObject.execute(sql,val)

    database.commit()

    if cursorObject.rowcount:

        # retrieving the employee id of the newly inserted employee

        employee\_id = cursorObject.lastrowid

        password = employee\_id \* 10 + 5

        # Updating the EMPLOYEES table with the generated password

        password\_update\_query = "UPDATE EMPLOYEES SET PASSWORD = %s WHERE ID = %s"

        cursorObject.execute(password\_update\_query, (password, employee\_id))

        database.commit()

        print(f"Hi {fname} {lname}. You are registered successfully!")

        print(f"Your employee ID is {employee\_id}, and your password is {password}")

    else:

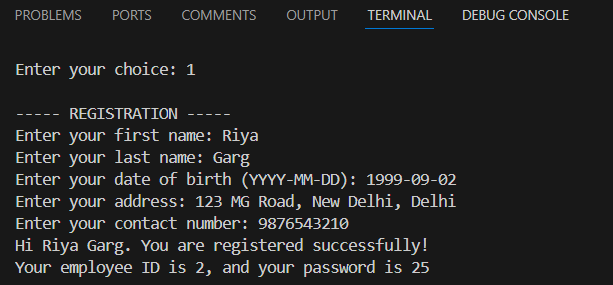
        print("Registration failed! Please try again.")

    # return f"{cursorObject.rowcount} records inserted."

    return ""

# register()

Output:

****

1. **Login employee**

import mysql.connector

# Establishing the database connection

database = mysql.connector.connect(

    host="localhost",

    user="root",

    password="mysql123",

    database="amdocs\_projects\_db"

)

# preparing a cursor object

cursorObject = database.cursor()

def login():

    employee\_id = input("Enter your Employee ID: ")

    password = input("Enter your password: ")

    # query to check if id and password match

    query = "SELECT \* FROM EMPLOYEES WHERE ID = %s AND PASSWORD = %s"

    cursorObject.execute(query, (employee\_id, password))

    result = cursorObject.fetchone()

    if result:

        # Assuming result[1] is first name and result[2] is last name

        print(f"Login successful! Welcome {result[1]} {result[2]}.")

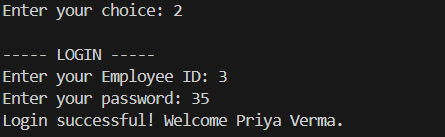
    else:

        print("Invalid Employee ID or Password. Please try again!")

    return ""

# login()

Output:



1. **View all employees**

import mysql.connector

database = mysql.connector.connect(

    host="localhost",

    user="root",

    password="mysql123",

    database="amdocs\_projects\_db"

)

# preparing a cursor object

cursorObject = database.cursor()

def viewAllEmployees():

    # SQL query to read data from the EMPLOYEES table

    query = "SELECT \* FROM EMPLOYEES"

    cursorObject.execute(query)

    result = cursorObject.fetchall()

    for row in result:

        # Formatting the date to 'dd-mm-yyyy'

        formatted\_dob = row[3].strftime("%d-%m-%y")

        print((row[0], row[1], row[2], formatted\_dob, row[4], row[5]))

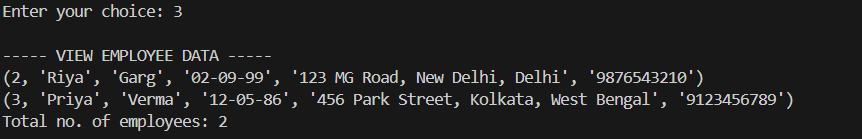
    totalEmployees = len(result)

    return f"Total no. of employees: {totalEmployees}"

# totalEmployees = viewAllEmployees()

# print(totalEmployees)

Output:



1. **View employee by id**

import mysql.connector

database = mysql.connector.connect(

    host="localhost",

    user="root",

    password="mysql123",

    database="amdocs\_projects\_db"

)

# preparing a cursor object

cursorObject = database.cursor()

def viewEmployeeById():

    employee\_id = input("Enter your Employee ID: ")

    # SQL query to read data from the EMPLOYEES table based on employee ID

    query = "SELECT \* FROM EMPLOYEES WHERE ID = %s"

    cursorObject.execute(query, (employee\_id,))

    #  fetch the result

    result = cursorObject.fetchone()

    if result:

        formatted\_dob = result[3].strftime("%d-%m-%y")

        # Displaying employee details

        print(f"ID: {result[0]}")

        print(f"First Name: {result[1]}")

        print(f"Last Name: {result[2]}")

        print(f"Date of Birth: {formatted\_dob}")

        print(f"Address: {result[4]}")

        print(f"Contact: {result[5]}")

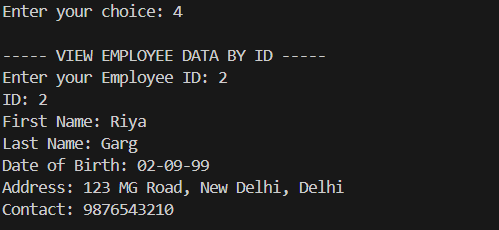
    else:

        print(f"No employee found with ID: {employee\_id}")

    return ""

# viewEmployeeById()

Output:



1. **Update employee details**

import mysql.connector

database = mysql.connector.connect(

    host="localhost",

    user="root",

    password="mysql123",

    database="amdocs\_projects\_db"

)

# preparing a cursor object

cursorObject = database.cursor()

def updateEmployee():

    employee\_id = input("Enter the employee id of the record you want to update: ")

    #  get new employee data from user input

    fname = input("Enter the new first name (leave blank if no change:) ")

    lname = input("Enter the new last name (leave blank if no change:) ")

    dob = input("Enter the new date of birth (YYYY-MM-DD, leave blank if no change): ")

    address = input("Enter the new address (leave blank if no change): ")

    contact = input("Enter the new contact number (leave blank if no change): ")

    password = input("Enter the new password (leave blank if no change): ")

    # dynamic sql query based on user input

    set\_clause = []

    parameters = []

    if fname:

        set\_clause.append("FIRST\_NAME = %s")

        parameters.append(fname)

    if lname:

        set\_clause.append("LAST\_NAME = %s")

        parameters.append(lname)

    if dob:

        set\_clause.append("DATE\_OF\_BIRTH = %s")

        parameters.append(dob)

    if address:

        set\_clause.append("ADDRESS = %s")

        parameters.append(address)

    if contact:

        set\_clause.append("CONTACT = %s")

        parameters.append(contact)

    if password:

        set\_clause.append("PASSWORD = %s")

        parameters.append(password)

    # ensuring there's atleast one column to update

    if not set\_clause:

        print("No updates provided. Exiting...")

        return ""

    set\_clause\_str = ", ".join(set\_clause)

    query = f"UPDATE EMPLOYEES SET {set\_clause\_str} WHERE ID = %s"

    parameters.append(employee\_id)

    # execute the query and commit changes

    cursorObject.execute(query,tuple(parameters))

    database.commit()

    if cursorObject.rowcount:

        print(f"Employee with ID {employee\_id} has been updated successfully!")

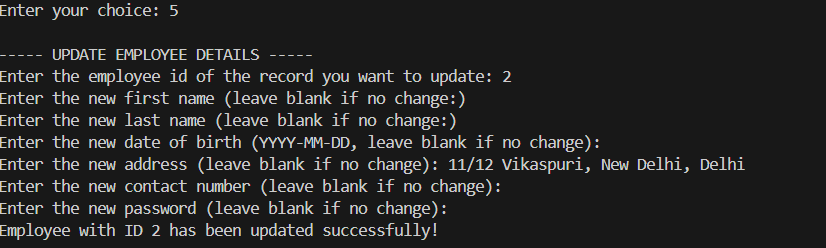
    else:

        print(f"No employee found with ID {employee\_id} or no changes were made")

    return ""

# updateEmployee()

Output:



1. **Delete employee**

import mysql.connector

database = mysql.connector.connect(

    host="localhost",

    user="root",

    password="mysql123",

    database="amdocs\_projects\_db"

)

# preparing a cursor object

cursorObject = database.cursor()

def deleteEmployee():

    employee\_id = input("Enter the employee id of the record you want to delete: ")

    confirm\_status = input("Are you sure you want to delete? (Y/N): ")

    if confirm\_status == 'Y' or confirm\_status == 'y':

        query = "DELETE FROM EMPLOYEES WHERE ID = %s"

        cursorObject.execute(query,(employee\_id,))

        database.commit()

        if cursorObject.rowcount:

            print(f"Employee with ID {employee\_id} has been deleted successfully!")

        else:

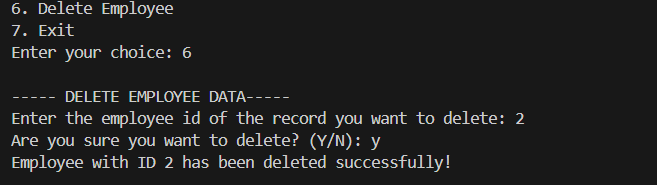
            print(f"No employee found with ID {employee\_id}. Please try again!!")

    else:

        print("Cancelling the delete operation. Exiting...")

    return ""

# deleteEmployee()

Output:

1. **Exiting the system**

Output:

