

Staff program

Introduction

staff Application to display a list of employee information. This project was developed using Flask framework for Python, SQLite database and Bootstrap front-end framework.

design

Database Design

The application uses a SQLite database to store employee information data. The specific database design is as follows:

staff_information Table

Listings	Type	describe
employeeid	INTEGER	EmployeesID
lastname	TEXT	Employee Surname
firstname	TEXT	Employee Name
gender	TEXT	Employee Sex
email	TEXT	Employee Email
phonenumber	TEXT	Employee Phone number

Listings	Type	describe
city	TEXT	Employee City
state	TEXT	Employee state
zip	TEXT	Employee Zip Code
username	TEXT	Employee Username
password	TEXT	Employee Password
department	TEXT	Employee department
jobtitle	TEXT	Employee jobtitle
employeestatus	TEXT	Employee Employment Status
dateofhire	TEXT	Employee Employment date
dateoftermination	TEXT	Employee departure date
age	INTEGER	Employee age
maritalstatus	TEXT	Employee Marital Status
education	TEXT	Employee Education Level
joblevel	INTEGER	Employee Position Level
jobrole	TEXT	Employee Job Roles
jobroletype	TEXT	Employee Position Type

Listings	Type	describe
businessunit	TEXT	Employee's business unit
managementlevel	INTEGER	Employee Management Level
travel	TEXT	Employee Travel

staff_privacy_information Table

Listings	Type	describe
employeeid	INTEGER	Employee ID
attrition	TEXT	Whether an employee leaves
distancefromhome	INTEGER	Distance between employee's home and company
educationfield	TEXT	Employee's field of study
monthlyincome	INTEGER	Employee monthly income
numcompaniesworked	INTEGER	Number of companies the employee has worked for
over18	TEXT	Whether the employee is at least 18 years old
percentsalaryhike	INTEGER	Employee Salary Increase Percentage
standardhours	INTEGER	Standard working hours for employees
stockoptionlevel	INTEGER	Employee Stock Option Levels

Listings	Type	describe
totalworkingyears	INTEGER	Employees' working years
trainingtimeslastyear	INTEGER	Number of training sessions for employees in the previous year
yearsatcompany	INTEGER	Number of years an employee has worked at the company
yearsincurrentrole	INTEGER	Number of years the employee has worked in the current position
yearssincelastpromotion	INTEGER	Number of years since the employee's last promotion
yearswithcurrmanager	INTEGER	Number of years an employee has worked with their current manager

Front-end design

The application is designed using the Bootstrap front-end framework and includes the following pages:

- index.html: For displaying the list of employees.
- detail.html: For displaying employee details.
- chat_detail.html: For displaying feedback results from chatbots.

Back-end design

The application is designed using Python's Flask framework and includes the following components:

- Flask applications: Used to process HTTP requests and responses.
- SQLite Database: Used to store employee information and employee privacy information data.
- OpenAI Library: For natural language processing and generating intelligent chat logs.

Development

In developing the staff project, we accomplished the following tasks:

Write the front-end code: Designed the employee information display page and chatbot page using Bootstrap front-end framework. Implementing back-end logic: Implemented back-end logic using the Flask framework, including handling HTTP requests and responses, connecting to SQLite databases, and calling the OpenAI API for artificial intelligence interaction. Writing test cases: Used Behave to conduct automated testing and wrote test cases to test the functionality and performance of the application.

Implementation

When deploying the staff project, we accomplished the following tasks.

Installed dependencies: Installed and configured Python dependencies for Flask, Flask Paginate, Behave, Selenium, and Gunicorn using Pyenv and virtual environment management tools. Initialize the database: Initialized the SQLite database using the parse_csy.py script and imported employee information data and employee privacy information data. Start the application: Run the Flask application using Gunicorn, ensuring it runs continuously in the background. Access the application: Access the application URL in a web browser to view employee information and engage in intelligent conversations with the chatbot.

Unit Testing

The project uses Behave and Selenium for automated testing, which can be run using the following commands.

behave

The test cases are located under the features folder.