Tkinter Group Project Proposal

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CCT211: Fundamentals of User Interface Programming

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Executive Summary

This proposal is to outline the development of a GUI application for a company's human resources (HR) purposes. This application will provide the functionality to create users who can log in and access information related scheduling, payroll, and training. The application is designed to be user-friendly, efficient, and secure.

Features

We will use Python and modules, such as tkinter, datetime, and matplotlib, to build the GUI application and link it to the back-end database. The GUI application will have the following features:

1. User Creation:
   An administrator will be able to create new users with unique usernames and passwords. Each user will be assigned a role (admin or employee) and an automatically generated user ID. Afterwards, an employee will be able to login and access the platform.
2. Scheduling:
   The administrator will be able to access employee records through their unique user IDs and add hours to their schedules. The administrator will also have the ability to view and edit the schedules of multiple employees at once. The employee will be able to view scheduling information.
3. Payroll:
   The administrator will assign employees to different classes (salary, hourly, contract) and have access to all employees' pay records. The employee will be able to view their own payroll record only.
4. Training:
   The administrator will be able to add training to-do lists to individual employee profiles. This will ensure that employees have the necessary training to perform their job duties effectively. The employee will be able to view their own training record.

To support the above features, a database will be designed. We have identified the 4 main entities and their corresponding relationship in the entity relationship diagram (refer to Figure 1 in Appendix). Then, we transfer the entities to tables and reconsider how to represent their relationship. Thus, we have identified the primary key(s) of each table (refer to Figure 2 in Appendix). Employee_Schedule and Employee_Training are created as junction tables, to eliminate data redundancy, overhead of storage and processing speed of database query.

Our Successful Project Vision

1. Multiple Classes
   The application will have multiple classes, including a main window, login window, scheduling window, payroll window, and training window. Each window will have its

own set of functions and features to allow for efficient and effective management of HR-related tasks.

2. Multiple Windows
   The application will have multiple windows, allowing users to switch between scheduling, payroll, and training tasks. The windows will be designed to be user-friendly, with clear instructions and easy-to-navigate interfaces.
3. Data Entry
   The application will allow users to enter data into the system, including employee information, schedules, pay records, and training to-do lists.
4. Appropriate Data Persistence
   Information will be stored in a database that the user has access to even after leaving the application window. It is noted that there are different access control to the database based on the role and some data on the database is permanent, not changeable, such as user IDs.
5. Data Analysis
   The application will allow users to analyze data using matplotlib and pandas, users will be able to generate charts and graphs to visualize employee schedules, pay records, and training progress.

Link to GitHub
https://github.com/jasleenb-cmd/HR_SUPERMAGER