Introduction

The goal of the Development Seminar Project 1.5 is to create a GUI to allow the user to search through a table using filters. The user is able to delete and repopulate, update, and view the database on the GUI. The table uses data from the Development Seminar Project 1.

1. Dependencies

The major dependencies for Development Seminar Project 1 are the software packages that need to be installed. Other dependencies include the computer setup and availability of the job feed.

* 1. Software
* Python as programming language
  + 2.4 or later
* JetBrains as IDE (Integrated Development Environment)
* Python libraries
  + Feedparser
  + SQLite3
  + Pytest
  + Regex
  + Datetime
  + PyQt5
    - Version 5.11.3 to allow text wrapping to show correctly
  + PyQt tools
  + Datetime
  + Sys
  1. Computer Setup
* Folder in C: drive named sqlite
  1. Other Dependencies
* The URL <https://stackoverflow.com/jobs/feed> must be up and running
* Access to a database reader
  + This project uses DB Browser for SQLite

1. Implementation

To implement this project, I had to choose which graphical interface library to use. I choose to use PyQt5 to implement my GUI. In addition, I used Pyqt5 Designer to help me build my interface.

2.1 PyQt5

* This is a package that I installed within Python
* It allows the user to build a GUI within Python

2.2 PyQtDesigner

* This is a package within PyQt5
* A drag and drop tool to create the display of the GUI
  + This does not build any of the connections between the objects within the GUI
  + Only creates and defines the objects within the GUI

1. GUI Design

The biggest decision I made was to decide the look of the GUI. I decided the fields the user could use as a filter and where they would type their input. In addition, I also had to decide on where the table and the row clicked would be shown.

* 1. Filter fields

The user can search by one, multiple, or all the fields. Here are the following fields the user can search by:

* Job Title
* Company Name
* Description
* Location
* Tags
* Publication Date
* Remote
* Date added to database

3.1.1 Text Fields

* For some of the fields the user can type any sentence(s), and the output will display the jobs with those sentence(s).
* Specifically these are the fields that allow user input as text fields
  + - Job Title
    - Company Name
    - Description
    - Location
    - Tags
      * Only allows one word to be searched for

3.1.1 Text Fields

* For some of the fields the user can type any sentence(s), and the output will display the jobs with those sentence(s).
* Specifically these are the fields that allow user input as text fields
  + - Job Title
    - Company Name
    - Description
    - Location
    - Tags

3.1.1 Combo Box

* For some of the fields, the user can choose from a list of preset options through a combo box. I used the combo box for these fields to ensure the user puts in a valid input.
  + - Publication Date
    - Remote
    - Date Added to Database

3.2. Search Push Button

* + - Once the user has filled out all the filters, the user can press the search button
      * The search button will take the filters and apply it to the database named jobs, or the user can search with no filters
      * The table will be displayed to the right with the filtered jobs
    - I chose to put the search button at the top so the user can see it easily and it can be right next to the table

3.3 Table

* + - In order to show the database to the user, I needed a table
    - The user is able to see all but one of the columns in the table
      * The last column is the published date of the job in a different format
        + Specifically it is Year-Month-Date Hour:Minute
        + I use this last column in my calculations for the published date

3.3 Display boxes

Although the table shows all the jobs, I wanted to allow the user to be able to see the individual columns of one job on another part of the GUI. I decided to make separate display boxes to show the individual columns of a job. When the user clicks on a cell in the table, the display boxes will be filled with all of the information from the row except for the job id and modified publication date.

3.4 Action Menu

I chose to use an action menu to allow the user to view and modify the database. The user can choose from four different actions. The first action is called Create Database. The second action is called View Database. The third action is Update Database. The last action is Delete and Repopulate Database.

3.4.1 Create Database

* Allows the user to generate a database called jobs
  + - If the database is already created, the database will be updated with the new jobs from the feed

3.4.2 View Database

* Allows the user to view the database
  + - Once clicked, the table will be filled by the database named jobs

3.4.3 Update Database

* Allows the user to add jobs from the feed to the database that are not already in it
  + - After the jobs are added to the database, only the new jobs will be displayed on the table

3.4.4 Delete and Repopulate Database

* Allows the user to delete the data from the database and fill it in with new data