Report For Assignment 3 - a3.py

General Overview

Main connects to database entered by the user
Calls the print options function for the user to choose from
Based on the user input it calls a function for that option
Each function then returns to main when completed
Program only exists when option to exit is selected

User Guide

Open Program
- To run the program after downloading the .tar unzip it
- To start the program run 'python3 a3.py'

Operating Program
- Enter the database name when prompted as "filename.db"
- Enter the option number you wish to run
- In task 1: Enter the paper id you wish to see the reviewers for
- Or type N/P to go to the next or previous pages (In groups of 5)
- In task 2: Enter the paper id you wish to enter a review for
  - Or type N/P to go to the next or previous pages (In groups of 5)
  - Then enter the reviewer Id you want to enter the review for
  - Then enter the marks you wish to give the paper when prompted for each
- In task 3: Enter the range in which you wish to see as "X,Y"
- In task 4: Enter the option number you wish to run
  - Enter the email of the author you wish to see details of
- To end the program select option 7 at instructions screen

Design

Main

Creates a connection to user inputted database
Set up a while loop that will continue the program until user purposely quits
Within the loop:
- A call to the print options function
- Asks user to select option by entering the option's designated number with error catching for errors outside option range as well as if any non integers were entered, which both display invalid print line and starts the while loop again
- A check to see which of the valid options the user selected and then calling the corresponding option function passing the connection to the database with it
- If the option to quit is selected the exit variable is set to True which ends the while loop and ends the program

Print Options

A list of all potential options are printed and returns to main for the user to select. Used mainly to reduce clutter in the main function

Q1

Nested while loops were used to print only 5 papers at a time and to collect input from the user. The inner loop also checks for the validity of the input to either display the next/previous page of papers or to select a paper. The connection to the database is used to get all the reviewers who have reviewed that paper.

Q2

Nested while loops were used to print only 5 papers at a time and to collect input from the user. The inner loop also checks for the validity of the input to either display the next/previous page of papers or to select a paper. The connection to the database is used to get all the reviewers who can review that paper so the user can select one of them to enter reviews from them. The user is then prompted to enter marks for the paper one at a time and the program will add those marks to the database.

Q3

A while loop is created to collect the range in which the user wishes to see, the input is split to create a list of either end of the range to be used later
The while loop also checks for the validity of the entered range in that each character entered is an integer
The connection to the database is called and a query to select all reviewers with the designated range provided by the user
All data from the query is collected and then each reviewer is individually printed
Then returns to the main function

Q4

A query is created to find the number of sessions the authors participated in and then the program asks the user to choose an option of either showing a bar chart of the authors and the count of their sessions participated or show the number of sessions participated for a individually selected author through email. The function also does checks for invalid inputs and emails which do not exist in the dataframe.

Q5

A query is created to sort the areas according to their popularity and then the top 5 are selected for the plotting, The data frame handles cases where the are less than 5 areas or there is a tie.

Q6

A query is created to collect each reviewers averages for each of the 4 categories
Using matplotlib a bar chart that stacks the columns of the averages as the data bars for each reviewer using the table from the created query
The x-axis labels are named using the first column of the table from the query, the reviewers
The stacked bar chart is plotted and shown

Then returns to the main function

Testing Strategy

For testing, we generally tested along the way to make sure each of the tasks worked on their own, moving slowly through our work finding small errors or places where we would purposely try to break the system and added error catching accordingly. The testing database was that of the previous assignment. After the initial completion of the code in its entirety, we tested on the system as a whole. The primary problems we incurred were incorrect or invalid user inputs, in which we implemented ValueError catches that would notify of the invalid input and reask for the user input. Another bug we found was if there was a tie in the pie chart of task 5 we fixed this by using a function in pandas called nlargest. In task 6 we encountered an issue of renaming the x-axis of the chart, to fix this we used a function of matplotlib called set_xticklabels() and used the first column of the created table, the reviewers. We also encountered the issue of if the author of a paper is a potential reviewer for it we fixed this by adding a new condition in the query to select against this. We encountered a bug of if the author is null then the bar chart will print an extra column for null in task 4 we fixed by adding 'where author is not null' to the query. For checking and selecting the email of the user from our dataframe in question 4 we used a combination of the isin() and any() methods.

Group Breakdown

A group message setup to keep each other updated on tasks and specific dates. As well meeting up to work and help each other on each part of the coding process in which we divided the tasks between us.

Time in minutes

Members	Main + Print	Q1	Q2	Q3	Q4	Q5	Q6	Read Me	Report
Chris	25	20	40	0	0	5	0	5	30
Bryland	25	0	0	20	0	0	25	5	45
Fahad	0	0	0	0	50	30	0	0	30