ES 113: DCC

Assignment 4: Web-Development with FLASK

Total Points: **25**	**Submission deadline: 23:59:59 Hrs, April 20, 2024**

Assignment Instructions

Please refer to the following assignment instructions:

1. Regarding the late submission, we will be following the penalty as per the table:

Late Submission	**Penalty (Out of 100) [Scaled according] to maximum points**
Till 1-hour past deadline	5 points
1 to 12 hours past deadline	10 points
12 to 24 hours past deadline	20 points
24 to 36 hours past deadline	40 points
36+ hours past deadline	100 points

2. No assignment-related queries will be answered after April 12, 2024, 23:59:59 IST.
3. We will follow the zero plagiarism policy, and any act of plagiarism will result in a zero for the assignment.
4. No tools such as ChatGPT is allowed, if found guilty in using these tools, serious actions will be taken.

Problem Statement

1. Design a website with a fully integrated backend.
    a. Load the PDF files below to two different database tables following the steps in point 1b.
        i. Details of Electoral Bonds submitted by SBI on 21st March 2024 (EB_Redemption_Details) [Bonds encashed by political parties]
        ii. Details of Electoral Bonds submitted by SBI on 21st March 2024 (EB_Purchase_Details) [Bonds purchased by Individuals and Companies]
    b. **[3 Pts.]** Steps:
        i. First, convert the PDF files to CSV using FITZ. [You need to do some preprocessing as well for properly converting the file and to save it as CSV file.]
        ii. Then load these two different CSV files into two different tables in the database.
    c. **[4 Pts.]** Create a frontend using FLASK, Bootstrap, CSS, Javascript, etc following the web design instructions in point 1e.
    d. **[2 Pts.]** Connect the front end to the database as taught in the special class.
    e. **[12 Pts. - 6x2 Pts.]** Web design:
        i. The designed website should have the following features:
            1. Implement a robust search functionality that allows users to quickly search for specific records based on Bond Number or filter data based on any column in the table except Sr. No. and Status (e.g., date, political party, company name). The output should be displayed in the form of a table which is fetched from the database for a given query.
            2. The option to select a Company/Individual from a drop-down/search, and show how many bonds and the total value of bonds purchased per year. You can present a bar plot depicting your results.
            3. The option to select a political party from a drop-down/search, and show how many bonds and total value per year are in the timeline. You can present a bar plot depicting your results.
            4. The option to select a political party from a drop-down/search, shows which companies have donated to it and what amount individually and combined.
            5. Similarly, provide an option to select a company from a drop-down/search, showcasing which parties they have donated and what amount individually and combined.
            6. Apart from 1e4 and 1e5, you can also display the Pie chart depicting the total amount of donations to all the parties.
    f. **[1 Pts.]** Add functionality to save the displayed plots in PNG/JPEG or any other image format.
2. Plots:
    a. You can create and showcase plots that are created from the data fetched from the database and display it. These plots could be any that are created from the tables, easy-to-understand tables in the form of Pie charts, Bar charts, Line charts etc.
        i. You can use JS libraries like ChartJS for displaying the plots.
        ii. For 1e4 and 1e5, you can use alluvial diagrams.

iii. Apart from the above, you can use other plots as well for properly depicting the plots.

3. **[3 Pts. BONUS]** If you want to add any extra feature apart from those given in 1e1 to 1e5, and you have completely new way of displaying the results in the form of plots which have not been used in 1e1–1e5 and the plots are from ChartJS, then you will be awarded the bonus points.
4. **[3 Pts.]** Create a public GitHub repo for your assignment and push all your files to it, also paste the screenshots of UI in the Readme file in the repository depicting answers of all the questions asked in 1e. Write the instructions on how to set up the website locally, and document everything in the Readme.

- You can use FLASK, SQL, ChartJS to build the website and showcase the results.

Submission

1. You have to upload your submission to the form.