Defined Benefits — Data Dashboard Challenge

# Problem Statement

## Background:

The DB team Just Group is keen to enable its Business Development (BD) team to gain actionable insights from large and sometimes complex pension data sets. Currently, the team often receives large Excel spreadsheets with key metrics. We receive member data such as total pension values, member demographics, benefits information and more—but struggle to extract meaningful insights quickly and visually.

## Your Mission:

You have been tasked to design and implement an interactive analytics dashboard that helps the BD team easily understand and explore the data within Excel or JSON files. The primary goal is to transform raw data into clear, actionable insights, focusing on (but not limited to):  
- Total pension amounts by different groupings  
- Gender split of members  
- Any other interesting patterns you discover  
  
The dashboard should allow the team to upload new data files, explore trends and breakdowns, and answer business questions without manual Excel work.

## Requirements:

* 1. Data Ingestion:
* - Accept an Excel spreadsheet containing pension and demographic data.  
  - Clean and preprocess the data as needed.
* 2. Analytics & Visualization:
* - Calculate and display key metrics (e.g., total pension, gender split, member counts).  
  - Present at least two interactive visualizations. (Suggested tools: Plotly Dash, Streamlit—but you are free to explore others.)  
  - Highlight insights or anomalies you find.
* 3. Automation:
* - Optionally, leverage the use of automation to generate insights, suggest questions, or automate parts of the analysis.  
  - Document how AI contributed (if used).
* 4. User Experience:
* - The dashboard should be user-friendly for non-technical users.  
  - Enable easy upload of new spreadsheets.  
  - Provide concise explanations of what each visualization shows.
* 5. Communication:
* - Summarize your key findings in a short presentation (max 5 slides) or a written report.  
  - Suggest next steps for the BD team based on your analysis.
* Bonus:

- Add any extra features you believe would help the BD team (e.g., filter by date, age group, etc.).

- Make recommendations for automating regular reports in the future.

## Data Example

Please see the example data attached in the folder where this document is located.

## Deliverables

1. Dashboard application (with whatever tool of choice)  
2. Documentation explaining your process, key findings, and user instructions  
3. Presentation/report summarizing your approach and recommendations

## End of Week Presentation

At the end of the week, you will have the opportunity to present your findings and dashboard to a team of stakeholders. This is not a test of your ability, but rather a fun and engaging activity designed to give you real-world exposure to the corporate environment and how software developers solve business problems in practice. We hope this experience will provide you with practical understanding and confidence in applying your coding and analytical skills.

## Good Luck!

You are encouraged to use any modern Python data tools or AI helpers you feel will make your work faster or the results better. Remember: clarity, usability, and actionable insights are the most important outcomes.  
  
If you need any help, don’t hesitate to ask the team—or use AI to brainstorm ideas!