SFR3 - Data Engineer - Interview Exercise

Background

SFR3 is a boutique real estate investment fund acquiring $3.5B+ in affordable single-family homes by 2024. The Fund renovates distressed homes, using software-driven operations to run many "tertiary" markets concurrently. Today we own 10,500+ homes in 20 states, buying & building several hundred more every month.

Prompt

Demonstrate your expertise in managing a data stack and your ability to derive actionable insights from sample property management data, particularly focusing on rent collection, tenant screening, and lease signing processes.

Data Engineering Task:
- You are provided with a sample dataset (please generate) that includes information on rent collection, tenant screening results, and lease signing details (for this exercise, you should create a fictitious dataset with fields like tenant names, rent amounts, payment dates, screening scores, lease start and end dates, etc.).
- Develop a data pipeline to process this dataset, focusing on data cleaning, transformation, and loading into a structured format for analysis.
- Document your methodology, choice of tools, and the schema of the final processed dataset.

Product Business Analysis Task:
- Conduct an analysis of the processed dataset to extract insights critical for effective property management.
- Prepare a report that includes:
  - Identification of patterns or trends in rent collection efficiency.
  - Insights from tenant screening data that could inform future screening processes.
  - Analysis of lease signing trends and their implications for property occupancy rates.
  - Your report should also include visualizations to illustrate key findings.

Deliverables:

Code Repository:
- Submit your code for the data pipeline, with appropriate comments and documentation.
- Host your code on a platform like GitHub for review.

Analysis Report:

- A report summarizing your analytical findings and their potential impact on property management.
- Incorporate charts or graphs to highlight important data points.

Evaluation Criteria:
- **Technical Skill:** Effectiveness and clarity of the data pipeline.
- **Analytical Depth:** Ability to uncover meaningful insights from property management data.
- **Business Understanding:** Relevance of findings to property management practices.
- **Communication:** Clarity in documenting and presenting your approach and findings.

Instructions:
- Be prepared to discuss your methods, the challenges encountered, and the rationale behind your conclusions during the panel interview.