My Notes on KPI Automation

Project Approach

- **Automated Data Retrieval:**
  - Using MongoDB to store user, call, and subscription data.
  - Queries are structured to fetch KPI metrics efficiently.
- **Fallback Mechanism:**
  - If some KPI data is missing, the script prompts for manual input.
  - Keeps automation flexible while allowing manual intervention when necessary.
- **Storage Optimization:**
  - Keeping KPIs in `daily_kpi.json` for compact storage.
  - JSON format makes it easy to read and update.
- **Modular Structure:**
  - Split into separate Python modules for better maintainability:
    - `db_connector.py` for MongoDB connection.
    - `kpi_calculator.py` to compute KPIs.
    - `file_handler.py` for reading/writing JSON.
    - `formatter.py` to format Slack messages.
    - `main.py` to tie everything together.
- **Scalability Considerations:**
  - Made it easy to add new KPIs with minimal changes.
  - Existing functions are flexible enough for expanding KPI tracking.

Key Takeaways

- **Compact JSON Storage:**
  - Keeping daily KPI data structured in JSON makes retrieval simple.
  - No need for database storage of daily metrics, reducing dependencies.
- **Reducing Human Actions:**
  - The script runs with minimal intervention.
  - Manual input only when absolutely necessary.
- **Performance Optimization:**
  - Optimized queries to fetch data from MongoDB efficiently.
  - Script runs fast unless waiting for manual input.

Future Considerations

- **Slack API Integration:**
    - Automate sending KPI reports directly to Slack instead of manually checking logs.
- **Automated Data Collection:**
    - Potentially integrate APIs to fetch KPI data in real-time instead of MongoDB alone.
- **Better Logging & Error Handling:**
    - Need to implement proper logging for debugging and performance tracking.
    - Handle missing or inconsistent data better.
- **Historical KPI Reporting:**
    - Would be useful to generate reports for specific date ranges.
    - Could include trends and comparisons for better insights.

Personal Notes

- MongoDB is working well, but for larger datasets, an analytical DB might be a better option.
- JSON is fine for now, but if the KPI data scales, I might consider a more compressed format.
- The fallback mechanism needs refining—right now, it still requires too much manual input.

Next Steps

- Run more test cases with different dummy datasets.
- Look into alternative database options to compare performance.
- Consider automating daily KPI generation with a scheduler.