AI Powered Sentiment Analysis and KPI Dashboard

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Background

Leidos QTC Health Services, is a U.S.-based healthcare organization specializing in medical examination and diagnostic services, primarily for government agencies.

With a wide range of clients, gathering feedback through surveys is essential to maintaining top-tier performance and continuously improving service quality. These surveys provide valuable insights into client experiences, enabling QTC Leidos to identify areas of excellence, address concerns proactively, and implement data-driven improvements that enhance overall operational efficiency and patient satisfaction.

Objective

- Develop and a **Quality Manage System**, that analyzes survey responses related to examinee and staff appointments.
- A key feature is **Sentiment Analysis**-the process of evaluating textual responses to determine the respondent's attitude(positive, negative, or neutral)
- The analyzed data will be used to **generate data visualizations** and **key performance indicators (KPIs),** providing actionable insights to support continuous improvement and decision-making.
- Filtering through data and uploading csv files

Sentiment Analysis Model

A pretrained RoBERTa, language learning model (LLM), is used to analyze comments with sarcasm or mixed sentiments, providing a **more accurate and effective solution** than traditional **rule-based methods**.

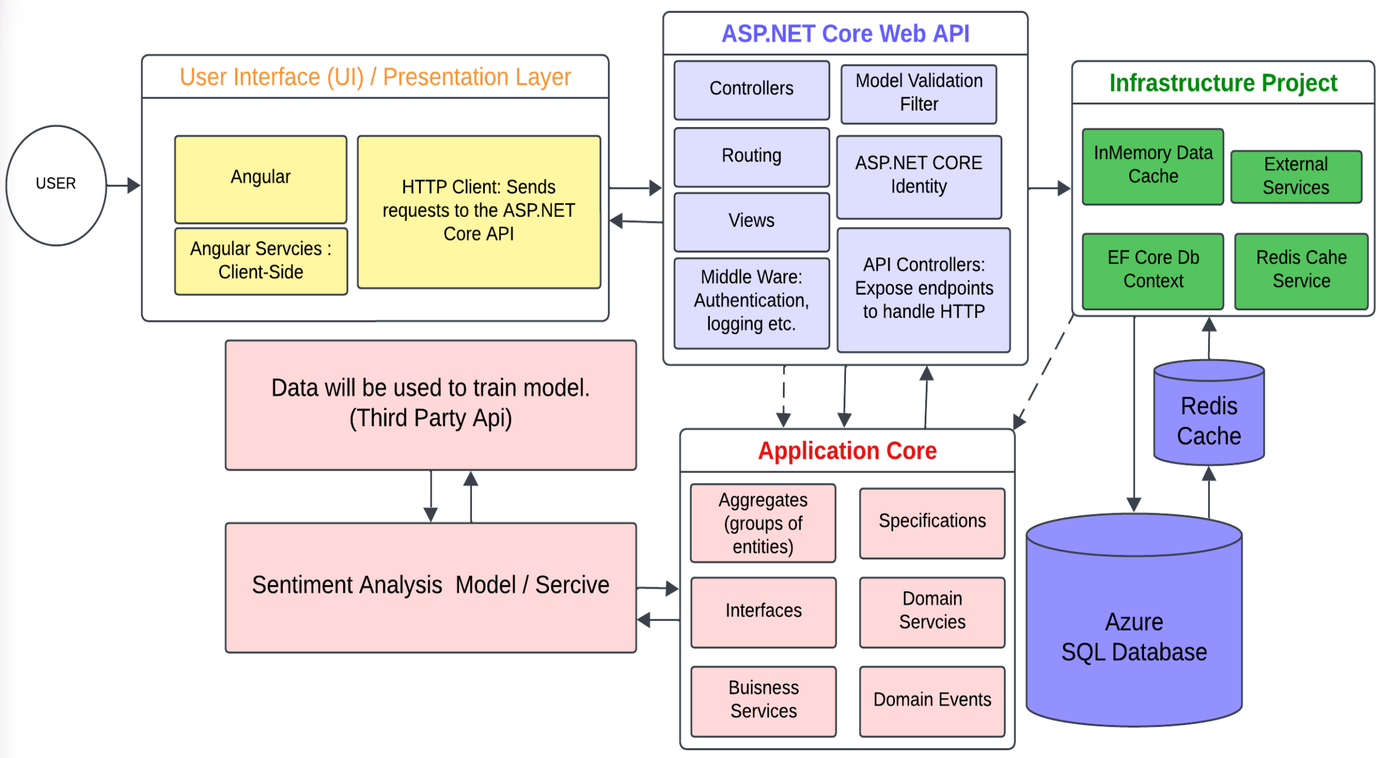
I love you! Good Job!

```
1) positive 0.9755
2) neutral 0.0148
3) negative 0.0096
```

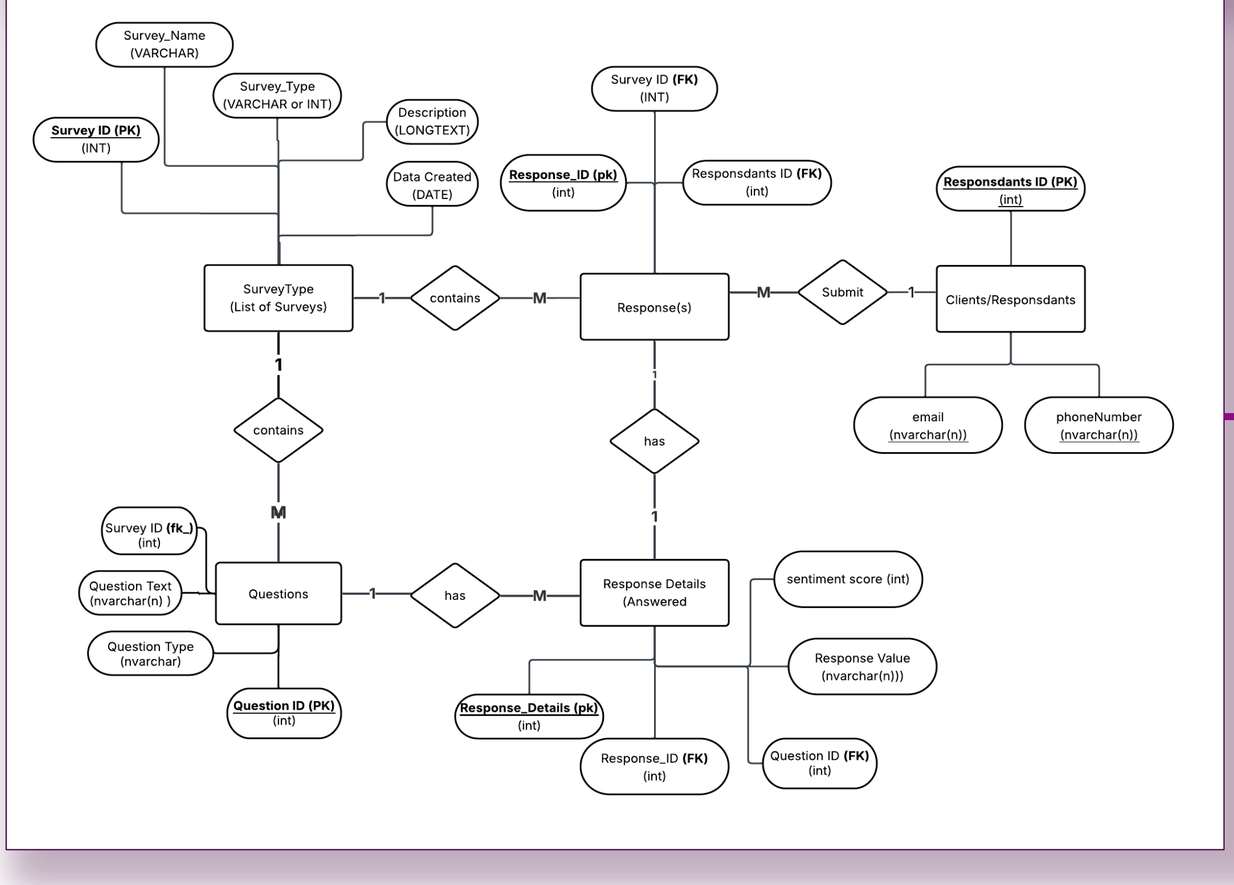
The appointment is okay. But the bathroom was gross and dirty. Also, an employee was super rude

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1) negative 0.6617
2) neutral 0.1831
3) positive 0.1552
```

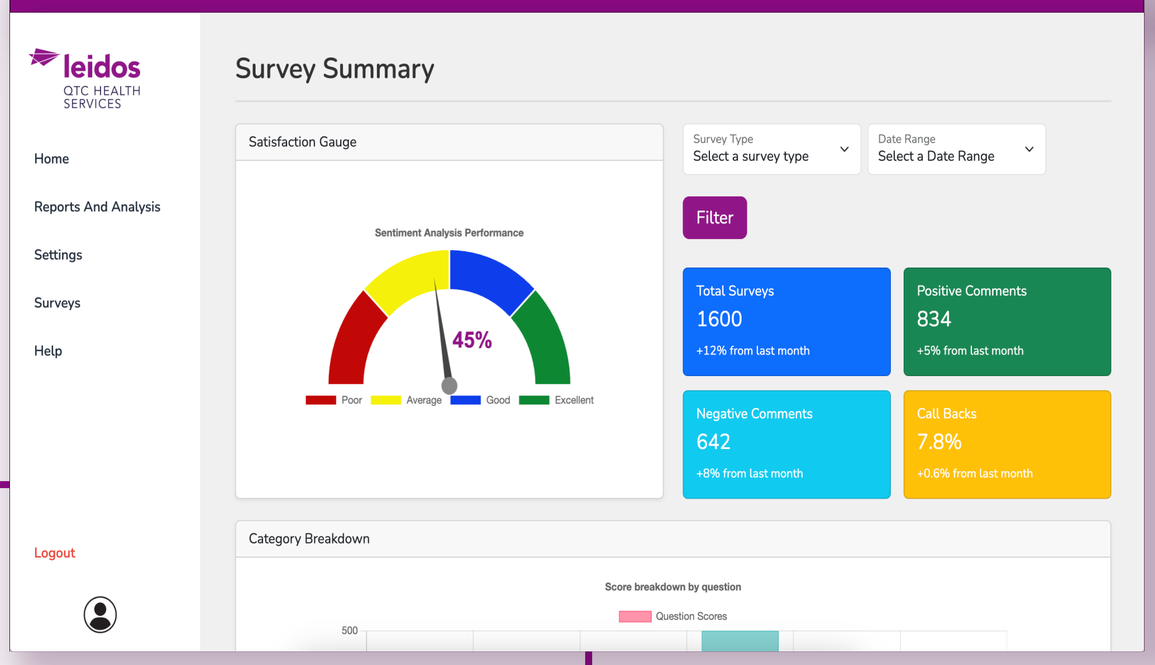
System Architecture



Backend: ASP.NET Core + Azure Database



Frontend: KPI Dashboard



Tech Stack

Conclusion

- We were able to implement the core features. i.e. meeting the deliverables such as a useable dashboard, filtering through data, and using a cloud service.
- Future Goals: RAG (Retrieval-Augmented Generation- Could be implemented to enhance response specificity by retrieving relevant information based on user rating or input.
- AI, including large language models can enhance tools such as KPI.