Al Powered Sentiment Analysis and KPI Dashboard



Team **Members QTC Leidos**

Joshua Soteras

Julian Gutierrez Edmundo Guzman

Jorge Arias

Denise Tabilas

Francisco Guzman

Brandon Lopez

Johny Vu

Javier Gonzalez Keneth Castro

Walter Najera Harshaun Khera

Faculty Advisor

Dr. Huiping Guo

Darrin Du

Andres Quezada



Department of Computer Science College of Engineering, Computer Science and Technology **California State University Los Angeles**

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

TAGULTCAT (TUTCTATIST

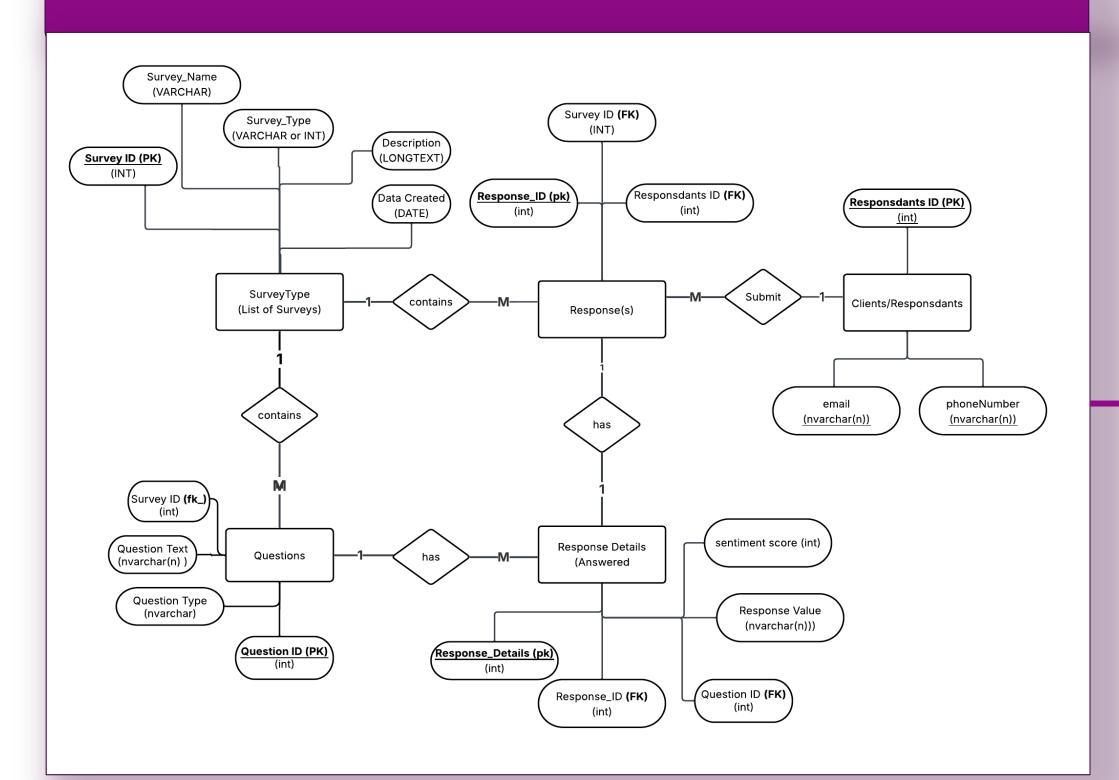
- 2) neutral 0.0148
- 3) negative 0.0096

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

- 1) negative 0.6617
- neutral 0.1831
- positive 0.1552

System Architecture ASP.NET Core Web API User Interface (UI) / Presentation Layer **Infrastructure Project** Model Validation Controllers InMemory Data Routing ASP.NET CORE External Angular Cache **USER** HTTP Client: Sends Services requests to the ASP.NET Views Core API Angular Servcies **Redis Cahe** EF Core Db **API Controllers:** Client-Side Middle Ware: Context Service Expose endpoints Authentication, to handle HTTP logging etc. Data will be used to train model. Redis (Third Party Api) Cache **Application Core** Aggregates **Specifications** (groups of entities) Sentiment Analysis Model / Sercive Domain Interfaces Servcies Azure **SQL** Database Buisness Domain Events Services

Backend: ASP.NET Core + Azure Database



Tech Stack



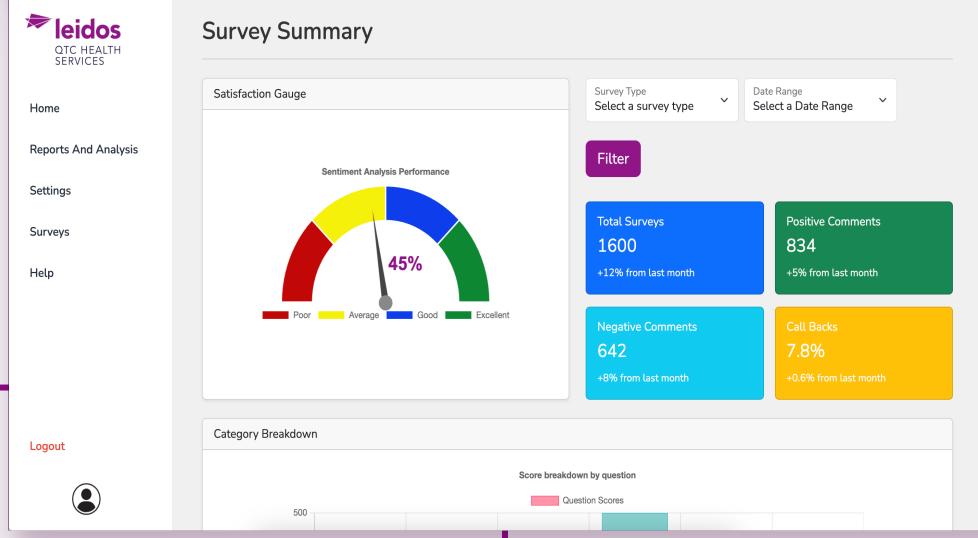








Frontend: KPI Dashboard



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.