

Natural Language Processing and Sentiment Analysis for Support Desk Comment Review

By Jing Zhu, Surya Srirangarajan, Kathy Thompson, Trang Nguyen, Hassaan Saleh

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Background

This project was developed as a part of Course work by a team of 5 students at George Mason University in association with Accenture Federal Services. The primary objective of the project is development of a Machine Learning Model to identify and analyze the Support Desk User Survey Comments, as well as provided a sentiment analysis dashboard for client “AFS”.

Data Sources

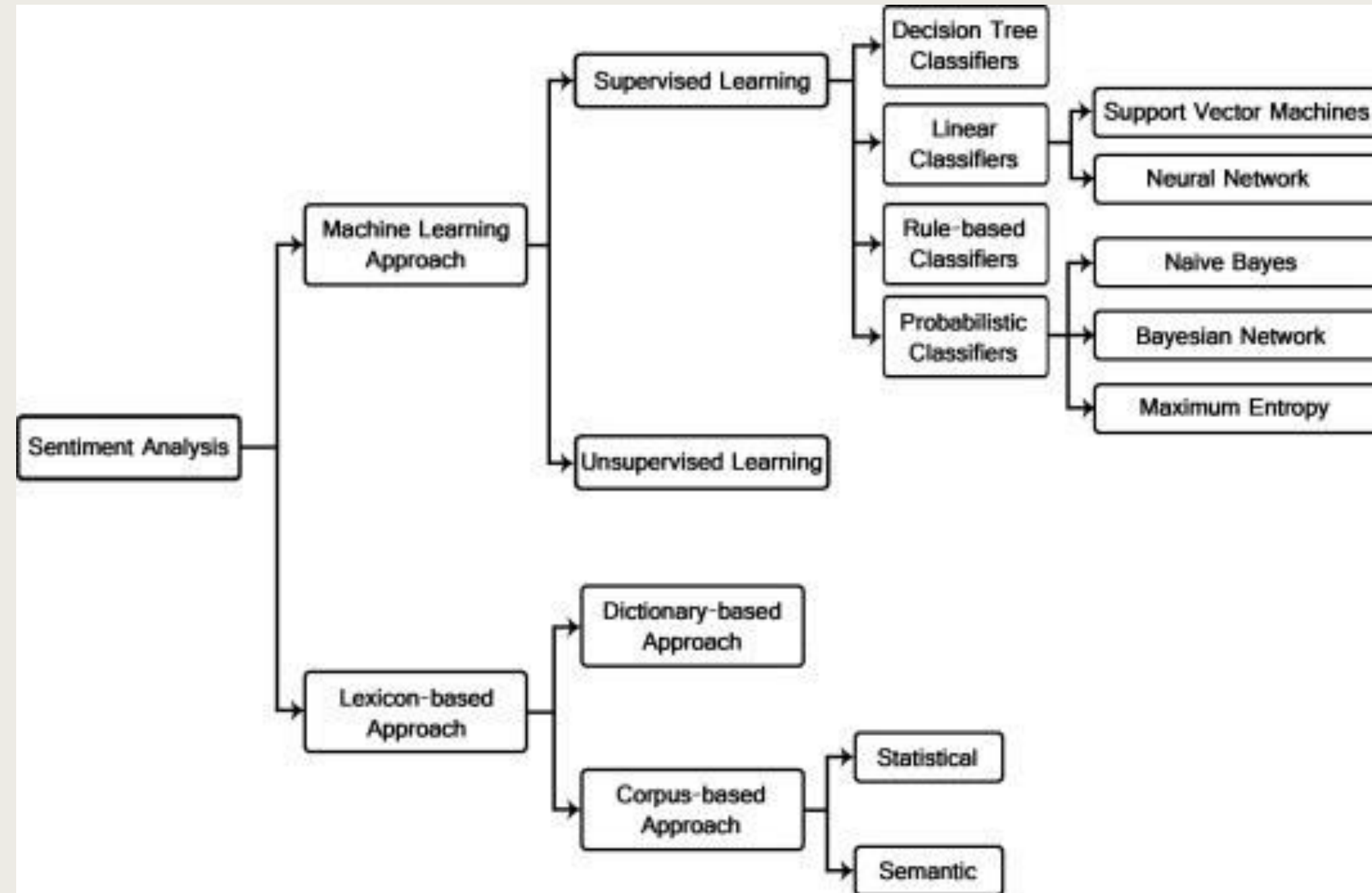
The main dataset that will be utilized for this project is the Support Desk User Survey Comments provided by Accenture Federal Services.



Problem Statement

1. Users provide feedback via surveys about their experience with the services provided by the Support Desk.
2. Due to the vast amount of survey data, the Support Team is unable to read/process all the responses and thus some level of automation is needed.
3. Text mining / sentiment analysis algorithms can be applied to efficiently analyze the survey data.
4. Analysis findings can be summarized in dashboards to support strategic decision making by management to help improve Support Desk services.

Methodology



Vader Calculation Result

Input	neg	neu	pos	compound
"This computer is a good deal."	0	0.58	0.42	0.44
"This computer is a very good deal."	0	0.61	0.39	0.49
"This computer is a very good deal!!"	0	0.57	0.43	0.58
This computer is a very good deal!! :-)"	0	0.44	0.56	0.74
This computer is a VERY good deal!! :-)"	0	0.393	0.61	0.82

Comment 1: "...It is frustrating...I lost an entire day..."

I went into one of the file and while it will let me edit there is now no approval flow and it doesn't give me the choice to approve to closeout the award. Just as a side note the website says that ILMS is a 24 hour service but when I called I was told Federal assistance isn't available and isn't actually 24 hours. It is frustrating as I loss an entire day each time I open a ticket - if the website says 24 hours then why isn't actual assistance available?

{'neg': 0.093, 'neu': 0.86, 'pos': 0.047, 'compound': -0.6249}

-0.6249 neg

Comment 2: "...I am very pleased with ILMS customer service."

It was partially resolved. ILMS did all that they could do and passed my issues to name@web.com . I'm very please with ILMS customer service.

{'neg': 0.0, 'neu': 0.837, 'pos': 0.163, 'compound': 0.5095}

0.5095 pos

Comment 3: "Refer to Property Desk officer to add the agency code."

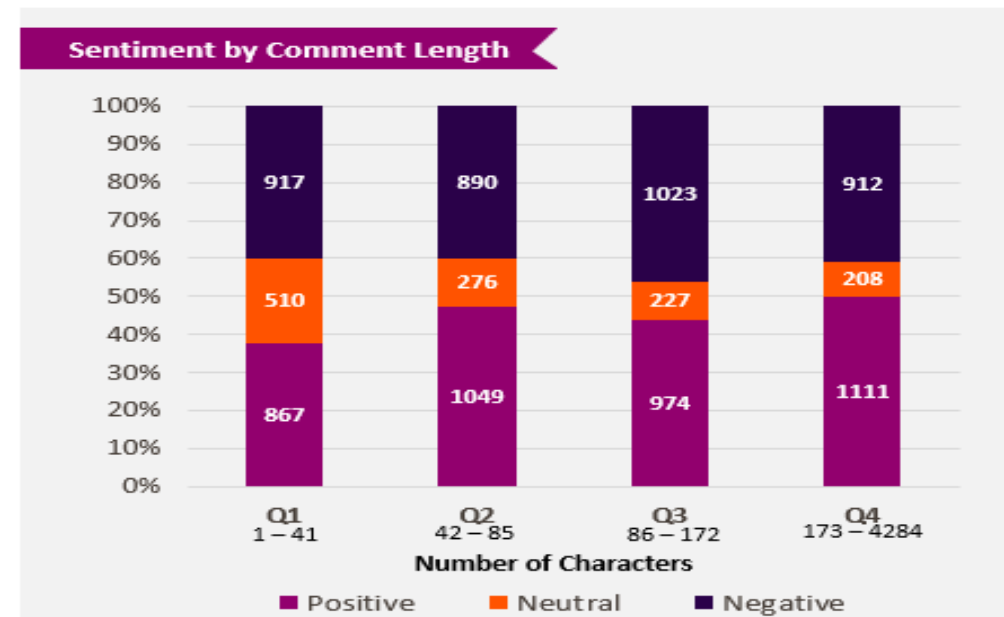
Refer to Property Desk officer to add the agency code.

{'neg': 0.0, 'neu': 1.0, 'pos': 0.0, 'compound': 0.0}

0.0000 neu

Data Visualization

COMMENT LENGTH



SENTIMENT OVER TIME



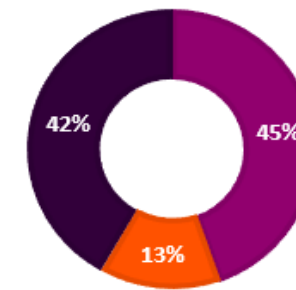
KEY FEEDBACK FROM USERS



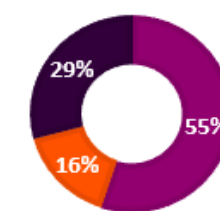
SENTIMENT OF FREEFORM TEXT COMMENTS



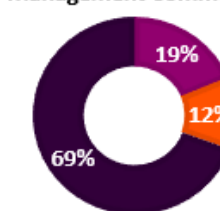
Overall Comments



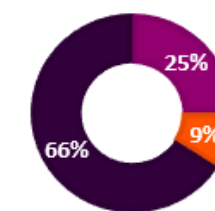
Feedback Comments



Management Comments



Unresolved Comments



Thank You !

