PASS SUMMIT2019

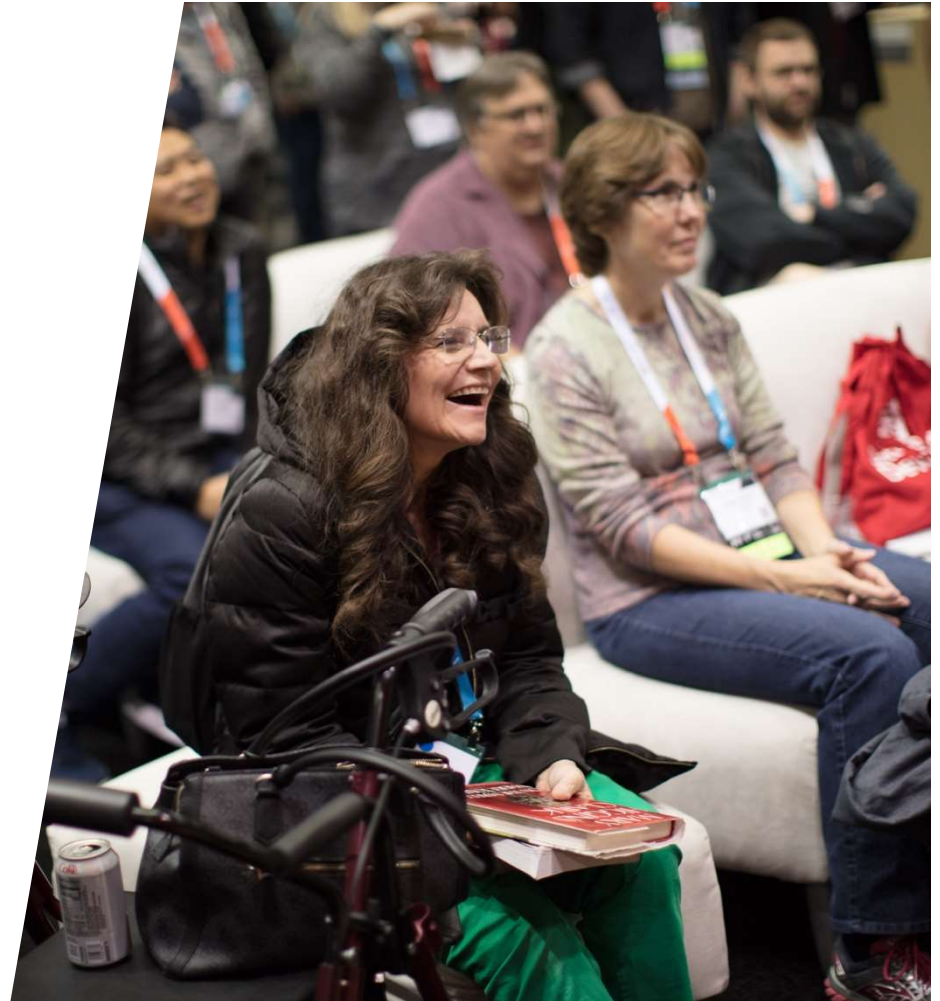# Text Mining & Sentiment Analysis

Made Easy

Sanil Mhatre, Senior Data Engineer, World Wide Technology

Please silence cell phones

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Sanil Mhatre

**Senior Data Engineer
World Wide Technology**

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✕ @sqlsuperguru

f SanilMhatre

Data Engineering and Analytics, with a keen interest towards Data Science

DBA, Analyst, Developer – worked with SQL Server, Oracle, Big Data & Cloud

Agenda

1. Qualitative vs Quantitative
2. Text Analytics APIs
3. Power BI
4. Key Phrase Extraction & Sentiment Scores
5. Visualizations & Dashboards
6. Gaining Insights
7. R

Qualitative vs Quantitative

Qualitative

- Data is Words and Narratives
- Analysis is Key Phrases, Themes, Concepts
- Understand perceptions
- Examples - Comments, Free text feedback and responses

Quantitative

- Data is Numeric
- Aggregate, slice & dice
- Apply statistical techniques
- Examples – ratings, scores, amounts

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Combining techniques

- Gain more insights by combining both techniques

- Qualitative Analysis on text – Word Cloud

- Convert the text to a numeric score – Sentiment Score

- Quantitative Analysis on the generated score

  - Descriptive Statistics – Min, Max, Freq

  - Measures of Central Tendency – Mean, Median, Mode

Team Health Survey Use Case

- Quarterly Survey of 9 IT Teams

- One open ended question : How do you feel about your team's health in this Quarter ?

- 9 Teams, 3 Managers, 4 Quarters

- 300 Responses

- Raw Data in Excel

Azure Cognitive Services

- Collection of Machine Learning and AI algorithms in the cloud

- Vision, Speech, Search, Decision

- Language

  - Text Analytics

  - Text Translator

  - More ………

Text Analytics APIs

- Natural Language processing over raw text

- Key Phrases

- Sentiment Score

- Language detection & more…..

- Try it : https://azure.microsoft.com/en-us/services/cognitive-services/text-analytics/

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DEMO

Create Text Analytics Service

Text Analytics APIs

- Note the Endpoint

- Note the API Key

Power BI – Load and Transform Data

Power BI - ETL

- Load Data from CSV

- Create Custom Functions

- Invoke Text Analytics APIs

  - Watch for security settings/errors

- Store responses into new fields in Data Table

Power BI – Reports & Visualizations

Power BI – Reports/Visualizations

- Word Cloud

- Cards with Summary stats

- Average Sentiment Scores

- Team sizes

- Histogram

- Box Plot

- Details

R

- Popular for Analytics

- Extensive libraries

- Easy to use

- Word Cloud, Sentiment Scores, Charts, etc.

- Run R scripts in Power BI

R - Syuzhet Package

- Developed by NLP group at Stanford

- The NRC Emotion Lexicon - list of English words and their associations with eight basic emotions

- get_nrc_sentiment implements the NRC Emotional lexicon

DEMO

Demo – NRC Sentiment in R

Session Evaluations

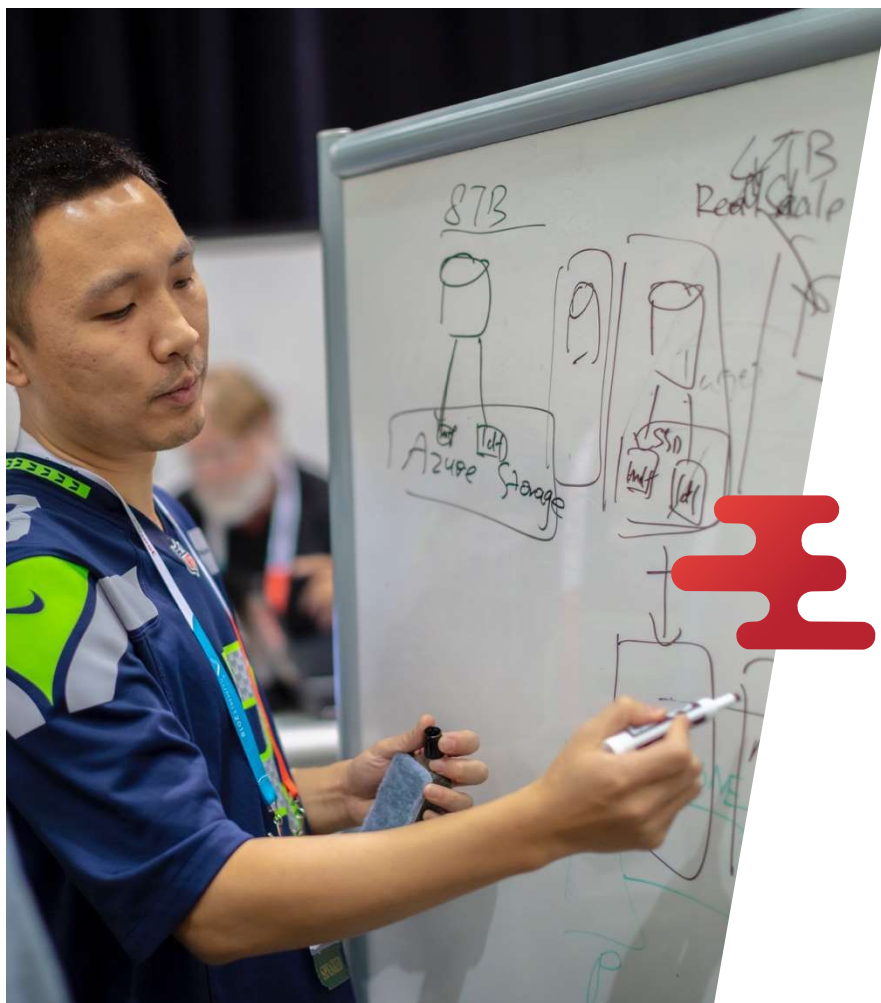**Submit by 5pm Friday, November 15th to win prizes.**

3 WAYS TO ACCESS

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Thank You

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Resources

- Qualitative or Quantitative Data - https://cyfar.org/qualitative-or-quantitative-data

- Quantitative Data Analysis - https://cyfar.org/analysis-quantitative-data

- Azure Cognitive Services Text Analytics - https://docs.microsoft.com/en-us/azure/cognitive-services/text-analytics/overview

- Power BI Desktop - https://powerbi.microsoft.com/en-us/desktop/

- Text Analytics with Power BI - https://docs.microsoft.com/en-us/azure/cognitive-services/text-analytics/tutorials/tutorial-power-bi-key-phrases

- Histogram - https://www.mathsisfun.com/data/histograms.html

- Box Plot - https://en.wikipedia.org/wiki/Box_plot

- NCR Emotion Lexicon - http://saifmohammad.com/WebPages/NRC-Emotion-Lexicon.htm

- R Syuzhet Package - https://cran.r-project.org/web/packages/syuzhet/vignettes/syuzhet-vignette.html

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