

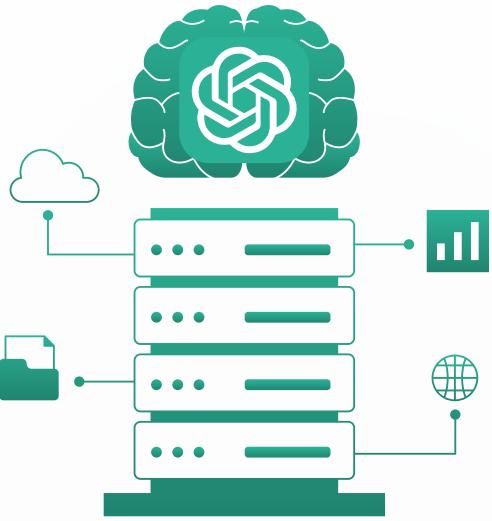


ChatGPT Review

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Introduction

The datasets contain daily-updated user reviews and ratings for ChatGPT app in the past two years. The goal is to find out how the thumbs-up and sentence positivity level will affect the rating scores and the amount of users using the app.



Background and Motivation

Problem

Finding the best ML model for ChatGPT app rating scores predictions



Data

Predict the impact of thumbs up and sentence positivity level on rating scores



Method

ML Model using linear regression, ridge, lasso, decision tree and random forest



Our Hypothesis

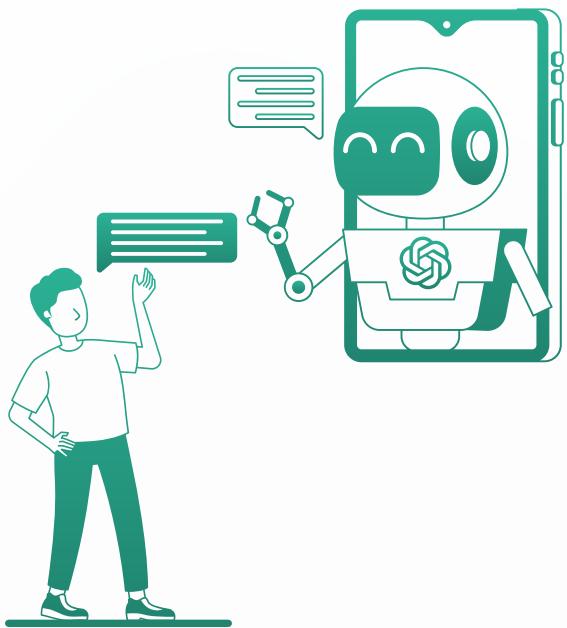
- We expect the greater the number of thumbs Up the post gets, the higher the rating score would be and a positive post will receive a higher rating score than a neutral and negative post.



Variable

Named	Data Type	Remarks
UserName	Categorical, Nominal	The display name of the user who posted the review
Content	Categorical, Nominal	The text content of the review.
Score	Numerical, Ordinal	The rating given by the user, typically ranging from 1 to 5
thumbsUpCount	Numerical, Continuous	The number of thumbs up (likes) the review received.
At	Numerical, Continuous	The date and time when the review was posted

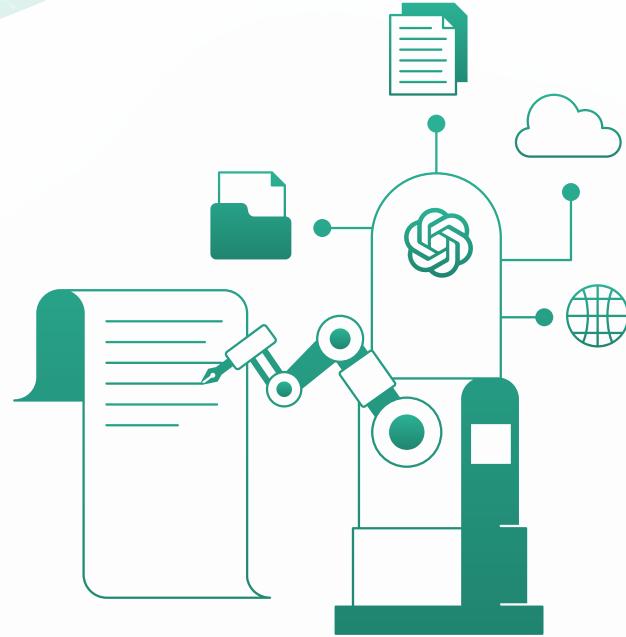
Data Preparation

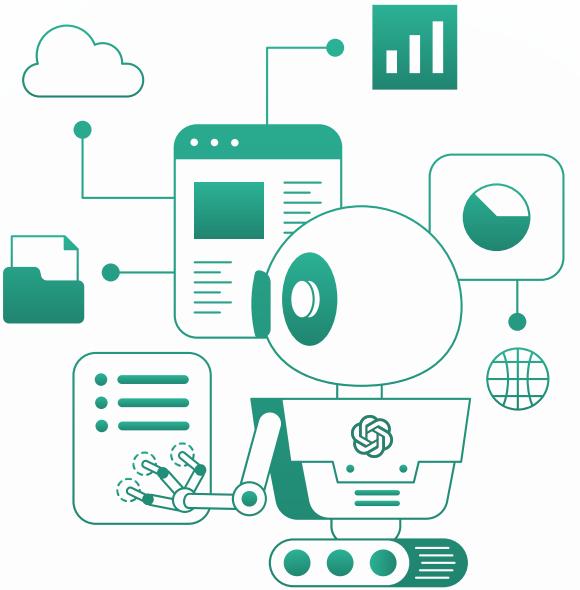


- Remove any irrelevant & NA values
- Remove languages other than English
- Eliminate duplicate values
- Check for inconsistent formatting for dates, text, etc
- Sample only 2000 from the data
- Analyse pattern in data
 - Numerically and visually
- Convert categorical data types into numerical ones
(SentimentIntensityAnalyzer)

How Does ChatGPT Work?

ChatGPT uses machine learning for natural language processing. It's trained on internet text, learning language patterns and facts. It respects user privacy and doesn't store personal data. It predicts text responses based on the context provided.





Benefits of ChatGPT

ChatGPT offers several benefits:

- **Scalability:** it can handle multiple Conversations/tasks.
- **24/7 availability:** provides round-the-clock service.
- **Multilingual:** Supports multiple Languages.
- **Cost-efficient:** reduces business costs Compared to hiring humans.
- **Data analysis:** can analyse Text data to inform business decisions.

Shortfalls of ChatGPT

Despite its benefits, ChatGPT has some limitations:

- **Unpredictability:** Outputs can be unpredictable due to the nature of machine learning.
- **Content Concerns:** It may occasionally generate inappropriate or biased content.
- **Contextual Understanding:** ChatGPT sometimes struggles with maintaining long-term conversational context.



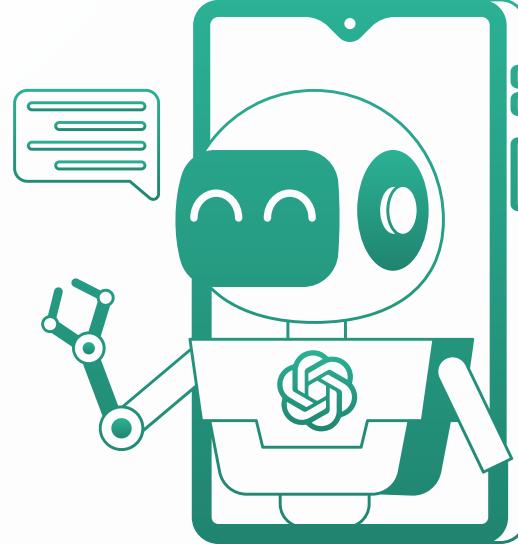


Case Study of ChatGPT in Business – Part 1

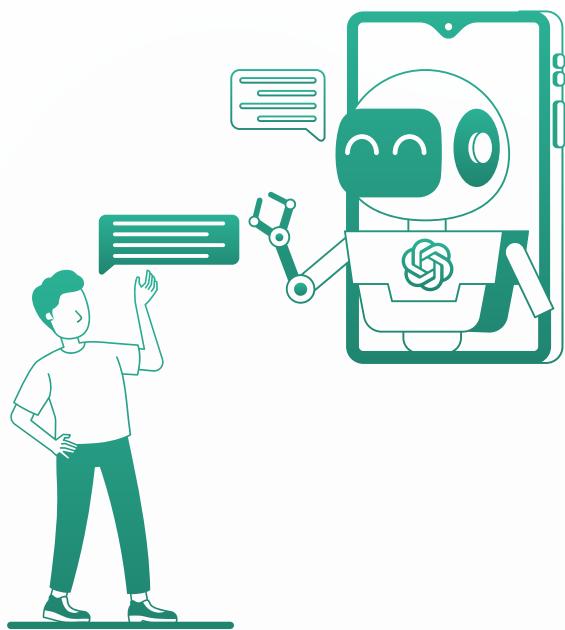
Consider a hypothetical customer service company struggling with high demand and limited staff. They turn to ChatGPT for assistance.

Case Study of ChatGPT in Business – Part 2

Implementing ChatGPT as a customer service chatbot, the company could handle more queries, provide 24/7 support, reduce waiting time, and increase customer satisfaction.



Selecting the Right Model

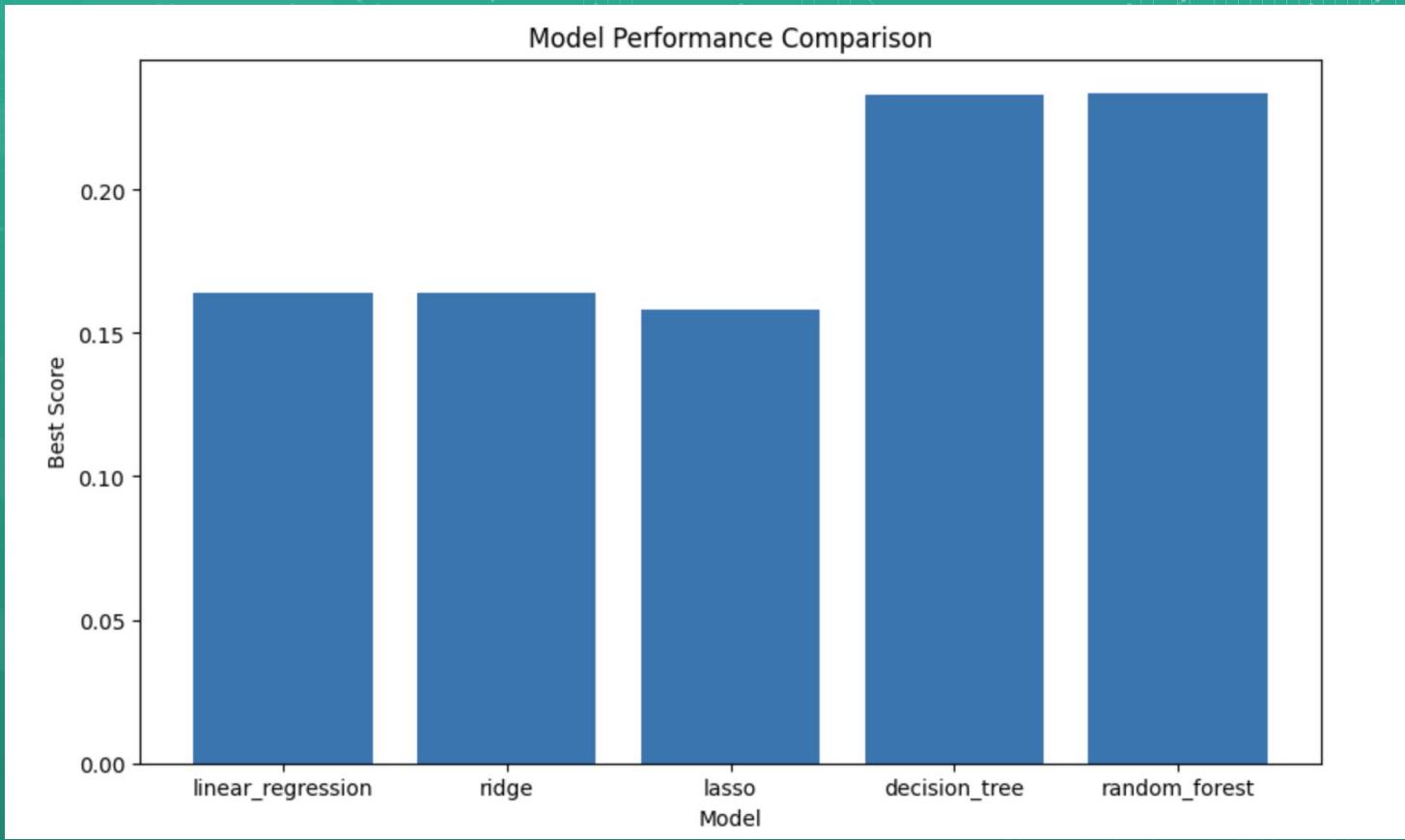


- GridSearchCV
- Regression Model: Random Forest

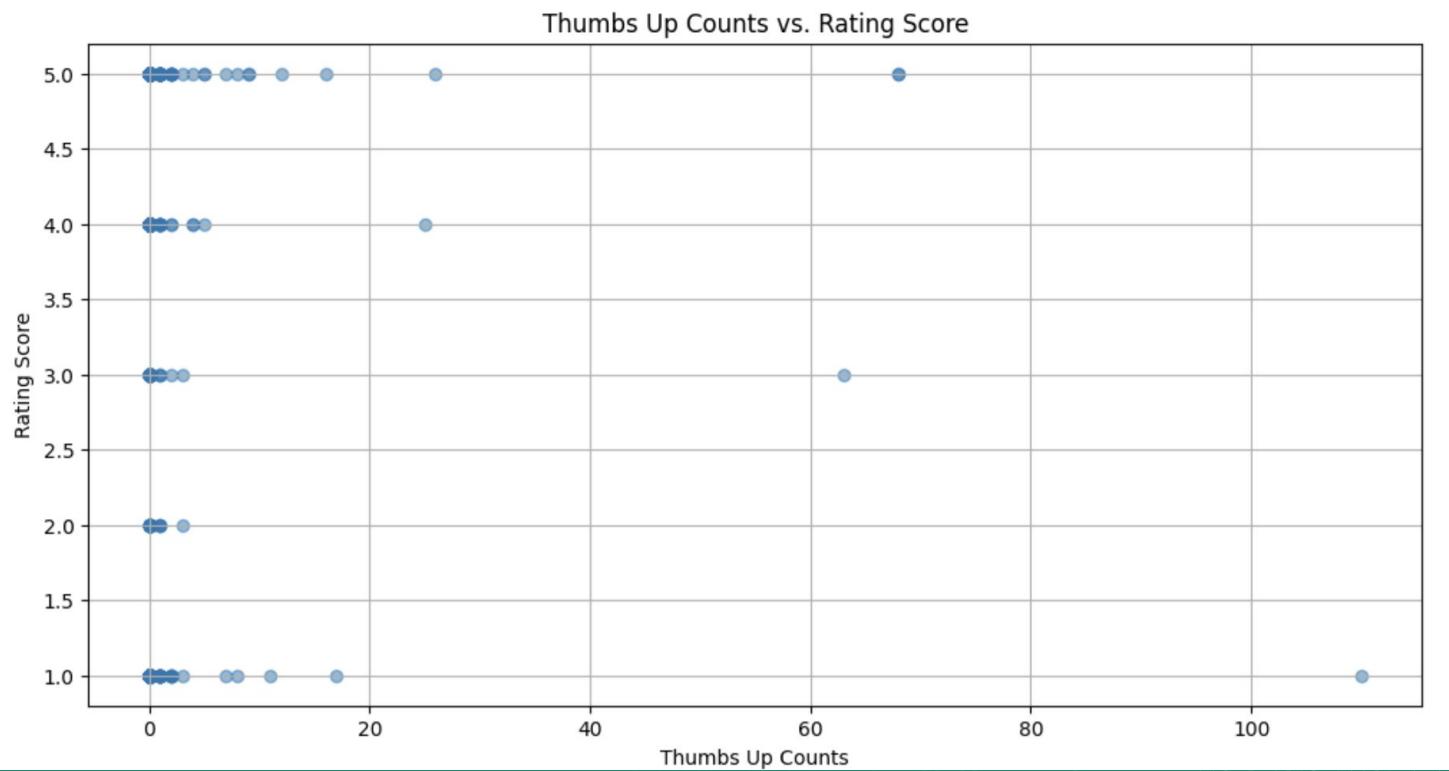
Training the Model

- 80% training data - 1600 samples
- 20% testing data - 400 samples

Model Performance Comparison

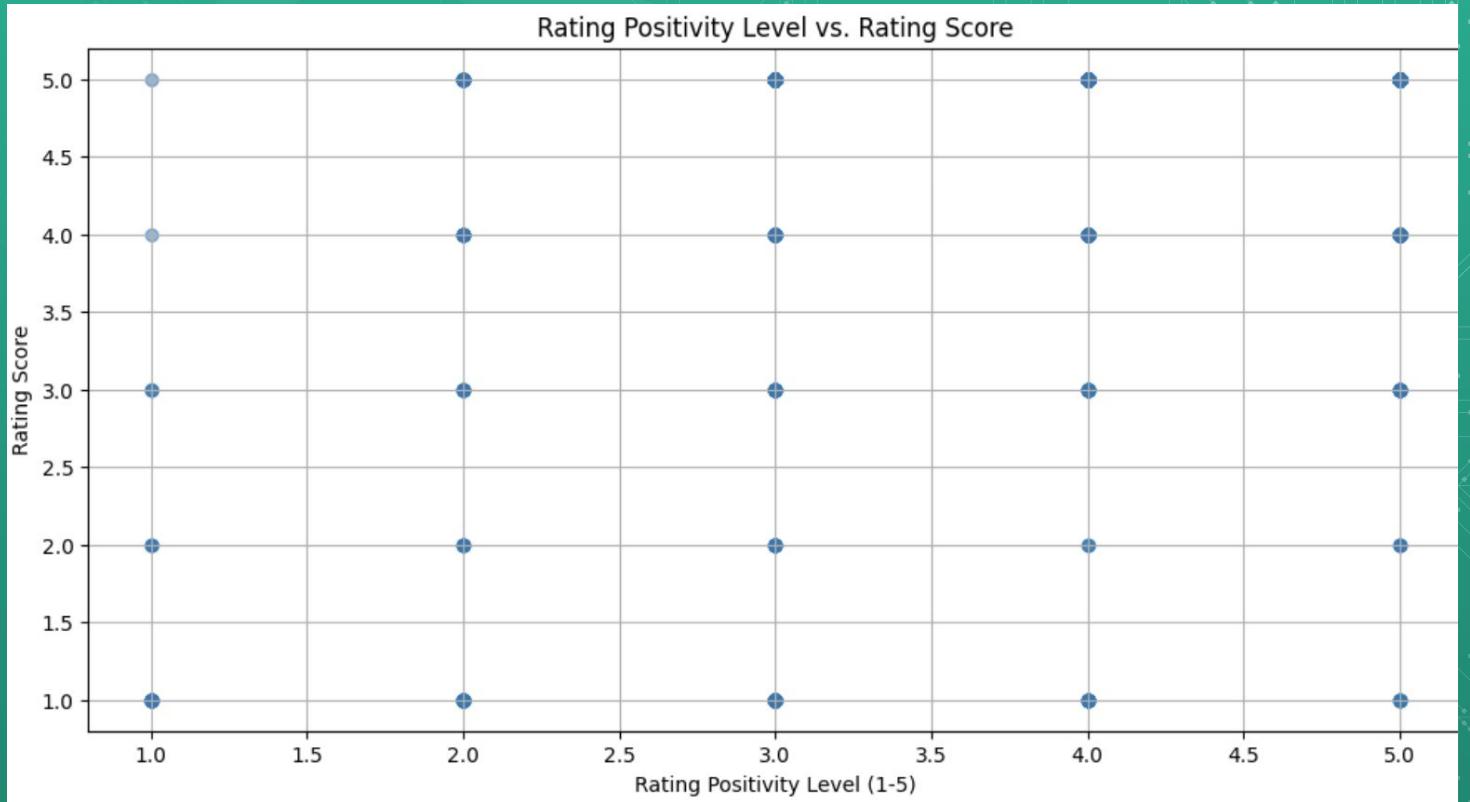


Finding and Results



Higher rating scores are more likely to receive a higher number of thumbs ups but the relationship is not significant.

Finding and Results



No relationship
between a
positive vs
negative post and
their rating score

Model Prediction (rating score)

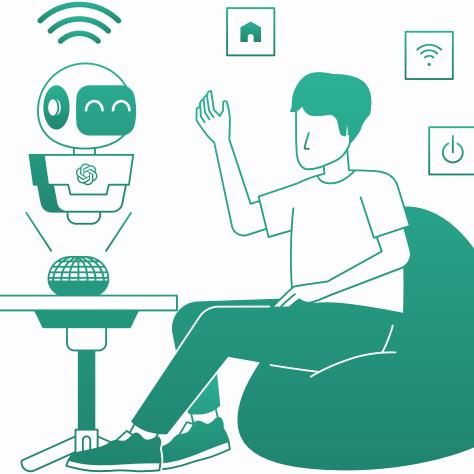
Thumbs Up Count	Content Score	Actual Rating Score	Predicted Rating Score
0	4	5	4.644 ~ 5
0	3	5	4.784 ~ 5
7	1	4	3.217 ~ 3
5	5	5	4.845 ~ 5

Results and Conclusion

Mean Squared Error: 1.10884

Mean Absolute Error: 0.72359

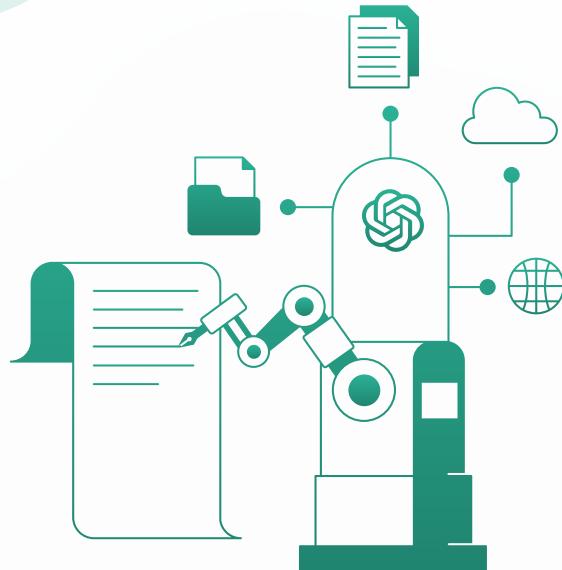
R-squared: 0.23953



Error Analysis and Scope for Improvement

Our final model is a random forest model that has an accuracy of 0.257.

- The model accuracy is not as good as expected, but we simply want to analyse the pattern and predict the rating scores. The result may not be a good indicator for the future ChatGPT rating performance.
- To improve our model, we might need to scale the features, and use more ensemble methods such as k-fold cross validation,¹¹ and l2 regularization, etc.



References and Documentation

- [Kaggle](#)
- [Sentiment Analysis](#)
- [Scikit Learn API](#)
- [Improving Model Accuracy](#)





The background of the image is a dark green color. Overlaid on this background is a complex, three-dimensional grid of white lines and small squares, resembling a circuit board or a network of interconnected nodes. The grid is most dense in the center and becomes more sparse towards the edges. The overall effect is a futuristic, digital, and technological theme.

Thank You!