Diagnosing Negative Ecommerce Reviews

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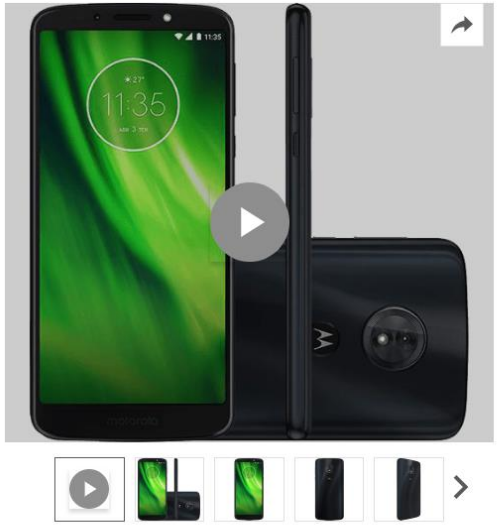
Background

- Ecommerce website **Olist**
- Impact of negative reviews
  - 91% of unhappy don't return
  - May tell 20 or more people about their expeience
  - Good experience? 42% return
- Takes approximately 40 positive reviews to counter a single negative one

Goldman Sachs leads $23M in funding for Brazilian e-commerce startup Olist

Mary Ann Azevedo @bayareawriter / 10:08 AM EDT • April 15, 2021

Comment



Smartphone Motorola Moto G6 Play Dual Chip Android Oreo - 8.0 Tela 5.7" Octa-Core 1.4 GHz 32GB 4G Câmera 13MP - Índigo

(Cód.133453169) (215)

Caixa de Som ANKER SoundCore Bluetooth 12W - Preta
+ R$ 429,99

pegue na loja hoje! Pegue na loja mais próxima, no mesmo dia :)
Sujeito à alteração de preço. Saiba mais
ver lojas

Escolha uma loja abaixo e compre

olist
R$ 1.299,00
R$ 26,04 - 7 a 10 dias úteis

R$ 1.069,90
R$ 38,32 - 7 a 10 dias úteis

R$ 975,00
R$ 22,94 - 5 a 6 dias úteis

Mais opções deste produto a partir de R$ 959,00

vendido e entregue por olist

R$ 1.299,00
10x de R$ 129,90 s/ juros

comprar

Corra! Temos apenas 5 no estoque

R$ 1.299,00 em até 12x de R$ 108,25 s/ juros

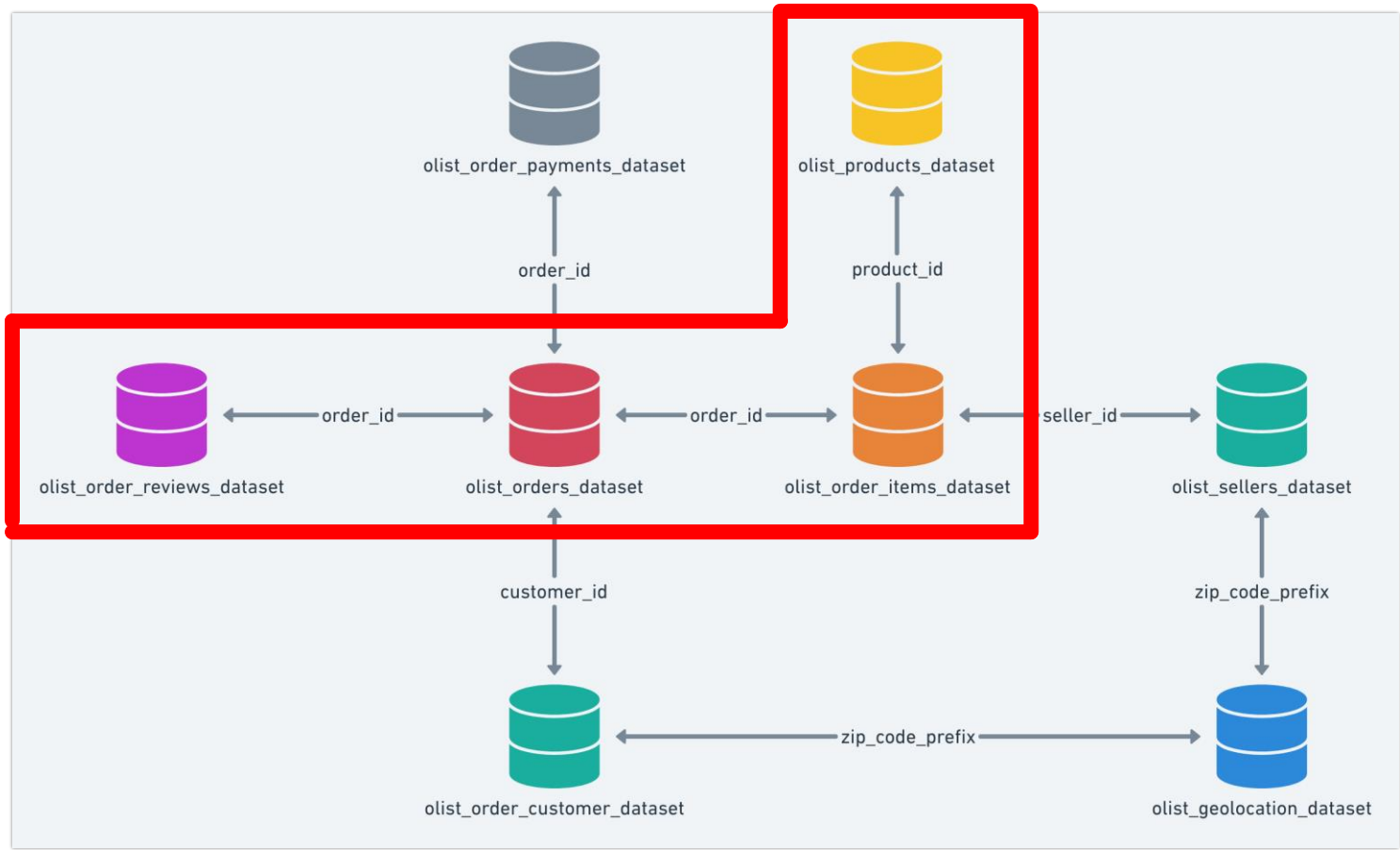
R$ 1.299,00 no cartão em até 24x de R$ 54,12 s/ juros

formas de parcelamento

:) Este produto é vendido por uma loja parceira.

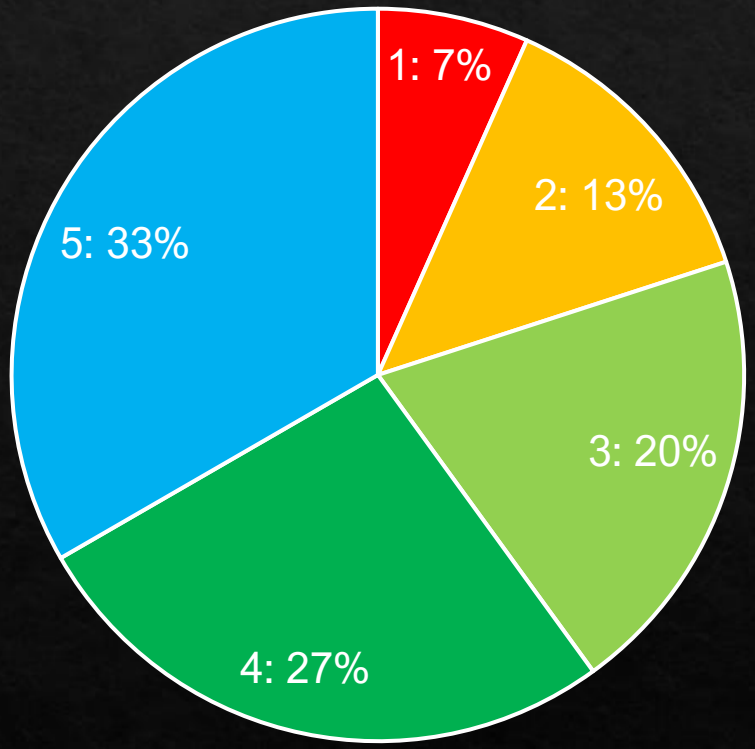
Data

- Olist ecommerce dataset
- Orders of products on online store
  - Review score
  - Price paid
  - Length of description
  - Number of photos
  - Weight
  - Dimensions

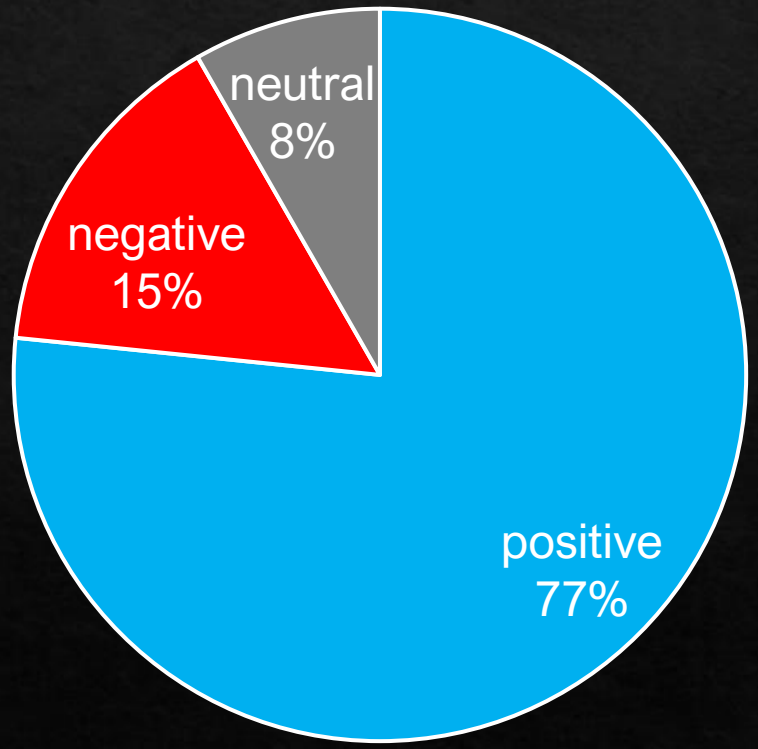


Target Class: Review Positivity

Review Scores



Review Positivity



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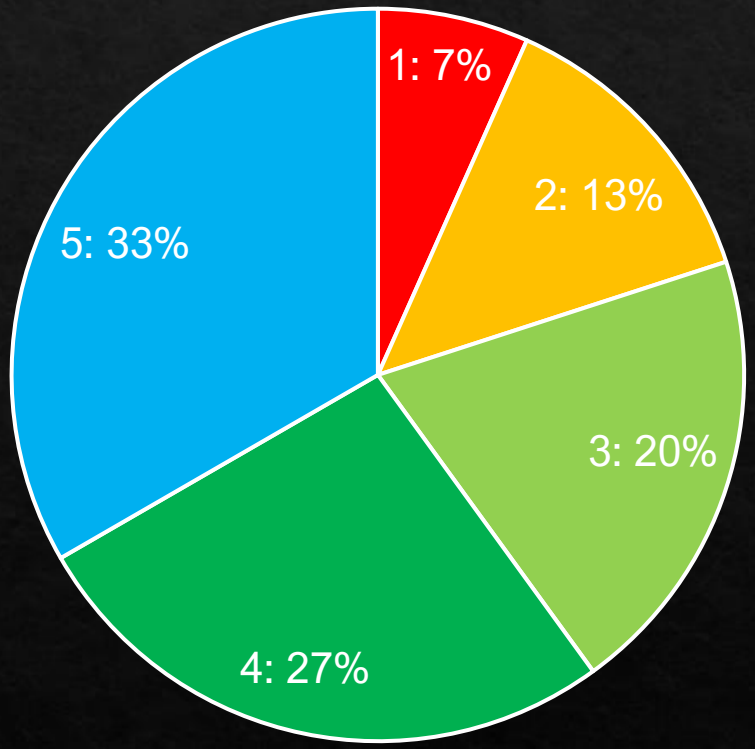
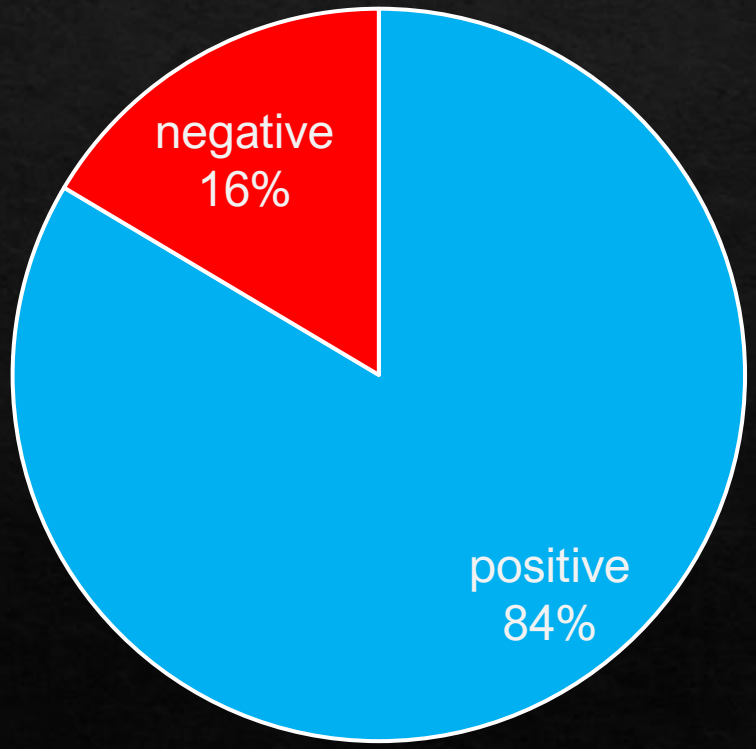


Review Positivity



Results

K-nearest Neighbors

- Accuracy: 0.86
- Precision: 0.87
- Recall: 0.99
- F1: 0.92

- …But, this isn't very interpretable, and can't make predictions!

Logistic Regression

- Accuracy: 0.53
- Precision: 0.87
- Recall: 0.54
- F1: 0.66
- Confusion Matrix (n = 17,536):

	Predicted Negative	Predicted Positive
Actual Neg.	1290	1235
Actual Pos.	6946	8065

Conclusions

Important feature(s) missing

Text of review; NLP?

Prioritize interpretability over scores

Recall > Accuracy

Future Work

More Features

Customer

Seller

Geographic

Predictive Model

Determine probability of negative review, given customer & product

Offer benefits to customer to prevent churn

Appendix

Sources

- “Brazilian E-Commerce Public Dataset by Olist.” *Kaggle*, 29 Nov. 2018, www.kaggle.com/olistbr/brazilian-ecommerce?select=olist_order_reviews_dataset.csv.
- Thomas, Andrew. “The Secret Ratio That Proves Why Customer Reviews Are So Important.” *Inc.Com*, 5 Jan. 2021, www.inc.com/andrew-thomas/the-hidden-ratio-that-could-make-or-break-your-company.html.
- Azevedo, Mary Ann. “Goldman Sachs Leads $23M in Funding for Brazilian E-Commerce Startup Olist.” *TechCrunch*, 15 Apr. 2021, techcrunch.com/2021/04/15/goldman-sachs-leads-23m-in-funding-for-brazilian-e-commerce-startup-olist.

Tools Used

- Scikit-learn
- Pandas
- Seaborn
- Excel