



Drug Reviews Analysis

By
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A photograph of a doctor in a white lab coat holding a pair of glasses, engaged in a conversation with a patient wearing a blue shirt. The scene is set in a clinical environment, with the doctor's hands and the patient's torso visible. A semi-transparent white box is overlaid on the left side of the image, containing the title and a list of bullet points.

Problem Statement

- Predict condition based on patient review
- Predict sentiment based on patient review

Business Value

Classifying patients conditions and sentiment of the review can be used as a foundation for recommending system.

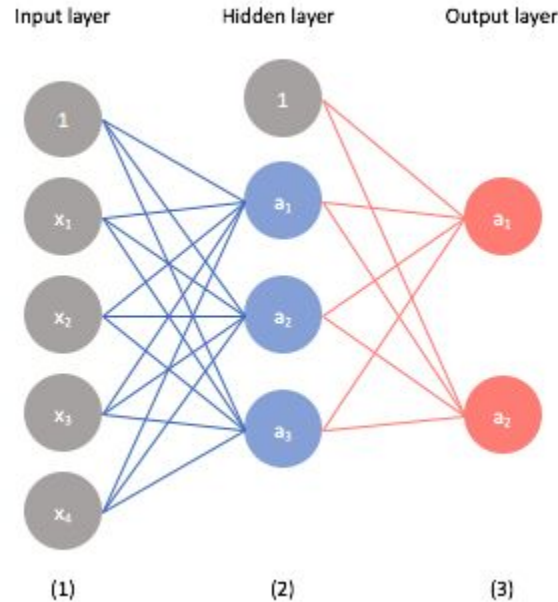


Methodology

Deep Neural Networks:

- Dense
- Convolutional

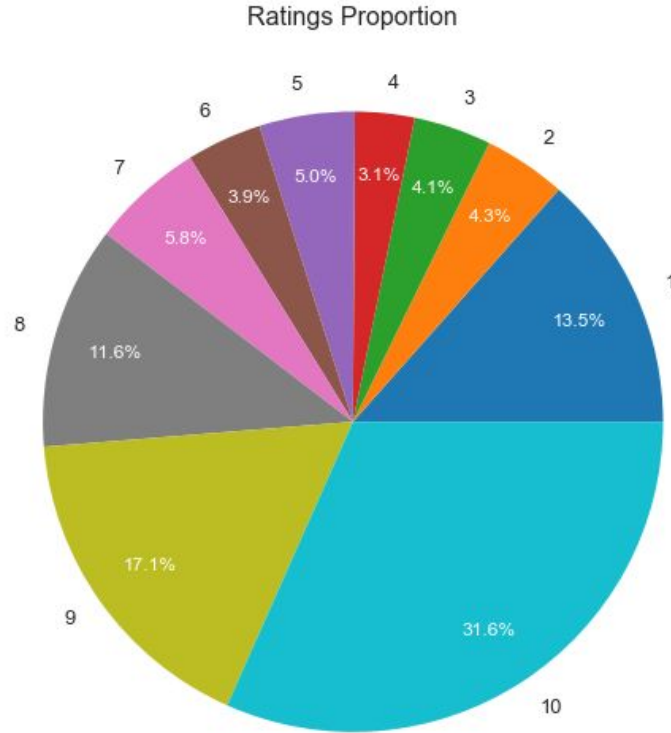
with hyperparameters tuning



Drugs Satisfaction

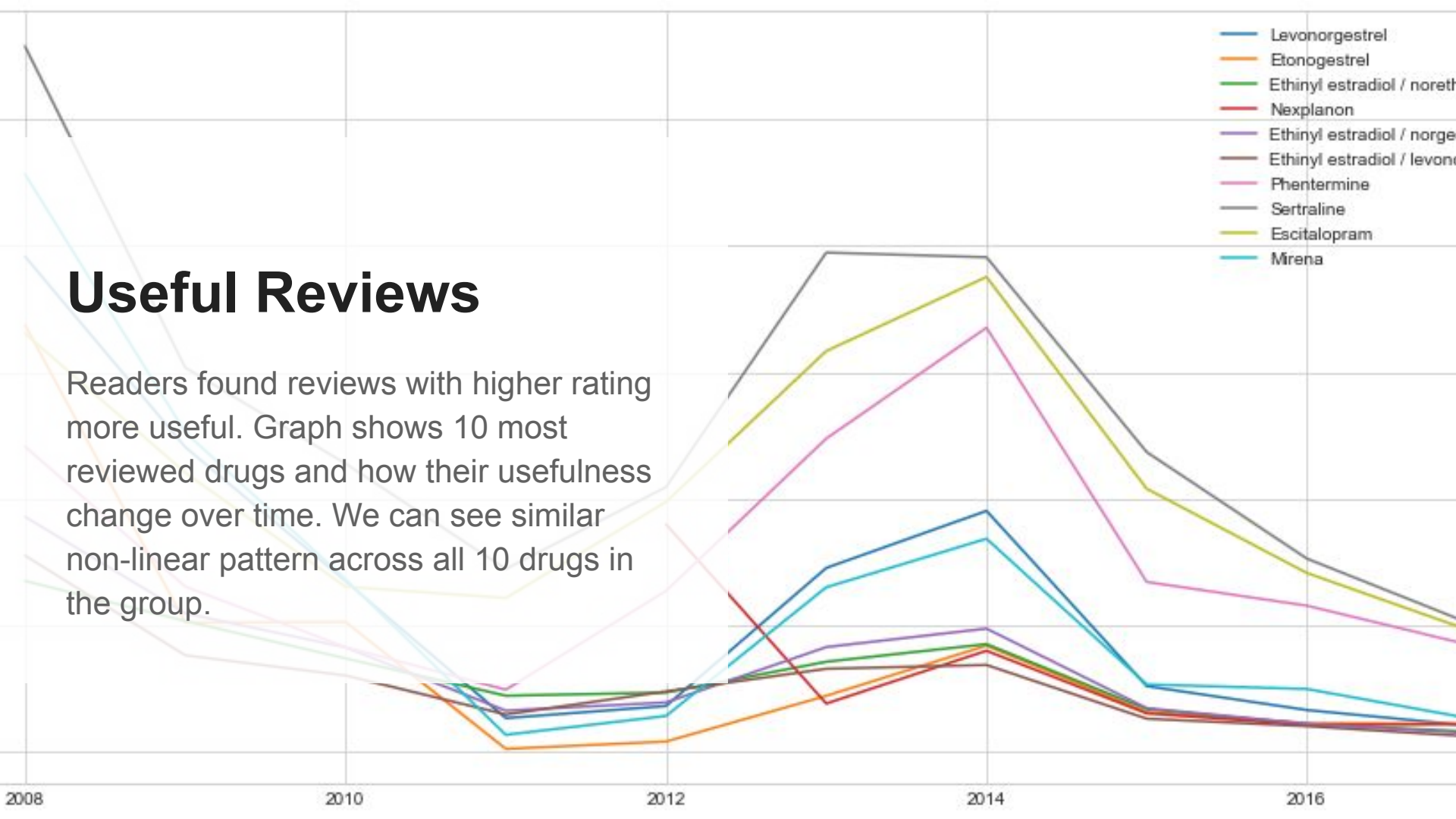
Patients tend to write a review when they have very good or very bad experience with medication.

Approximately 60% of reviews have positive sentiment



Useful Reviews

Readers found reviews with higher rating more useful. Graph shows 10 most reviewed drugs and how their usefulness change over time. We can see similar non-linear pattern across all 10 drugs in the group.





Condition Prediction

Model predicts patient condition with 85% accuracy

Sentiment Prediction

Model predicts sentiment with 82% accuracy

Patient satisfaction survey

In thinking about your most recent experience with us,
was the quality of the medical service you received:

☒ Excellent!

☐ Very satisfactory

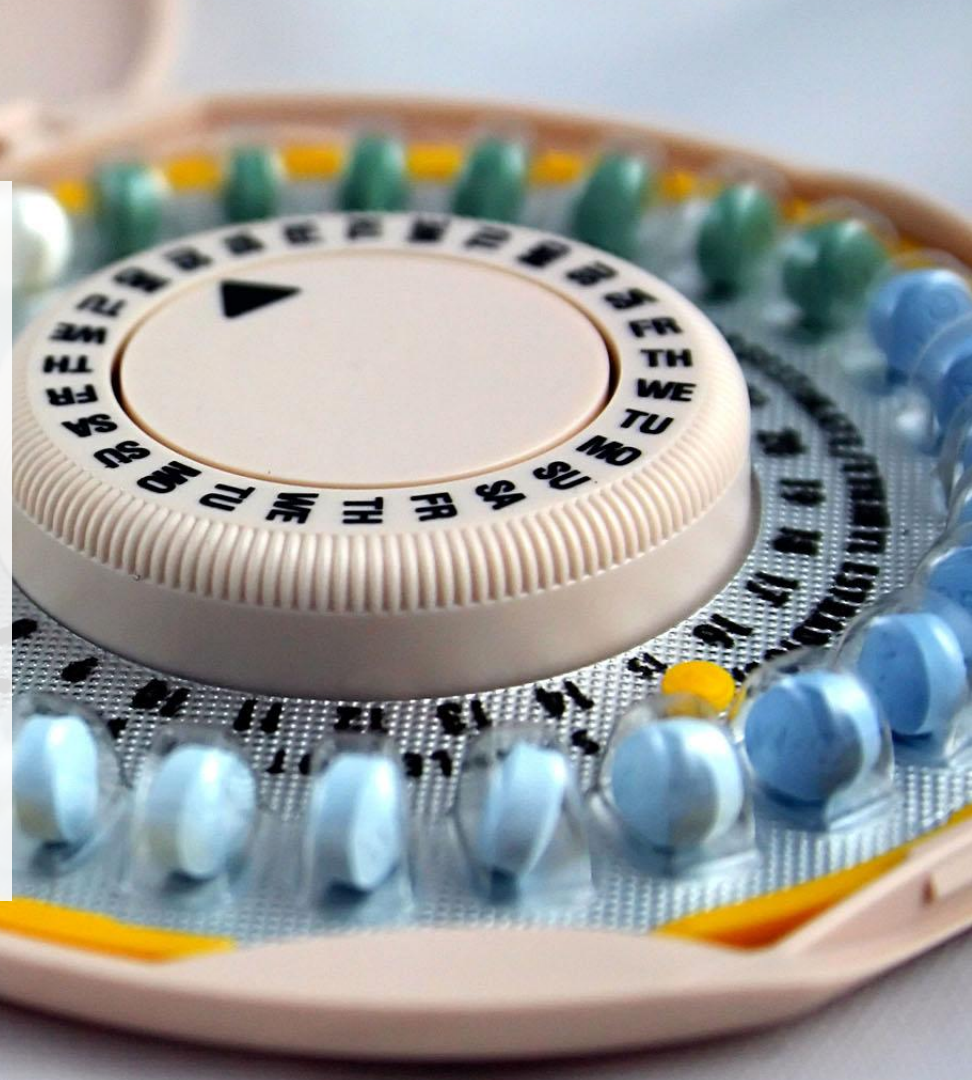
☐ About average

☐ Somewhat unsatisfactory

☐ Very poor!

Birth Control Drugs' Differences

10 most used drugs for birth control have a lot of similarities. Model was able to classify drugs with 55% accuracy, because patients used similar words and phrases to describe their experience.



Future Work

- Extract side effects from reviews
- Use bigrams/trigrams in training process to increase precision
- Lay out foundation for recommending system

