




Drug Reviews Analysis

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A close-up photograph of a doctor in a white lab coat and a patient in a light blue button-down shirt. The doctor is holding a pair of glasses with both hands, looking down at them. The patient's hands are clasped together in their lap. A semi-transparent dark grey box is overlaid on the left side of the image, containing the text.

Problem Statement

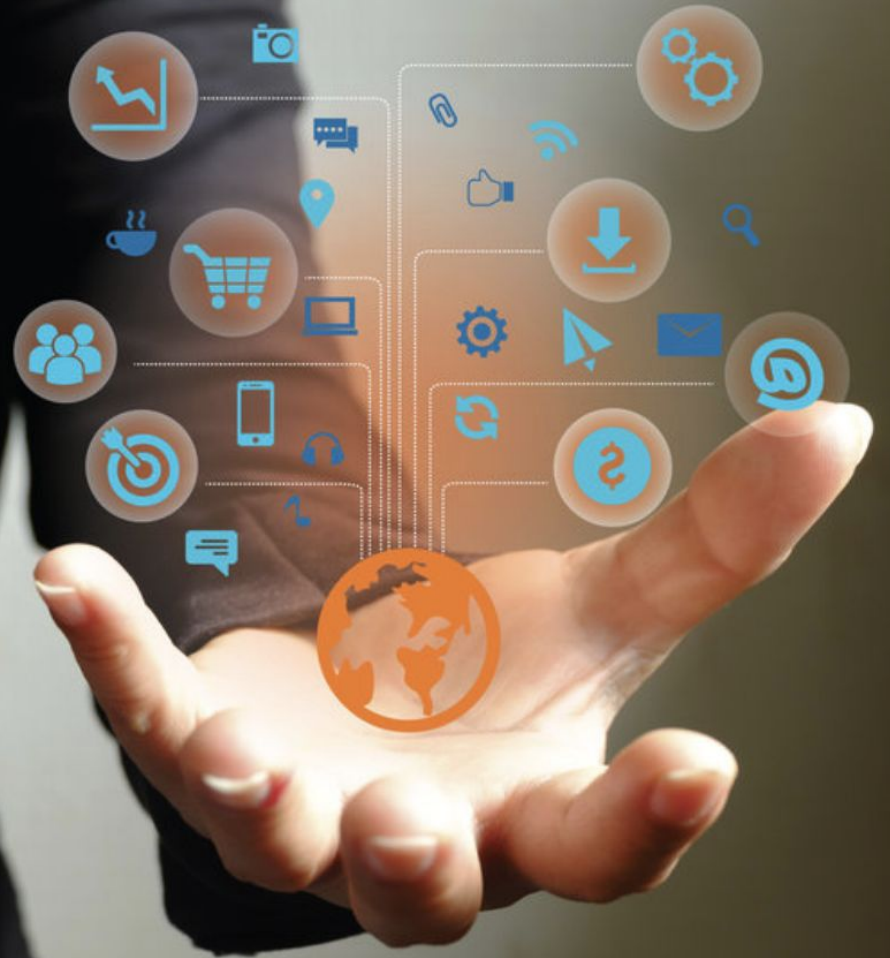
Predict patients' condition and sentiment of the review

Business Value

Sentiment classification will help to discover negative reviews easy, thus we can collect valuable information and act accordingly to improve product quality.

Condition classification can be used for recommending system

A hand holding a glowing orange globe with various digital icons floating around it, symbolizing global connectivity and digital technology.

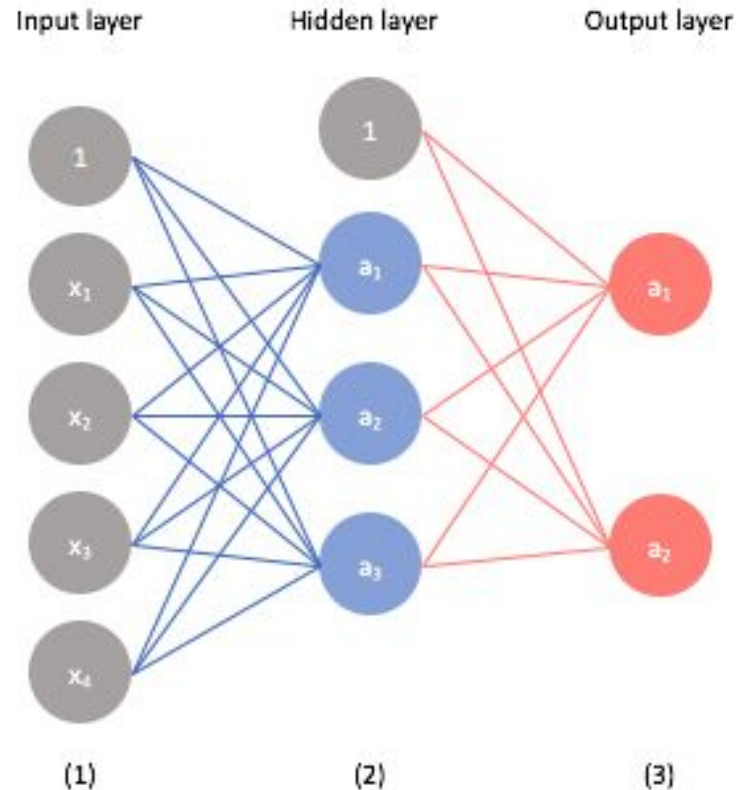


Methodology

Deep Neural Networks for
NLP:

- Dense
- Convolutional

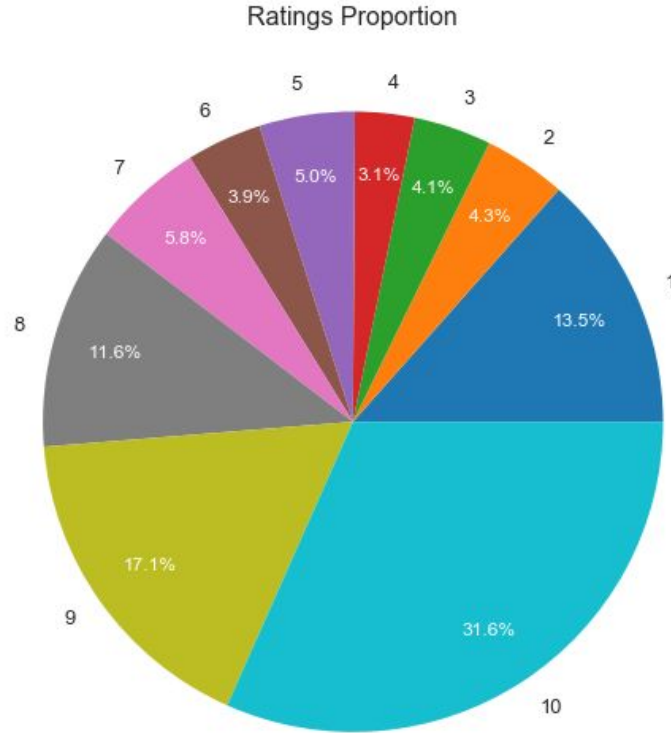
with hyperparameters tuning



Drugs Satisfaction

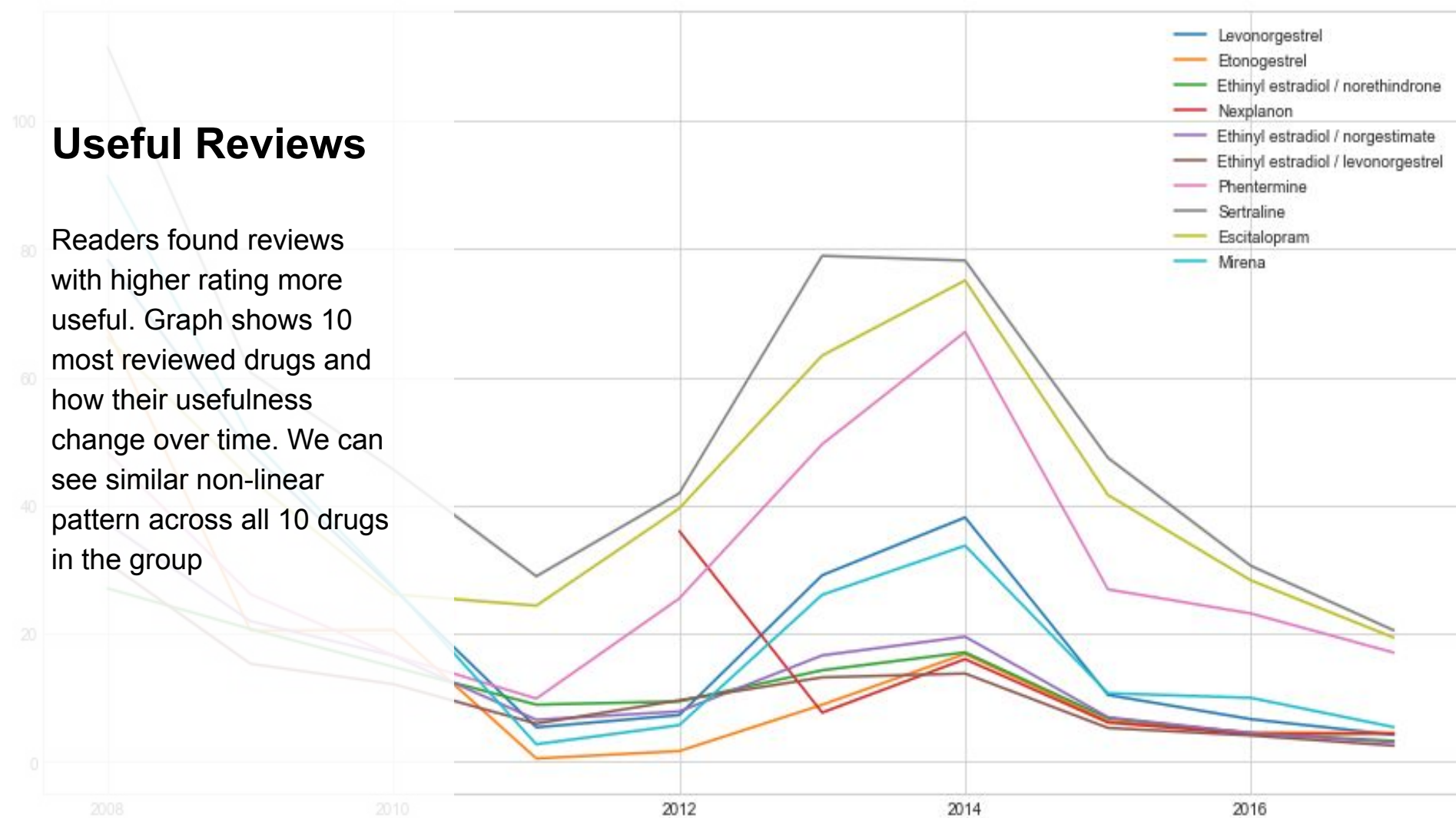
Patients tend to write a review when they have very good or very bad experience with medication.

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

Trained and tested on 10 most popular conditions

Sentiment Prediction

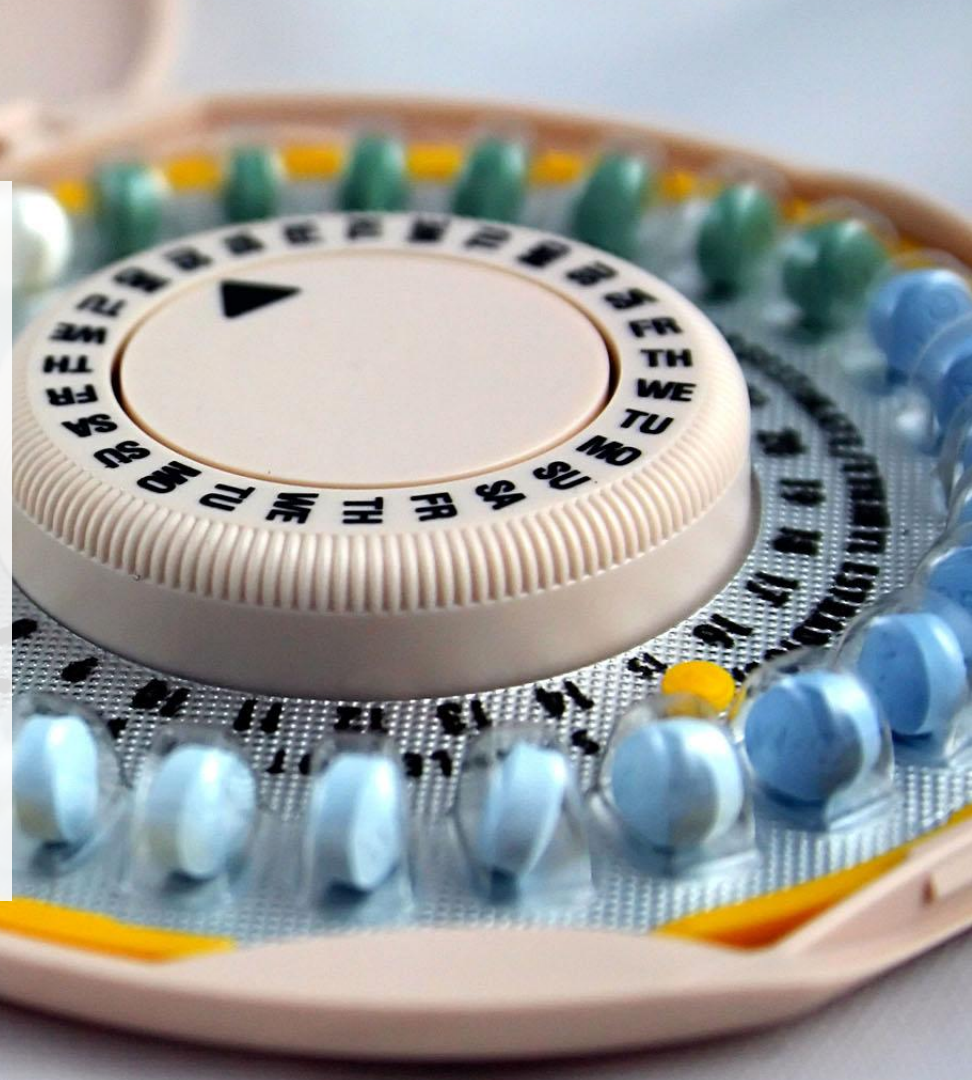
Model predicts sentiment (positive, neutral, negative) with 82% accuracy

Trained and tested on 10 most popular conditions



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 accuracy
- Lay out foundation for recommending system

