

Rating Predictions from Drug Reviews

Milestone Report

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Overview

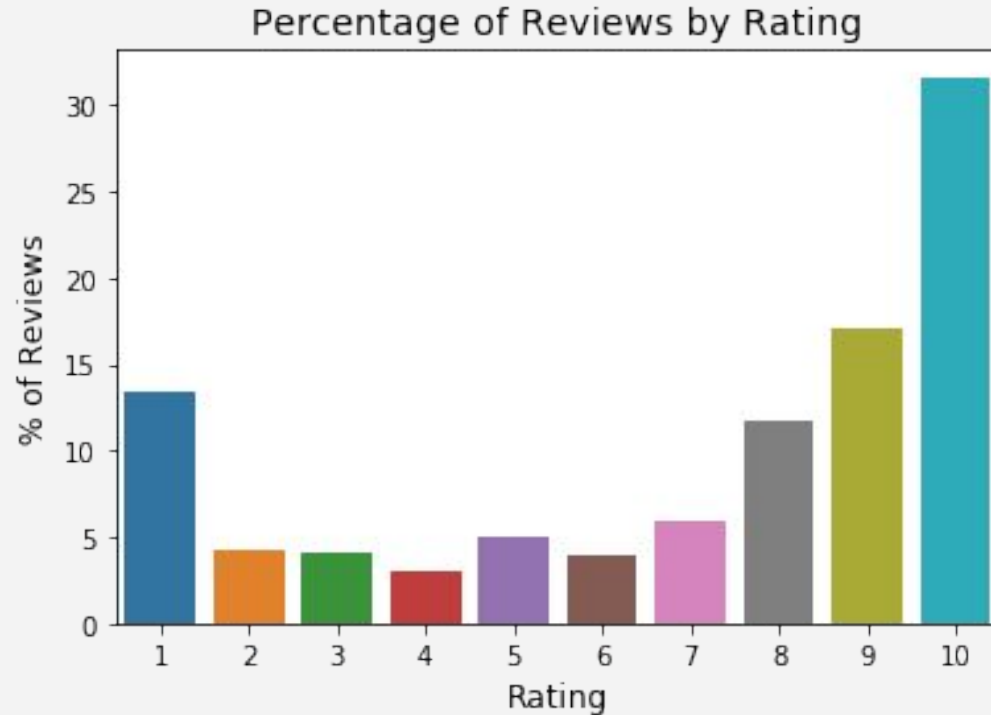
- Internet is the largest source of drug reviews
- Rating scales and requirements vary
- Building a model to predict ratings from review text would enable us to
 - Use reviews with missing ratings
 - Standardize ratings and use reviews from any source
 - Better understand factors that most influence a drug's rating

Dataset

- Over 160,000 drug reviews from Drugs.com*
- Columns:
 - Review ID number
 - Name of drug being review
 - Condition for which drug was used
 - Review text
 - Rating (from 1 to 10)
 - Review date
 - Number of times the review was voted as useful

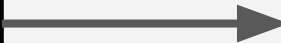
*<https://archive.ics.uci.edu/ml/datasets/Drug+Review+Dataset+%28Drugs.com%29>

Distribution of Ratings



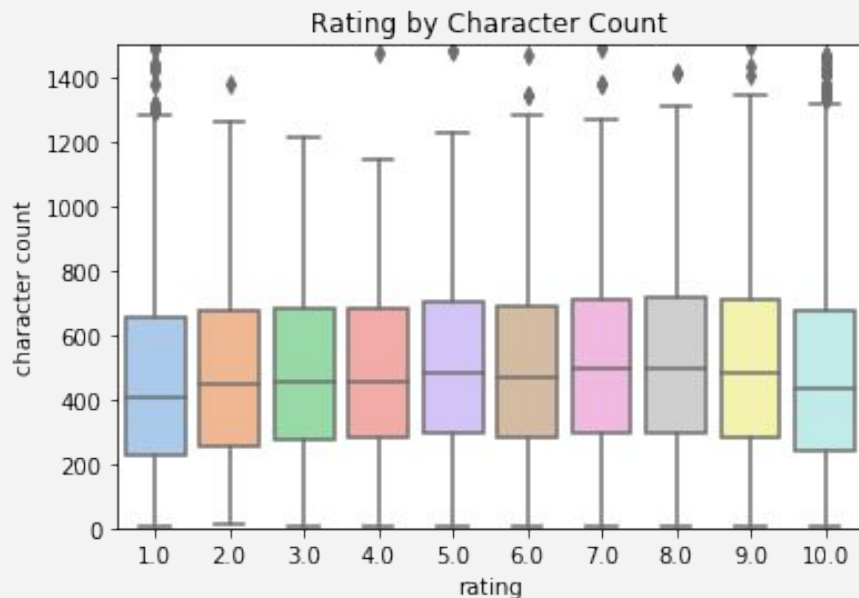
Cleaning Text

"Suboxone has completely turned my life around. I feel healthier, I'm excelling at my job and I always have money in my pocket and my savings account. I had none of those before Suboxone and spent years abusing oxycontin."

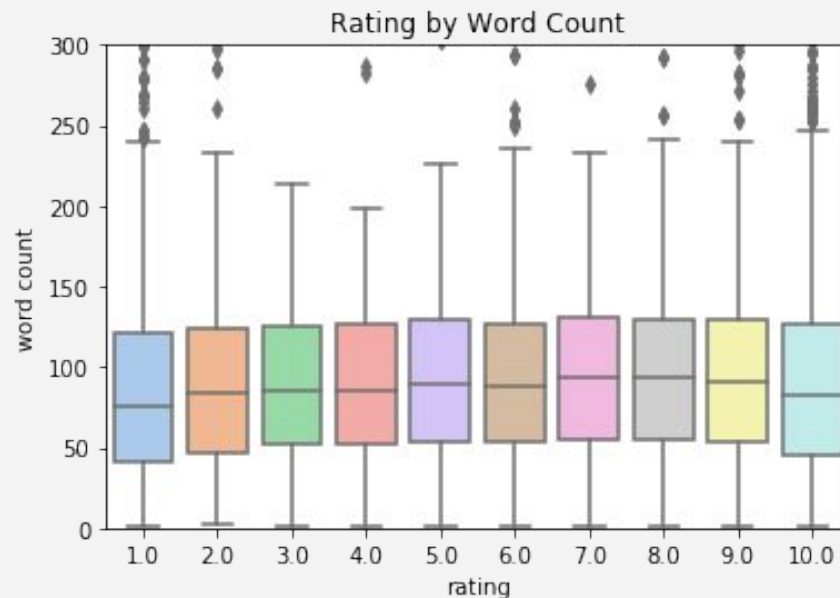


suboxone completely turned life around feel healthier excelling job always money pocket saving account none suboxone spent year abusing oxycontin

Review Length



Significant Correlation Coefficient: ~ 0.0267



Significant Correlation Coefficient: ~ 0.0211

Drug Names

5 Drugs with Largest Avg. Increase in Rating		
	Drug Name	Avg. Difference (Rating)
1	Privine	3.00
2	Zinc Oxide	3.00
3	Astelin	3.00
4	Acetaminophen / pseudoephedrine	3.00
5	Chlorpheniramine / phenylephrine	3.00

5 Drugs with Largest Avg. Decrease in Rating		
	Drug Name	Avg. Difference (Rating)
1	Systane	-4.87
2	Succinylcholine	-4.62
3	Trimethoprim	-4.25
4	Chloraseptic Sore Throat Spray	-4.00
5	Monistat 7	-3.97

Medical Condition

5 Conditions with Largest Avg. Increase in Rating		
	Medical Condition	Avg. Difference (Rating)
1	Costochondritis	3.00
2	Menopausal Disorders	3.00
3	B12 Nutritional Deficiency	3.00
4	Von Willebrand's Disease	3.00
5	Gingivitis	3.00

5 Conditions with Largest Avg. Decrease in Rating		
	Medical Condition	Avg. Difference (Rating)
1	Bronchospasm Prophylaxis	-3.25
2	Sore Throat	-3.11
3	Herpes Zoster, Prophylaxis	-3.00
4	Macular Edema	-2.85
5	Pancreatic Exocrine Dysfunction	-2.50

Words

5 Words with Largest Avg. Increase in Rating		
	Words	Avg. Difference (Rating)
1	Radio	1.76
2	Coworker	1.53
3	Levoxyl	1.41
4	Aspergers	1.40
5	Laminectomy	1.39

5 Words with Largest Avg. Decrease in Rating		
	Words	Avg. Difference (Rating)
1	Moist	-2.15
2	Consists	-1.50
3	Separation	-1.48
4	Tumour	-1.43
5	Wire	-1.43