



Scam Filtering & Classification



Agenda

- 1) Problem Statement**
- 2) Methodology**
- 3) Data Analysis**
- 4) Model Selection**
- 5) Conclusion & Recommendation**



Problem Statement

- **Scammer the bane of our lives**
- **Targeting the vulnerable and innocent**
- **Different tactics**
- **Phishing & Malware**
- **24 million reports already made in 2023**



My mom is 65 years old. So glad she texted me first to check

Movies where dudes rock

REQUESTING

We've all had our fair share of movies where dudes suck ("Taxi Driver", "Joker", "Scarface", etc.), but what about movies where dudes rock? Movies that celebrate men doing cool stuff and being bros? Some examples I can think of is "Nobody" with Bob Odenkirk, "Barbie" movie with the "I'm Just Ken" musical number, and Brave with the three clans interactions.

Do you guys feel what I'm talking about?

Methodology

- **Scams, Malware, Phishing and Scam Radar**
- **Movie Reviews and Movie Suggestions**
- **Model 1 – Categorizing the Scam and non Scam data**
- **Model 2 – Categorizing Phishing and Malware data**



r/moviereviews · Posted by u/Detroit_Cineaste 23 days ago



2 The Nun II



The issues I had with *The Nun II* (pacing, visual murkiness, overly busy plot) are the same as those that afflicted director Michael Chaves' previous outing, *The Conjuring: The Devil Made Me Do It*. Instead of building on the operatic style of *The Nun*, Chavez instead delivered a movie that looks and feels exactly like his last one. For most of its run time, *The Nun II* is a little more than a haunted house movie with creaky floors, creaky doors and things lurking in the shadows. *The Nun* succeeded because it was distinct from its sibling franchises (*The Conjuring* and *Annabelle*). Now that this franchise is stylistically the same as the others, its reasons for existing are almost nil. Farmiga and Bloquet are solid, but the movie that surrounds them is a tired slog. I'm guessing (hoping?) that Valak will finally meet the Warrens in *The Nun III* and bring this element of the *Conjuring* lore to a close. With that in mind, there is no compelling reason to see this movie. **Not Recommended.**

<https://detroitcineaste.net/2023/09/26/the-nun-ii/>

Have you ever had a company send you a check to purchase equipment in order to work? You deposit the check into your account to pay for the equipment?

I've checked with the bbb and the company is legit. I'm not wanting to deposit a check into my account for the equipment. I don't know why they just can't send the equipment.

It's a work from home job opportunity.

NO!!!! IT'S A SCAM!!!! DON'T DO IT

it is NOT legitimate!

The check will bounce and send your account into the negative after a few days

You'll be on the hook for repaying the bank and they will close your account

This is a common scam. Don't you dare.

I didn't and this man is going back and forth with me. If I work for a company they send the equipment to me.



↑ r/Scams · Posted by u/lisa197 3 years ago

6.0k



I am engaged to a scammer

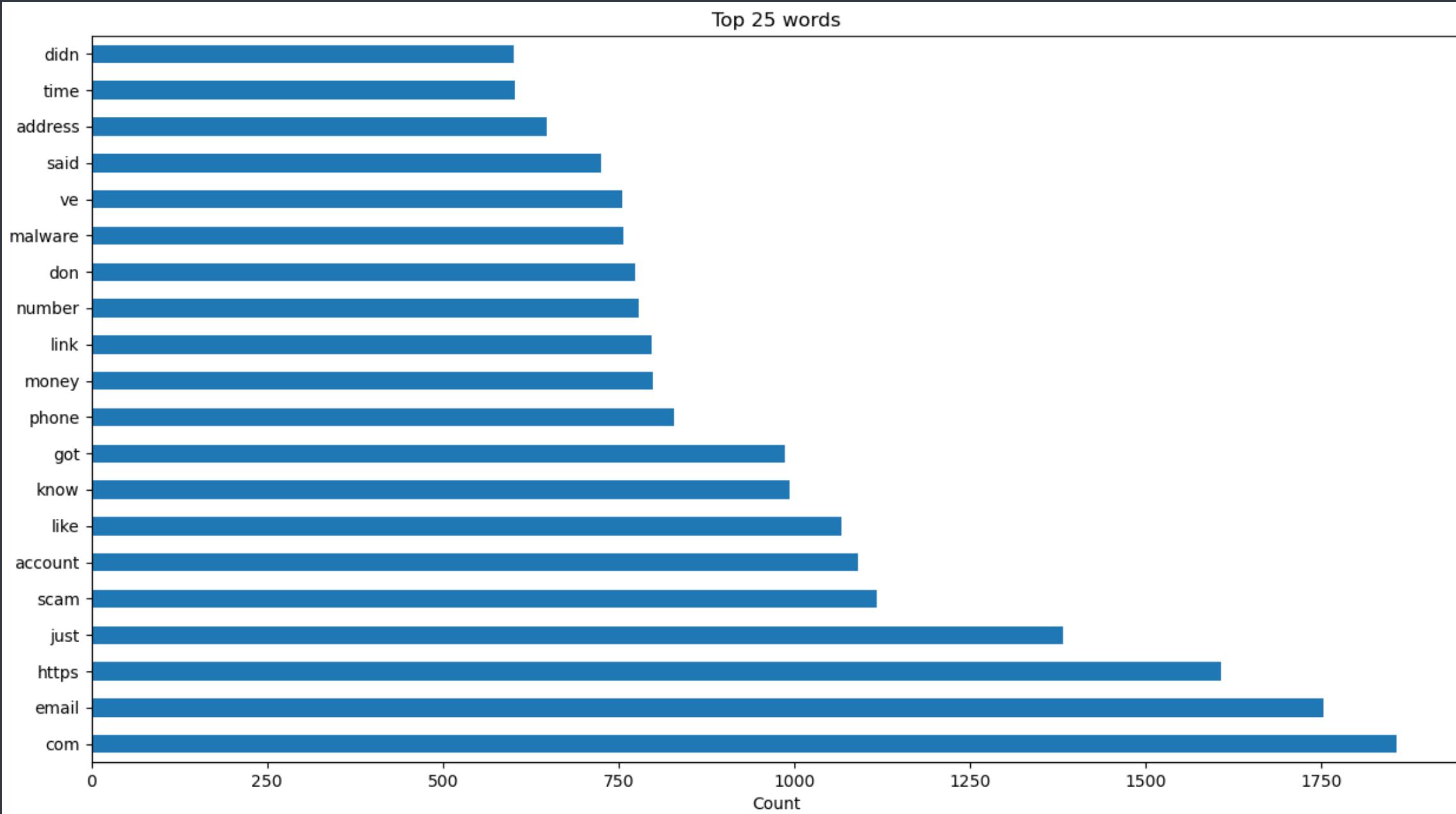
Strange guy wrote to me on Facebook. Obvious scammer profile, down to the stolen photos. I decided to have some fun with it and friended him back. He quickly "lured" me over to Google Hangouts where he told me his sob story of being a widower with a son and living a lonely life in "the south sea of Ireland." We got engaged on day 1 of chatting.

He asked me for a gift card. I sent him a photo of a used one. He asked for a replacement. I said that I tried to buy it but store security wouldn't let me. He asked for \$5200 so he can come home to the US and I said, "Sure!" He asked me to mail the money to a friend of his in Georgia. Makes perfect sense, I agreed.

He wanted a photo of the cash. I faked one. He wanted me to send the money overnight via UPS. I claimed I did. He asked for a receipt. I said they didn't give me one. He demanded I get back the envelope of money so I pretended I did. He told me to mail it again, this time via FedEx. I put a couple Pop Tarts in a padded envelope (so it would weigh a few ounces and he might believe I actually sent the cash because the receipt lists the envelope's weight) and mailed it via the post office instead of FedEx and to a different address, same zip code, as the address he gave me so that it would appear to be delivered. (The post office tracking will say delivered to the right zip code but won't specify the address.) Apologies to the very confused stranger who is about to receive an envelope with two crushed Pop Tarts in it.

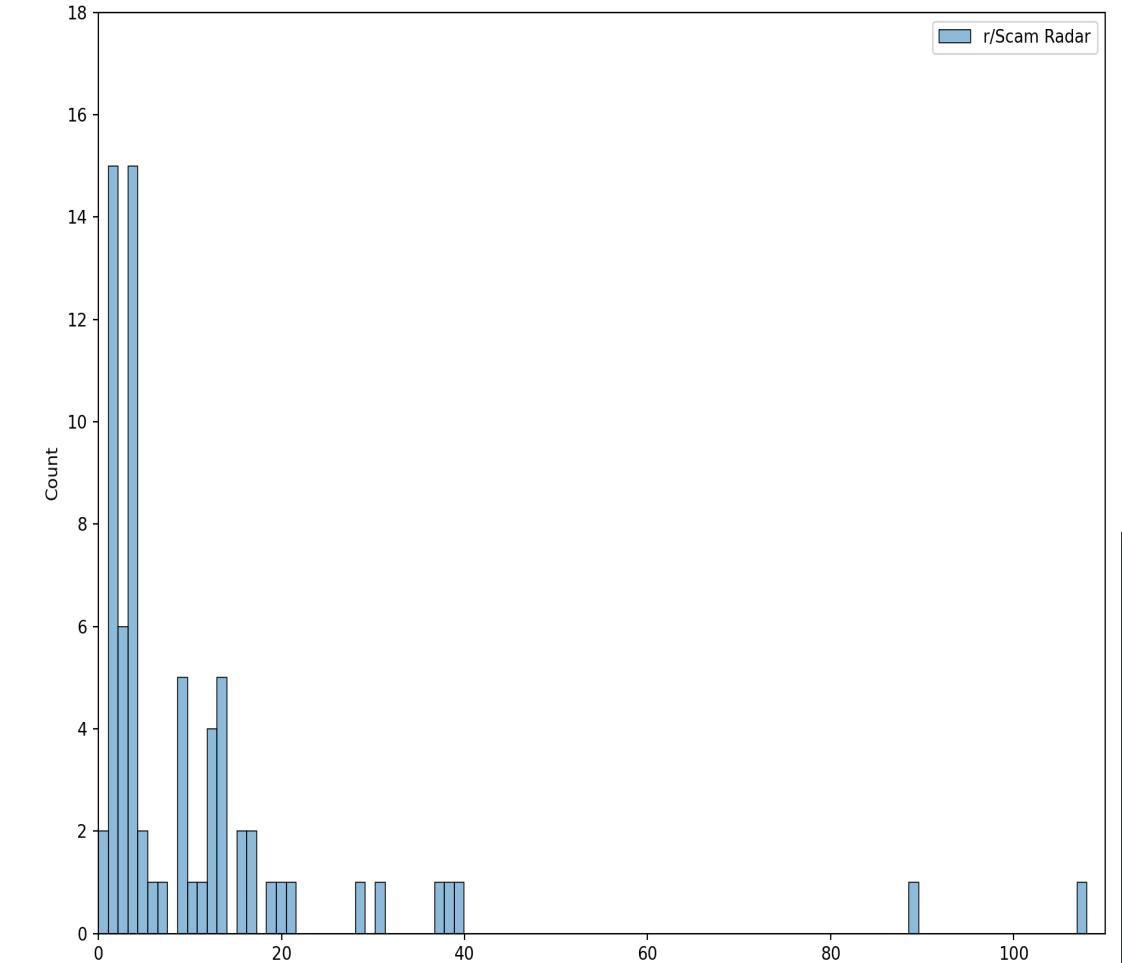
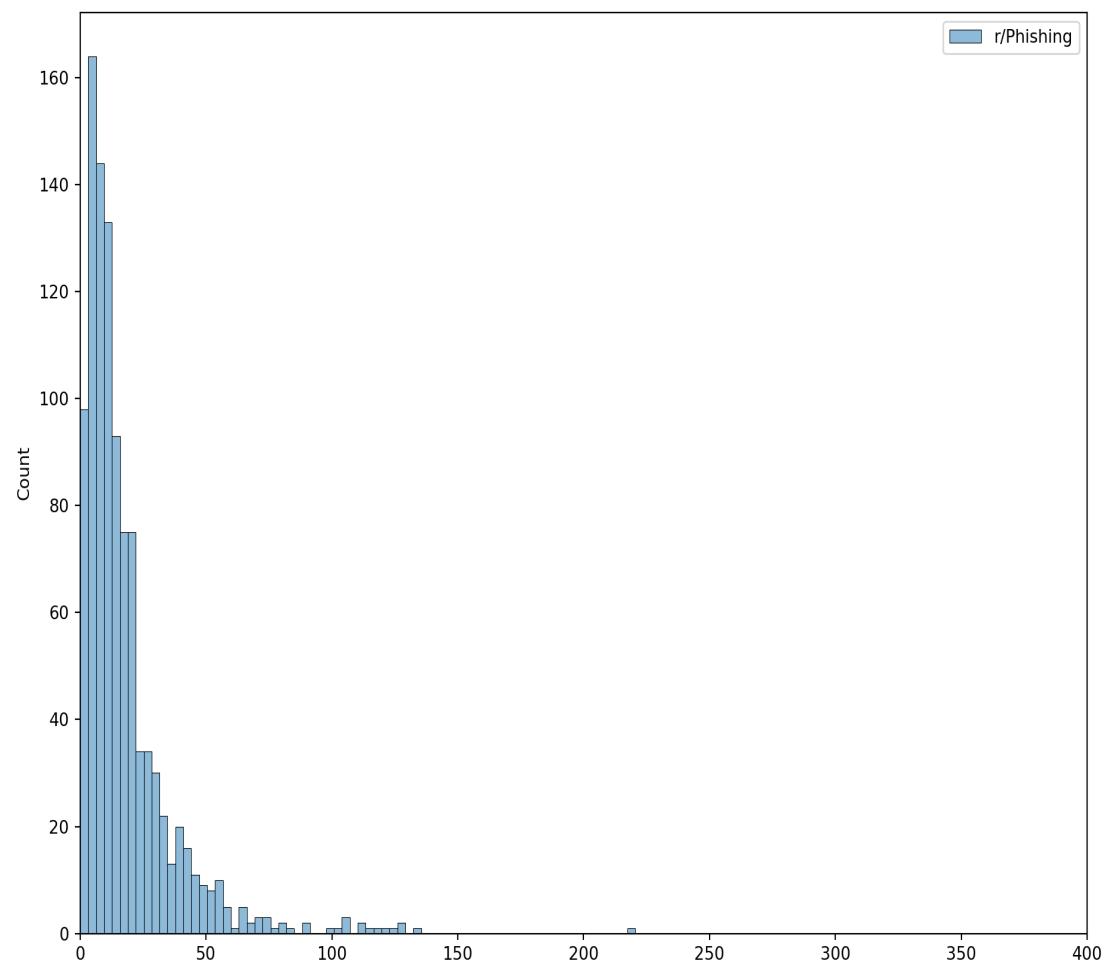
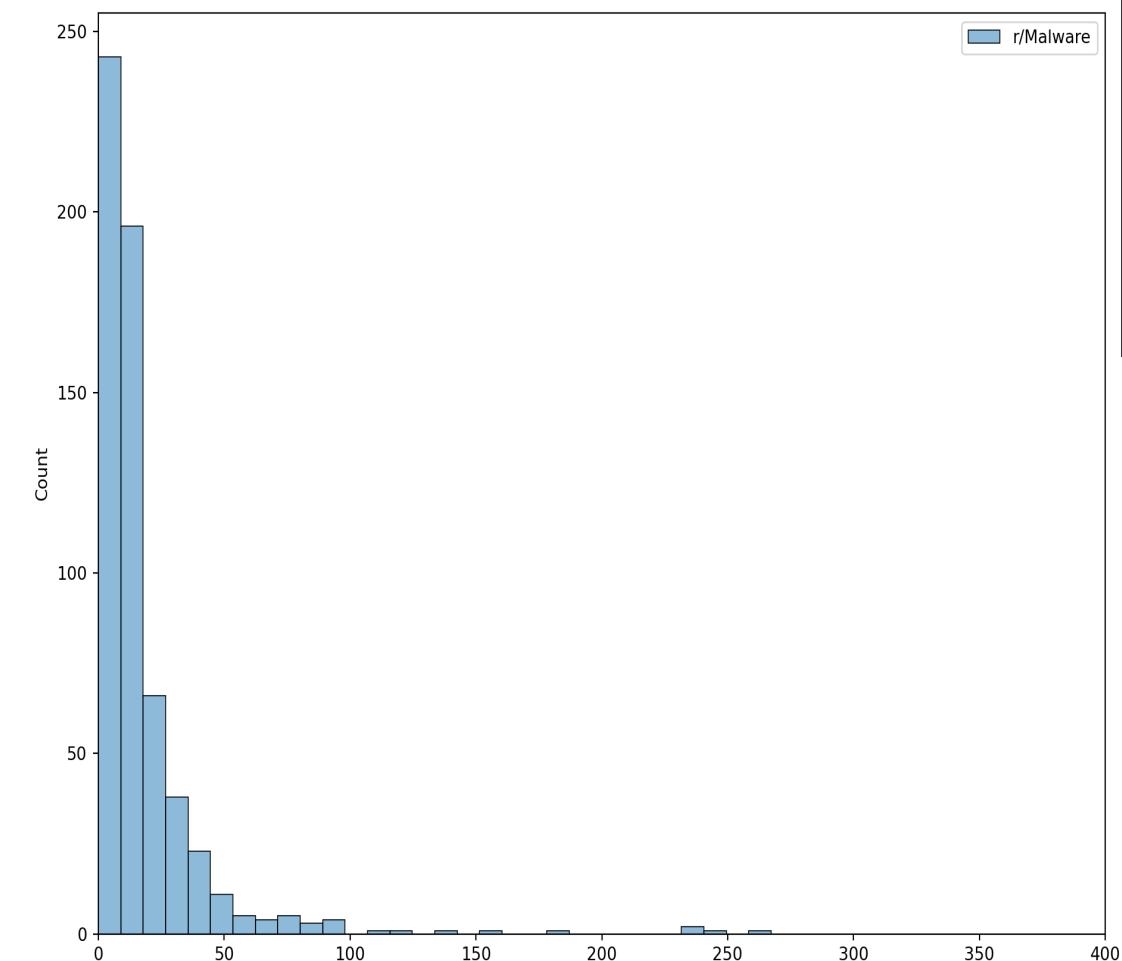
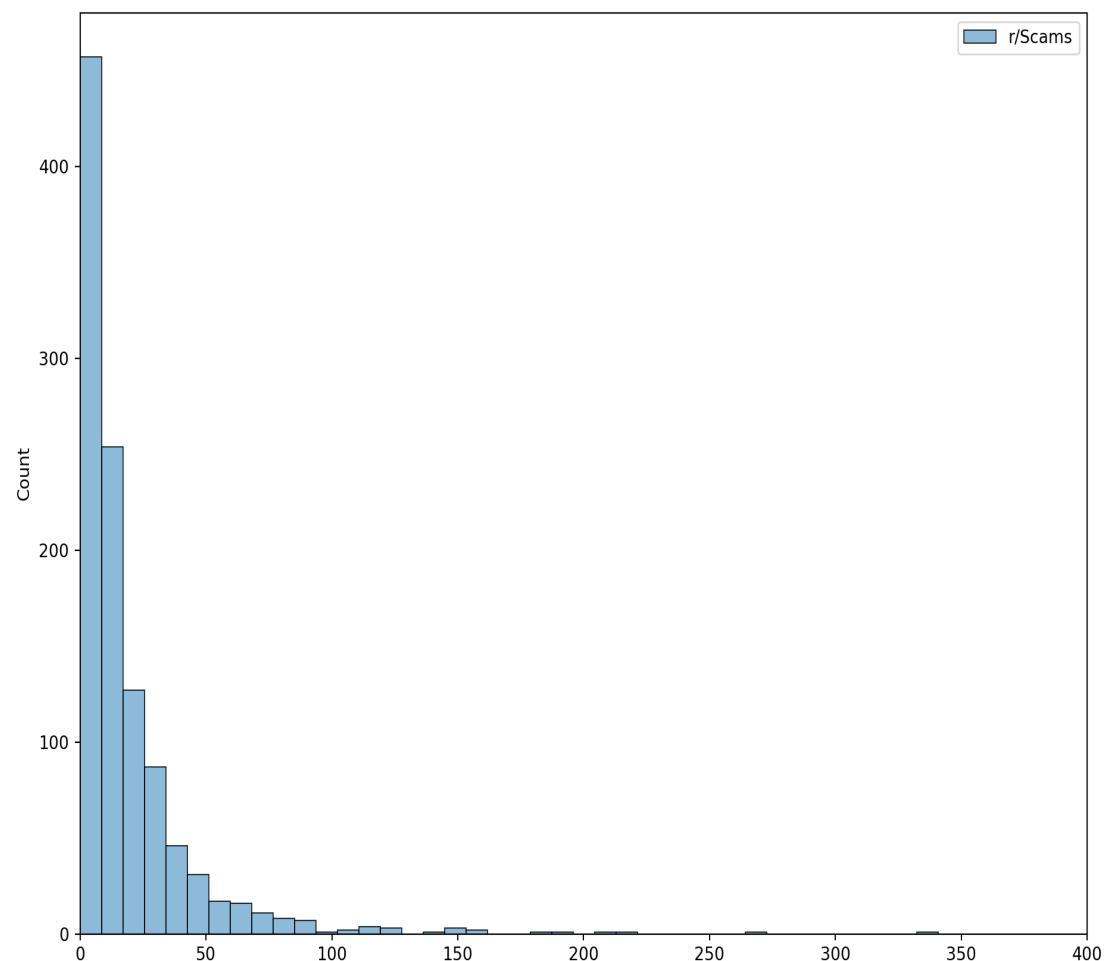
Data Analysis

- Scam most common words



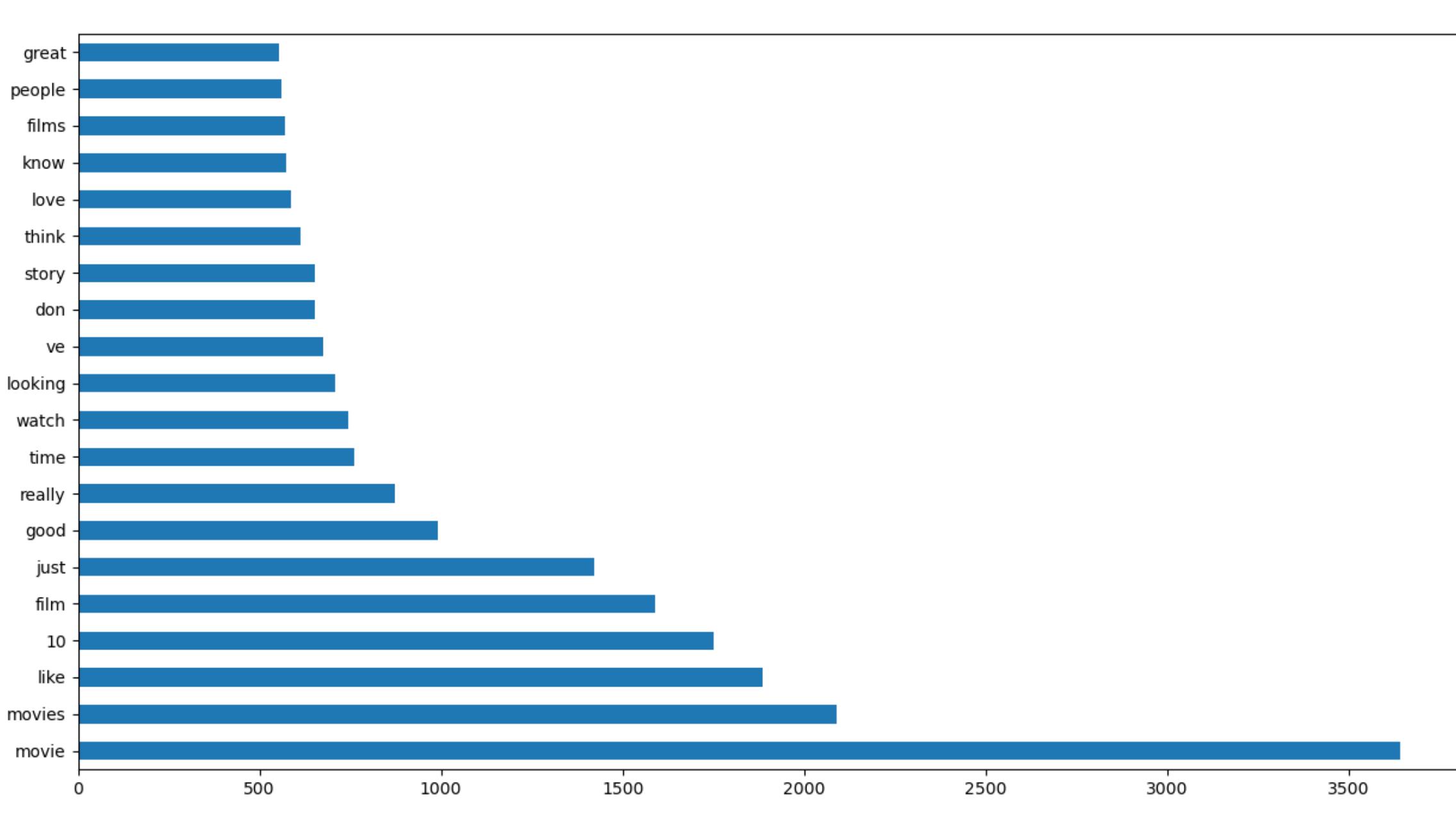
Data Analysis

- **Scam most common words**
- **Punctuation Count**



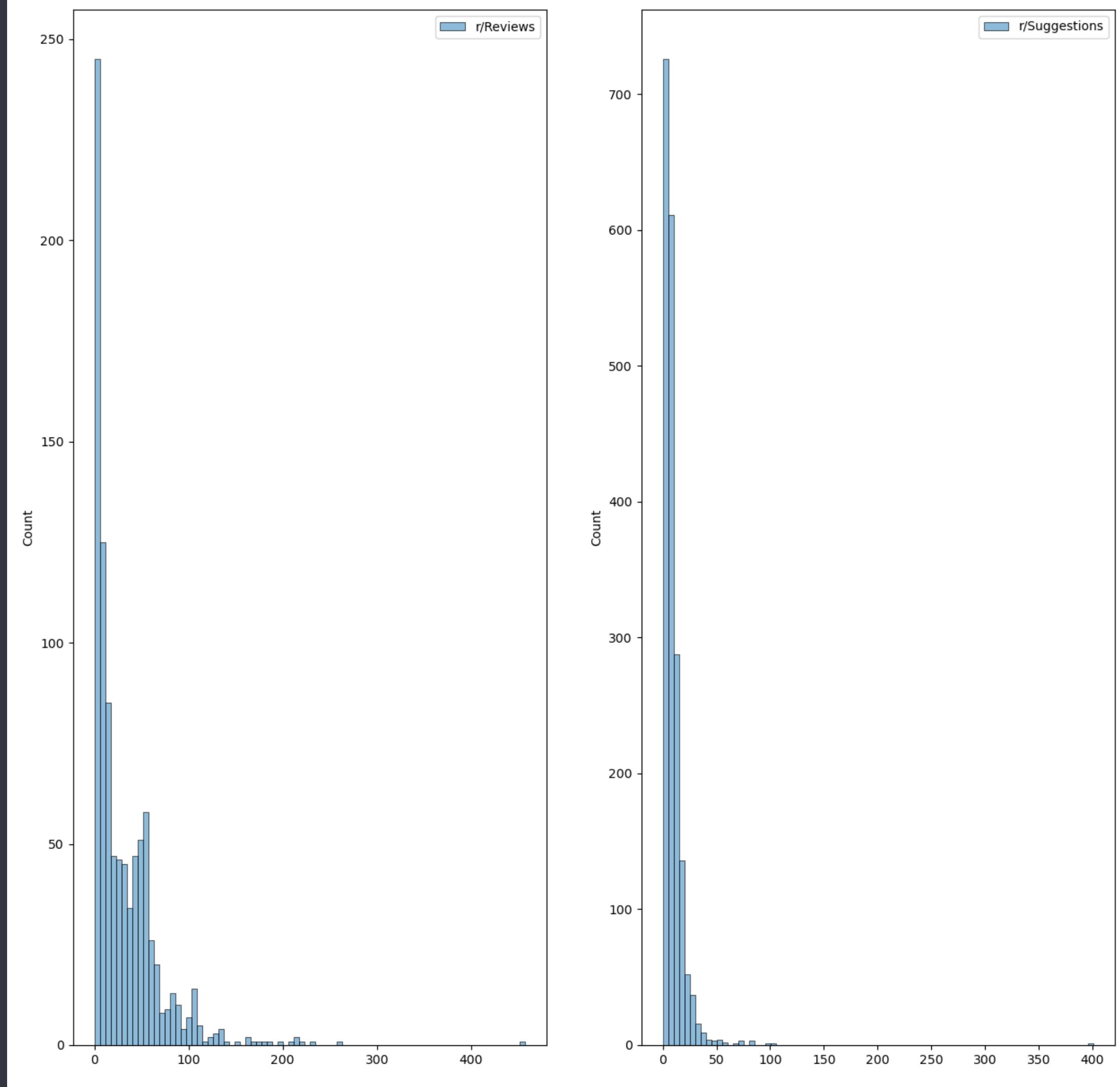
Data Analysis

- **Scam most common words**
- **Punctuation Count**
- **Movie Reviews most common words**



Data Analysis

- **Scam most common words**
- **Punctuation Count**
- **Movie Reviews most common words**
- **Punctuation Count**



Model Selection

- **Baseline spam filter mode became production model**
- **Model 1 – 176 wrong predictions**
- **Model 2 – 175 wrong predictions**
- **Model 3 – 179 wrong predictions**
- **Balance over Bias??**

Model	Predicted Spam actual Spam	Predicted not Spam Actual Spam	Predicted Spam Not Spam	Predicted Not Spam Actually Spam	Accuracy Train(%)	Accuracy Test(%)
Baseline/Production Spam filter model	743	674	2	2	99.92%	99.72%
	Predicted Malware Actually Malware	Predicted Phishing actually Phishing	Predicted Malware not Malware	Predicted Phishing not Phishing		
Baseline Phishing or Malware	201	314	105	80	99.87%	73.57%
Model 1 – Logistic Regression	159	380	138	38	76.83%	75.38%
Model 2 – Multinomial	170	370	127	48	82.76%	75.52%
Model 3 - Bagging	196	331	101	87	91.05%	73.71%
Model 4 – Random Forest	203	333	94	85	94.45%	74.97%
Model 5 – Random Forest with number of character, words and punctuation	26	376	271	42	70.96%	56.22%

Conclusion & Recommendations

- **Baseline became Production model due to clear difference between data**
- **Understanding the importance for the client of balance between bias**
- **Similarity between Phishing and Malware**
- **348 Wrongly predicted out 2860 posts**
- **Overall Accuracy of 87.83%**



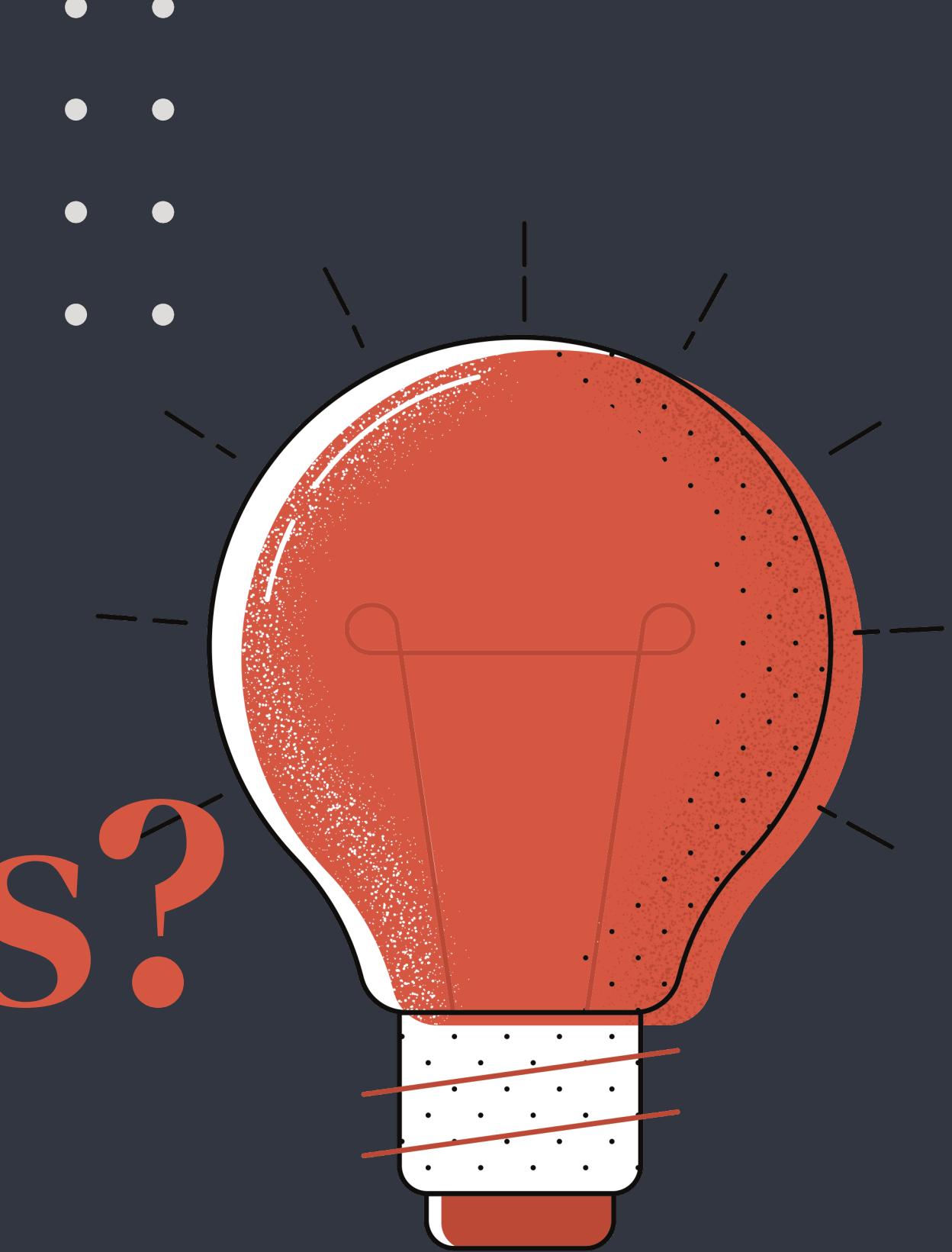
- **Model 1 improvement by either adjusting the Logistic Regression parameters or trying other model methods, like Random Forest**
- **Model 2 improvement by introducing email or text or etc data that is directly from scammers and see how the model reacts.**
- **Introduce Multi-Classification**



Thank You Any Questions?

Citations:

- <https://www.ncsc.gov.uk/collection/phishing-scams>
- <https://www.freewordcloudgenerator.com/>
- <https://www.youtube.com/@ScammerPayback>
- <https://www.cleanpng.com/png-reddit-logo-computer-icons-reddit-alien-2964109/>
- https://www.heraldsun.com.au/subscribe/news/1/?sourceCode=HSWEB_WRE170_a_GGL&dest=https%3A%2F%2Fwww.heraldsun.com.au%2Fleader%2Faustralians-lost-a-record-31.bn-to-different-scams-in-2022%2Fnews-story%2F36c32d4707b4454d0e3b630827f35962&memtype=anonymous&mode=premium&v21=GROUPA-Segment-1-NOSCORE
- https://www.pikpng.com/pngvi/iJTJmTT_scam-logo-transparent-clipart/



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