Classifying r/History and r/AlternativeHistory posts

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Introduction

- I’m interested in classifying social media posts as “legit” or “fake”.
- I decided to scrape and classify r/History and r/AlternativeHistory posts.

Challenges and opportunities

- Different subreddits may have different submission schemes.
- Even if two subreddits' submissions have the same feature, that column's values can vary a lot.

```
print(history["removal_reason"].unique())
print(alternative_history["removal_reason"].unique())
```

```
[nan]
[nan 'legal']
```

One approach

- Homogenize the features for both types of posts.
- Use as many reasonable features as possible to make good predictions.
- Mix both categories of posts into a dataset and chuck it into a model.

Decisions

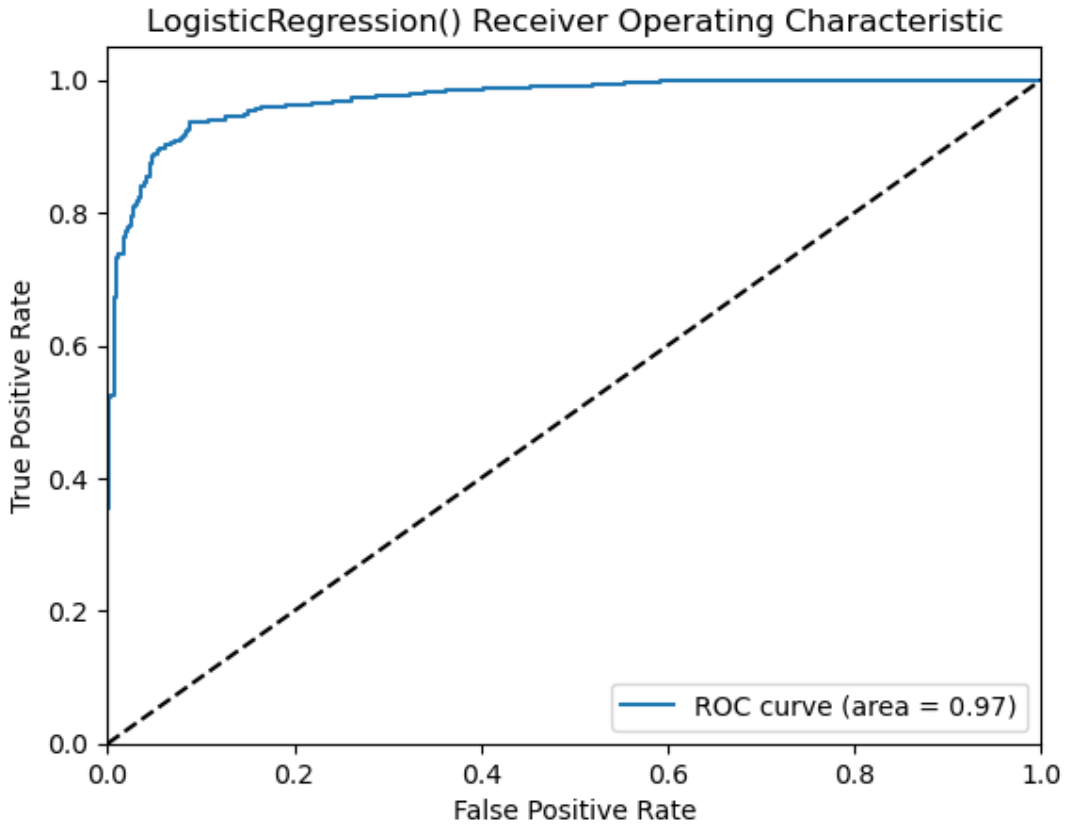
Chosen features

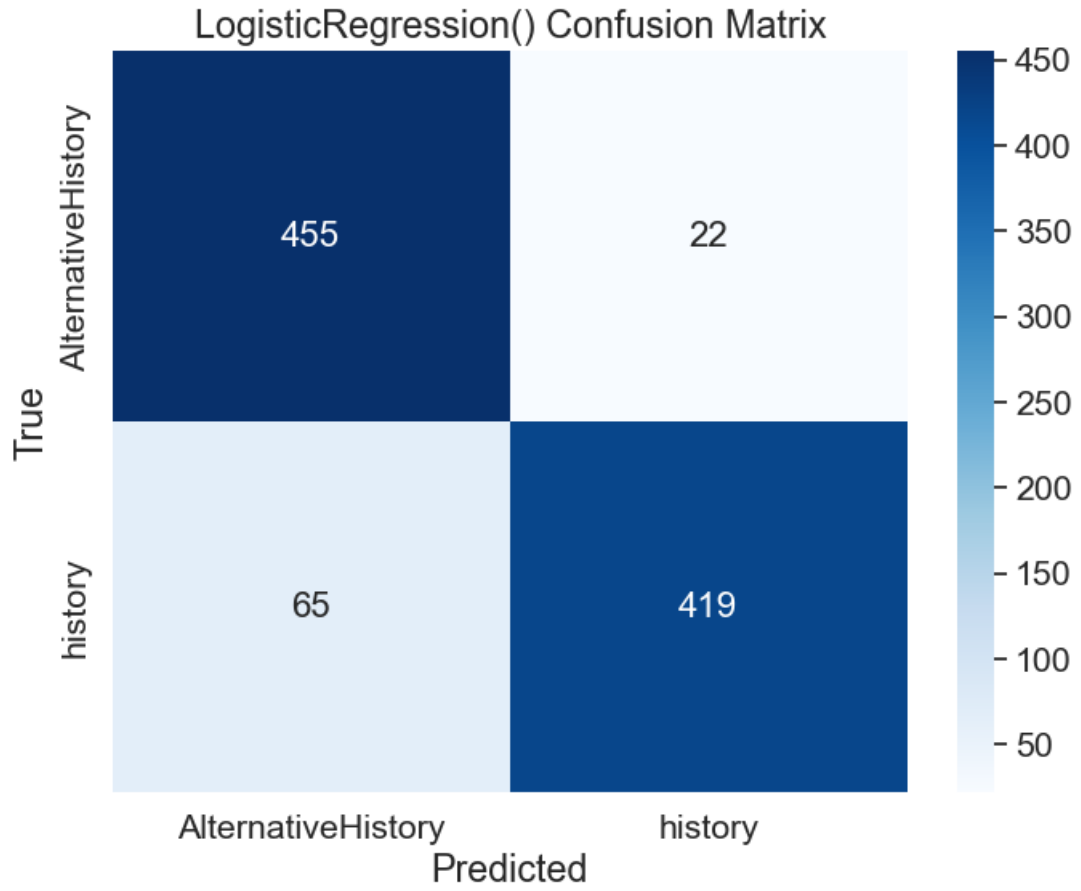
```
columns_to_keep = [
    "subreddit",
    "selftext",
    "gilded",
    "title",
    "thumbnail_height",
    "upvote_ratio",
    "score",
    "edited",
    "is_self",
    "created",
    "domain",
    "allow_live_comments",
    "no_follow",
    "locked",
    "author",
    "num_comments",
    "send_replies",
    "num_crossposts"
]
```

Chosen tools

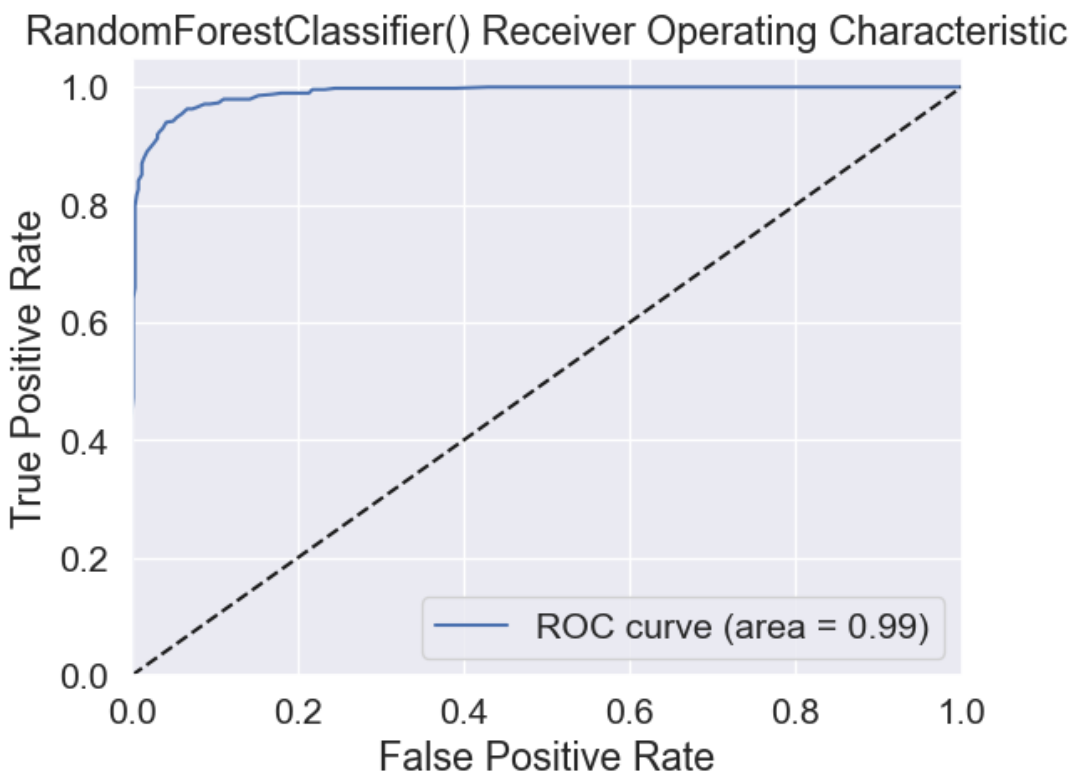
- LogisticRegression().
- RandomForestClassifier().
- Both vanilla because gridsearch was taking a long time.
- TfidfVectorizer, because we want each token to have a weight.

Logistic model

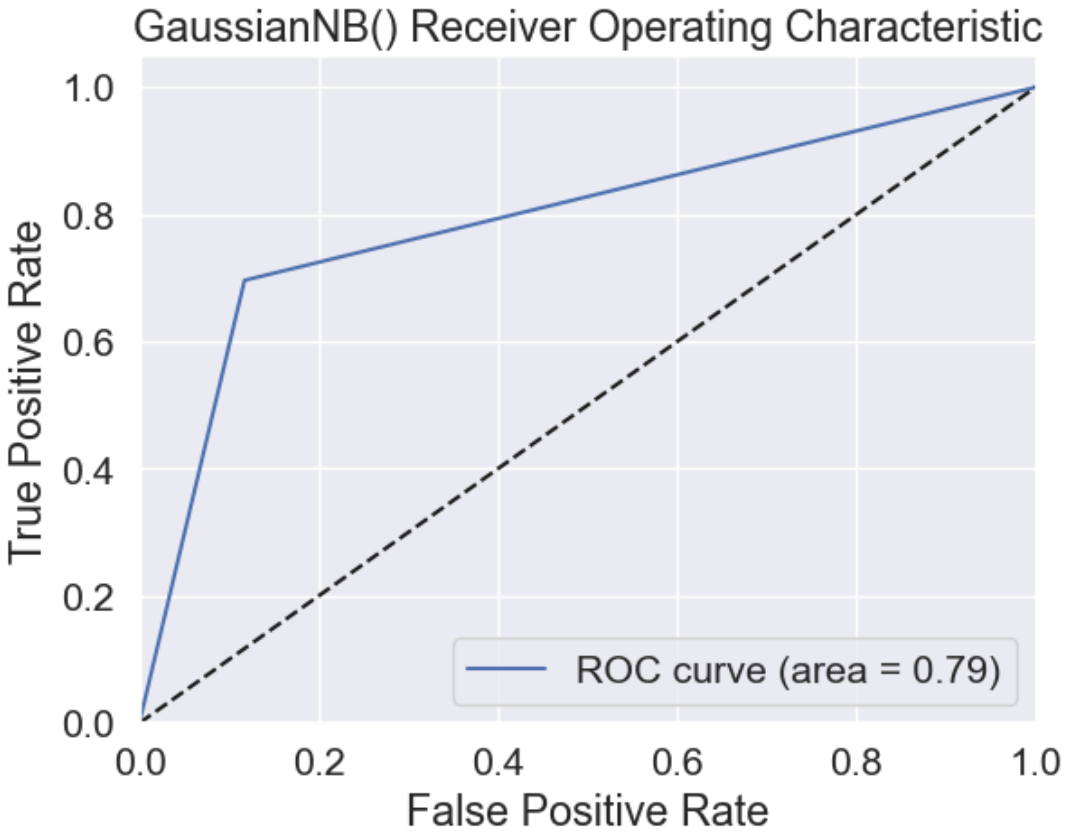


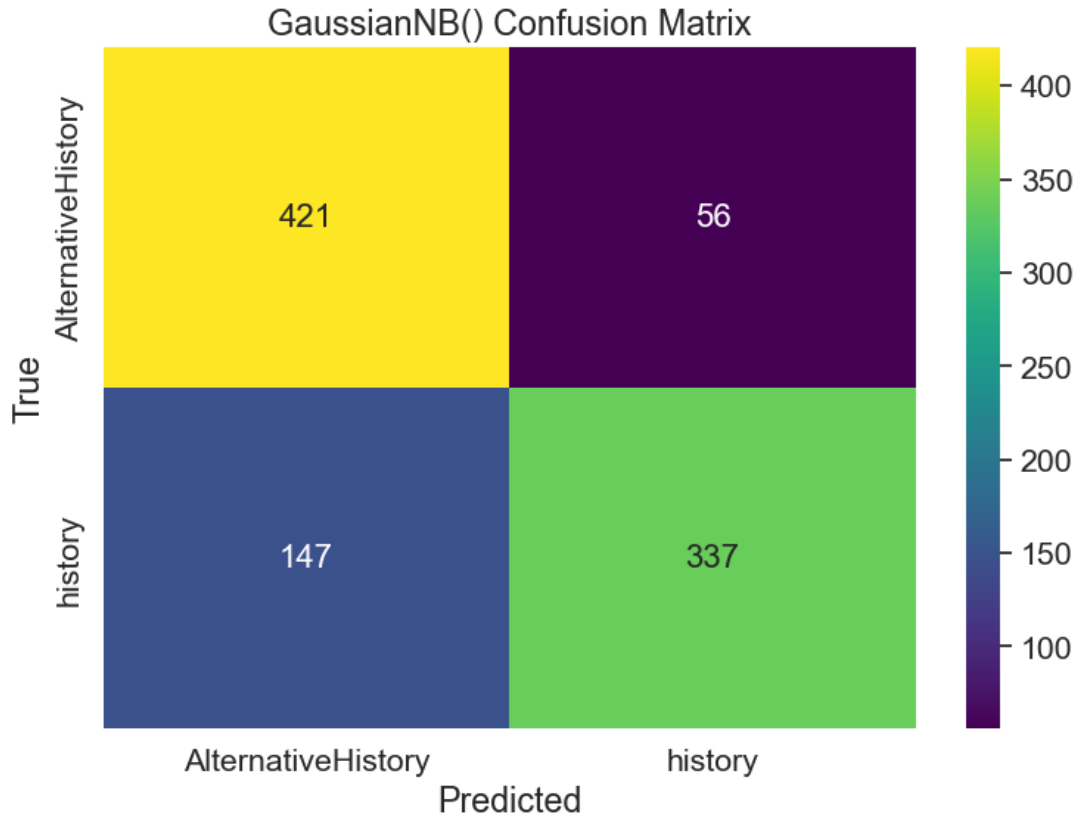


Random forest classifier model

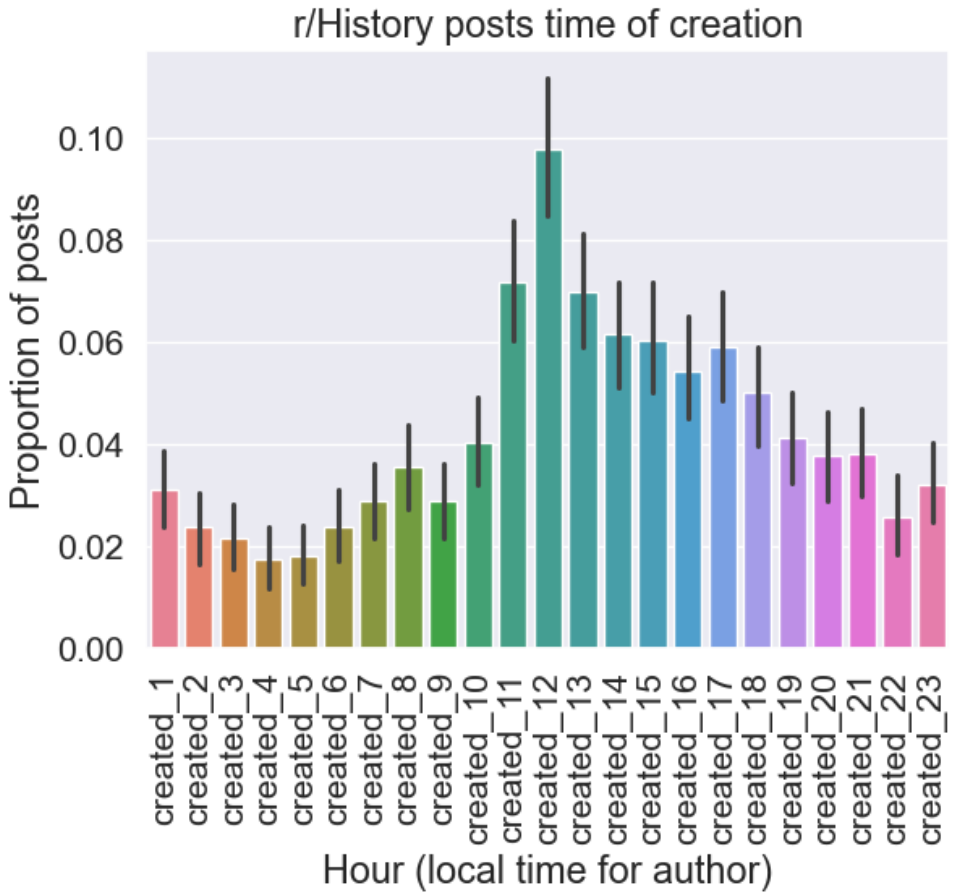


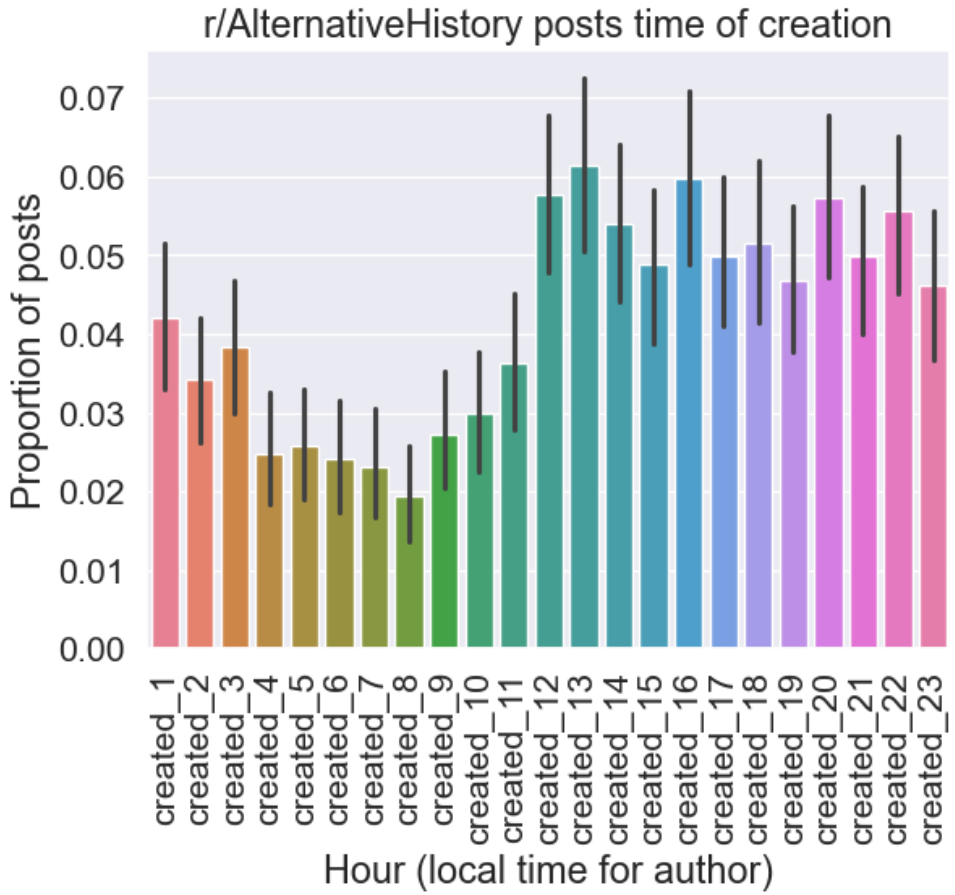
Naïve bayes model



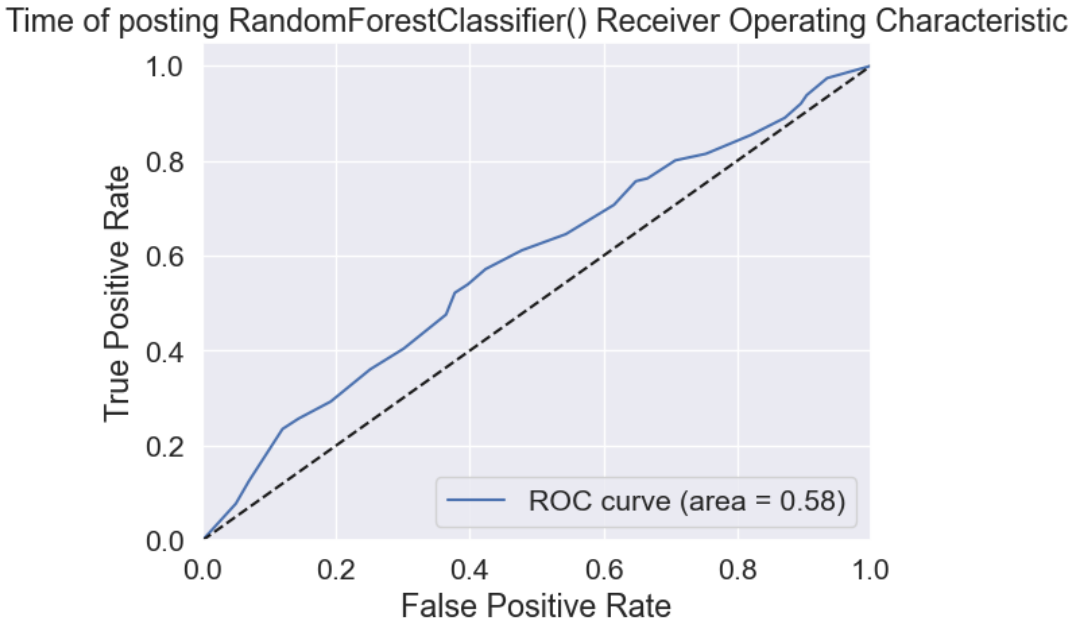


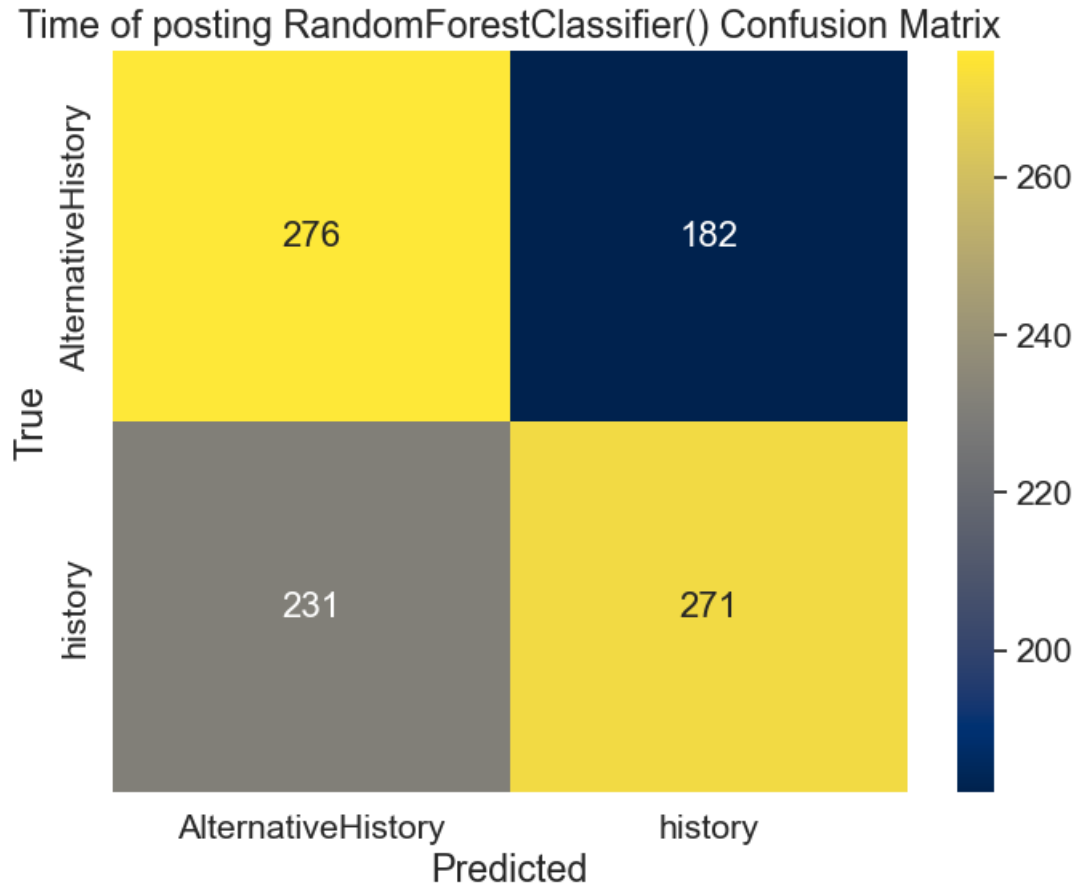
Interesting: Time of posting





Interesting: Time of posting as predictor





Conclusion

- Vanilla classifiers are surprisingly good at classifying posts from closely related topics.
  - Logistic regressor: ~0.95 train, ~0.90 test.
  - Random forest classifier: 1.0 train, ~0.95 test.
- Posts are more than text. Other features, like the number of crossposts (how many times a post was featured in other unique subreddits) proved to be helpful.
- Interesting: The time of posting achieved ~0.56 accuracy in a random forest classifier model.