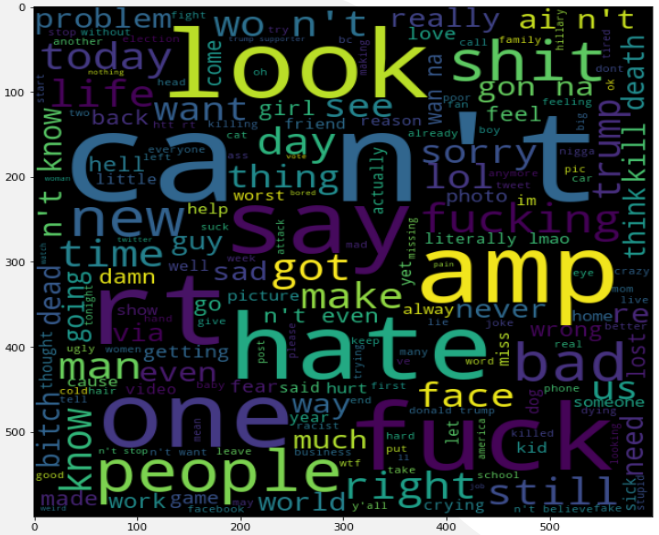
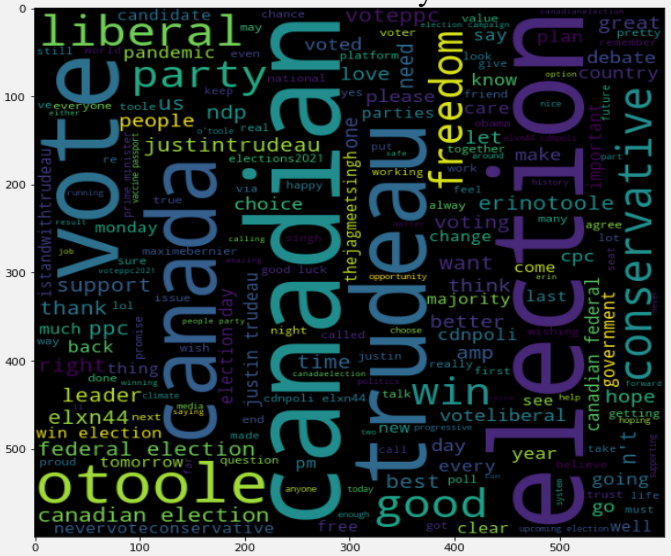
Key Finding 1: Exploratory Analysis

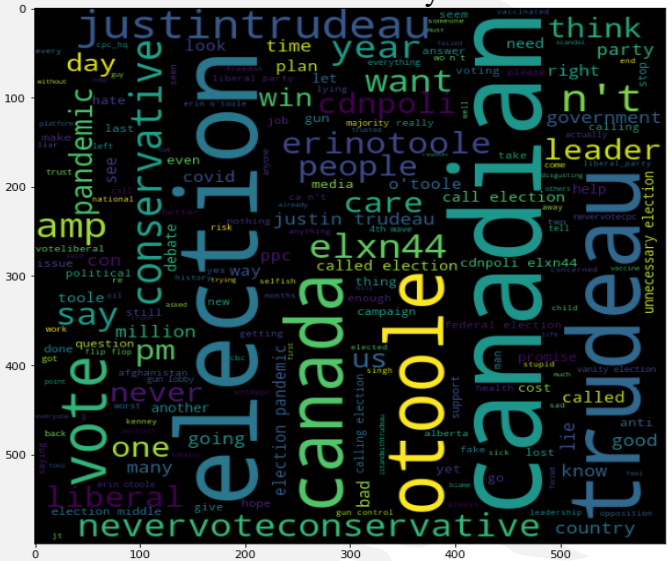
word cloud for the positive sentiment in sentiment analysis



word cloud for the negative sentiment in sentiment analysis



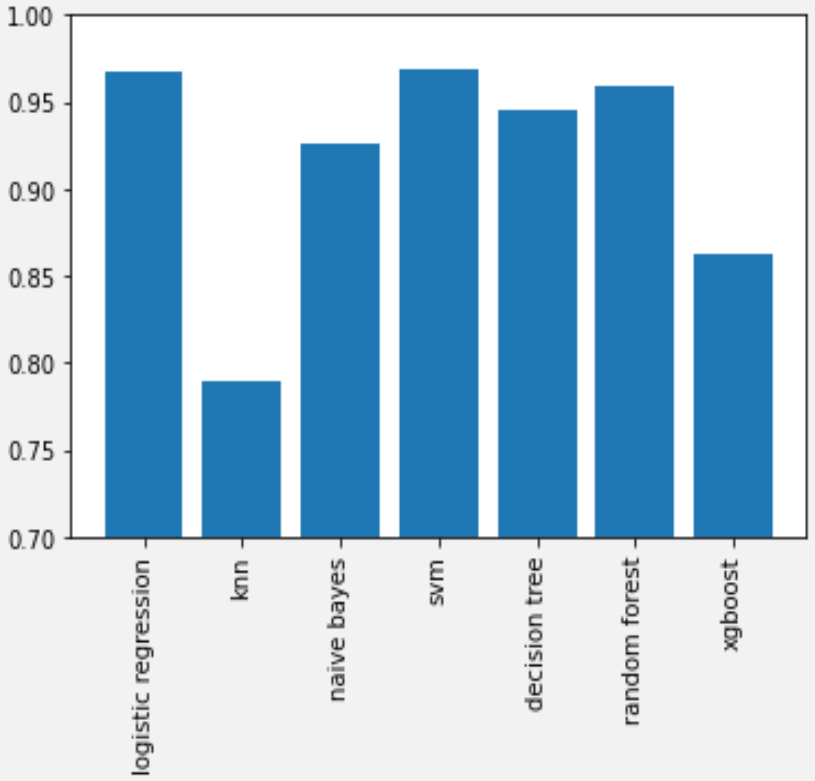
word cloud for the positive sentiment in Canadian elections 2021



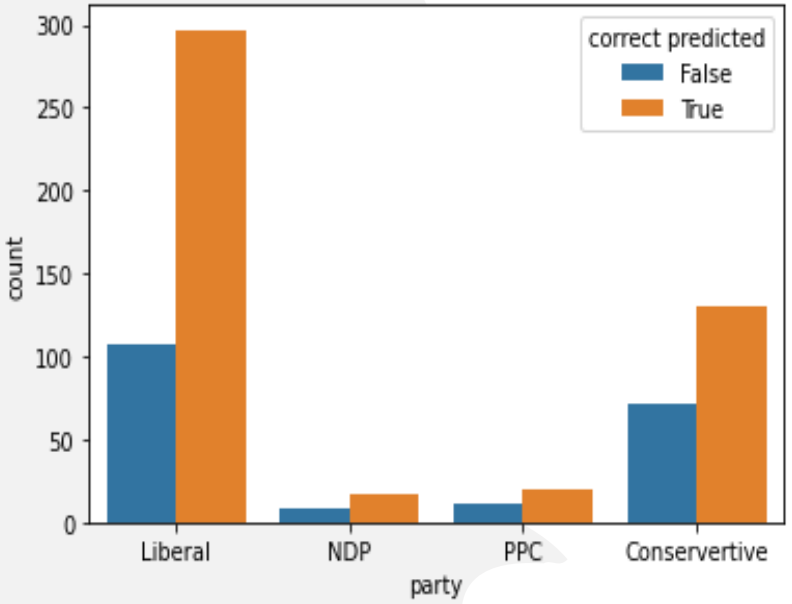
word cloud for the negative sentiment in Canadian elections 2021

- **Giant gaps** between positive and negative words used for the two datasets
- Possible problem: the most **emotional** words in the Canadian elections 2021 may **rarely show** in the training dataset, and vice versa
- Positive and negative words **overlap** a lot for the Canadian elections 2021, meaning that they are neutral and frequently used in election-related tweets

Key Finding 2: Model Results



accuracy values on the seven machine learning models



correctness of sentiment predictions for each of the 4 party

- Machine learning models:
  - Best performances: SVM
  - Worst performance: K-NN
- Deep learning model (**best**):
  - Best performance: epochs = 4, batch size = 1024
  - Accuracy: 0.724 on Canadian elections 2021, **efficient** to forecast election result
- Predictions on 4 parties:
  - **More correct predictions** than incorrect ones
  - **Similar ratios** of correct predictions
- NLP analytics is **helpful** since it can recognize **voters' attitudes** to different parties.