Worksheet for lab 5

Haoyou Liu

1. **After running the cp command, what file(s) are now in your home directory? There should be at least two: a ".sh" file, and a ".py" file.**

   spark-run.sh and ngram-job.py

2. **What is the name of the last file in the listing for HFS folder /var/si618w17?**

   yelp_academic_dataset_review_updated.json

3. **What year was Einstein first mentioned (as a noun) in Google Books data?**

   1921

4. **After the Spark job completes, what are the first three files listed in your Hadoop File System output directory ./output?**

   part-00000, part-00001, part-00002

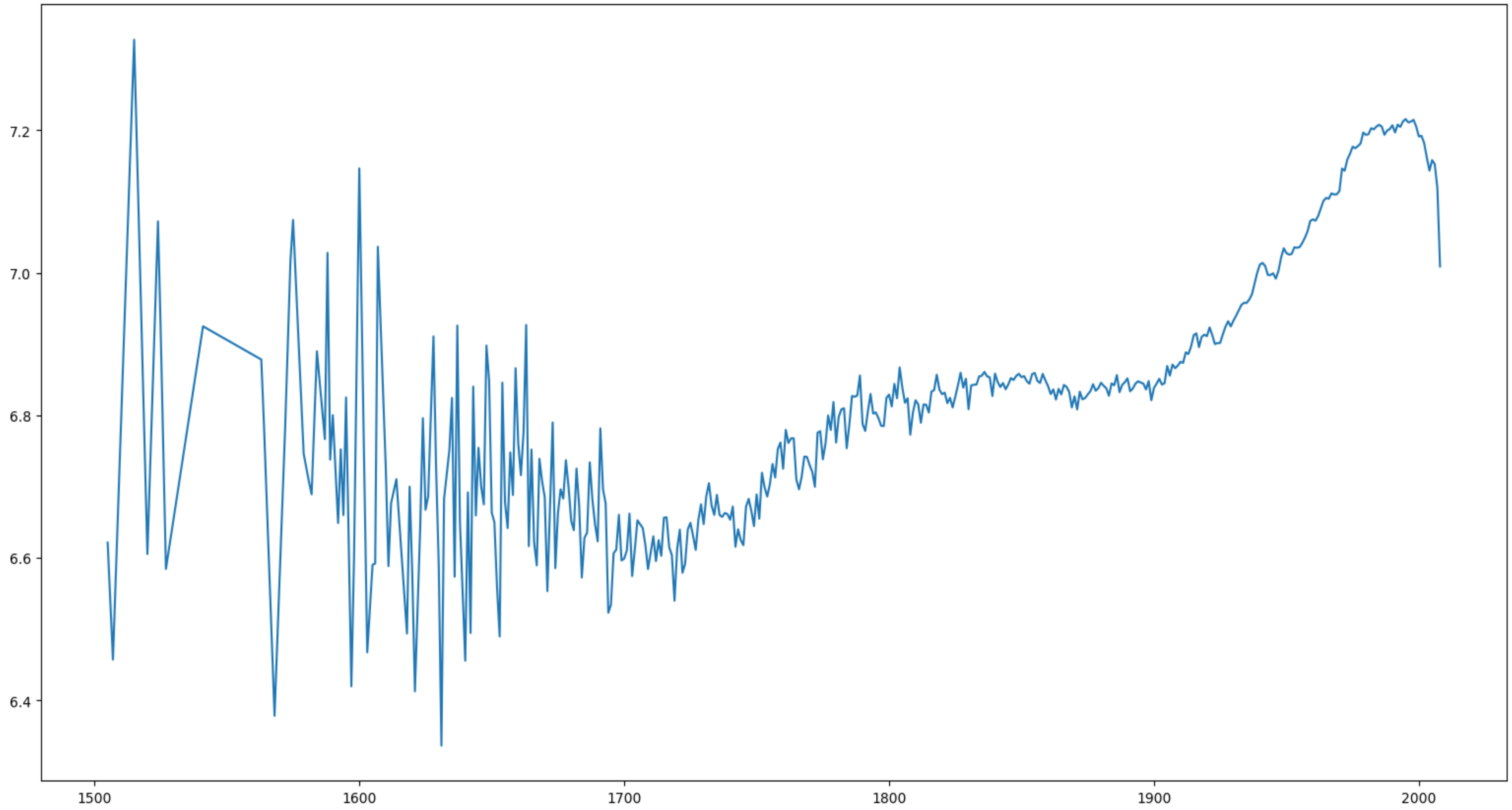
5. **What were the average word lengths observed in books from the years 1563, 1572, and 1575?**

   (1563, 6.87824526311463),

   (1572, 6.781863482544008),

   (1575, 7.074171357961625)

6. Bonus Challenge



Source code:

```
import matplotlib.pyplot as plt

with open (’ngrams-output.txt’, ’r’) as f:
    dict = {}
    for line in f:
        line = line.strip().replace(’(’, ’’).replace(’)’,
’’).replace(’ ’, ’’).split(’,’)
        dict[line[0]] = line[1]

    tup = sorted(dict.items(), key= lambda x:x)
    year, word_len = zip(*tup)

    plt.plot(year, word_len)
    plt.show()
```