



Data Wrangling

Introduction to Data Science Algorithms
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First Steps: Get Data

- From FEC
- Odd formatting

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- Today: pure Python (easier with Pandas), will help expose level of Python you'll need

Look at file ...

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- Periods instead of commas (vice versa)
- Odd New York parties
- Semi-colon delimiters
- Includes totals

How many votes were cast?

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Total votes 129085410

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```
total_votes = sum(int(x["TOTAL VOTES #"].replace(".", ""))
  for x in votes if x["TOTAL VOTES #"])
```

What state had the largest numerical margin between first and second place?

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Largest numerical margin 3014327 in California

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```
margins = \{\}
for ss in set(x["STATE"] for x in votes):
   margins[ss] = winner(votes, ss)[1] - second(votes, ss)[1]
num_margin = argmax(margins)
print("Largest numerical margin %i in %s" %
     (max(margins.values()), num_margin))
```

What state had the largest percentage margin between first and second place?

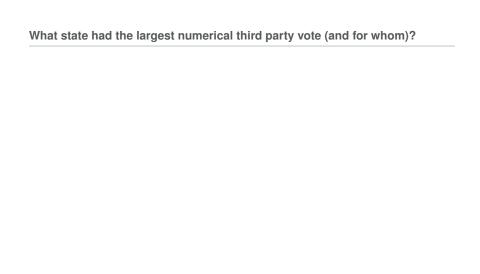
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```
margins = \{\}
for ss in set(x["STATE"] for x in votes
             if x["STATE"] != "District of Columbia"):
   margins[ss] = winner(votes, ss)[2] - \
      second(votes, ss)[2]
num_margin = argmax(margins)
print("Largest percentage margin %f in %s" %
     (max(margins.values()), num margin))
```



What state had the largest numerical third party vote (and for whom)?

Johnson had largest third party vote in California with 143221

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```
all third vote = {}
top third vote = {}
for ss in set(x["STATE"] for x in votes):
    trv:
        all third vote[ss] = \
          dict((x["LAST NAME"],
                parseint(x["GENERAL RESULTS"]))
               for x in votes
               if x["STATE"] == ss
                 and x["LAST NAME"] not in kMAJOR
                 and x["LAST NAME"])
    except ValueError:
        all third vote[ss] = {}
    if all_third_vote[ss]:
        top third vote[ss] = max(all third vote[ss].val
```

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Johnson had largest third party percent in New Mexico with 3.55

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