Lecture 10: Temporary Files; Comma Separated Values (CSV) Format

Temporary Files

- `tempfile.TemporaryFile` takes several optional arguments.
  - `mode='w+b'`
  - `buffering=None`
  - `encoding=None`
  - `newline=None`
  - `suffix=''`
  - `prefix='tmp'`
  - `dir=None`
- temporary files are not guaranteed to exist on the disk; closing temporary files deletes them
- `tempfile.NamedTemporaryFile` creation of file is guaranteed to exist

CSV Reader

Here is example CSV data representing financial information from Apple Computer. This data might appear in a file called `aapl.csv`.

```
Date,Open,High,Low,Close,Volume,Adj Close
2009-12-31,213.13,213.35,210.56,210.73,88102700,28.40
2009-12-30,208.83,212.00,208.31,211.64,103021100,28.52
2009-12-29,212.63,212.72,208.73,209.10,111301400,28.18
2009-12-28,211.72,213.95,209.61,211.61,161141400,28.51
```

```
1 reader = csv.reader(aapl.csv)
```

CSV Writer

```
[['Williams', 'Ephs', 'Purple Cows'],
 ['Amherst', 'Lord Jefs', 'Lord Jeffrey Amherst'],
 ['Middlebury', 'Panthers', 'Panther']]
```

To write this to the file called `nescac.csv` we would use the following code

```
1  import csv
2  with open('nescac.csv', 'w', newline='') as csvfile:
3      writer = csv.writer(csvfile, delimiter=',')
4      writer.writerow(['School', 'Nickname', 'Mascot'])
5      writer.writerows(data)
```

Practice Problem

Suppose you had a list of constellations and their galactic coordinates (right ascension and declination) in CSV format.

```
constellation, right ascension, declination
Sagittarius,19,-25
Taurus, 4.9, 19
Perseus, 3, 45
```

Write a function that takes a file in CSV format and returns a list of constellations. Suppose that you know one of the headers is labelled `constellation`, but not which one. Suppose further that you can easily fit all the data in memory.

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```
1  with open(file) as fp:
2    data = [row for row in csv.reader(file)]
3    col = data[0].index('constellation')
4    return [row[col] for row in data[1:]]
```