TIME SERIES ANALYSIS OF AAPL STOCK

Leon Zhu

UCLA Stats 418 – Tools in Data Science

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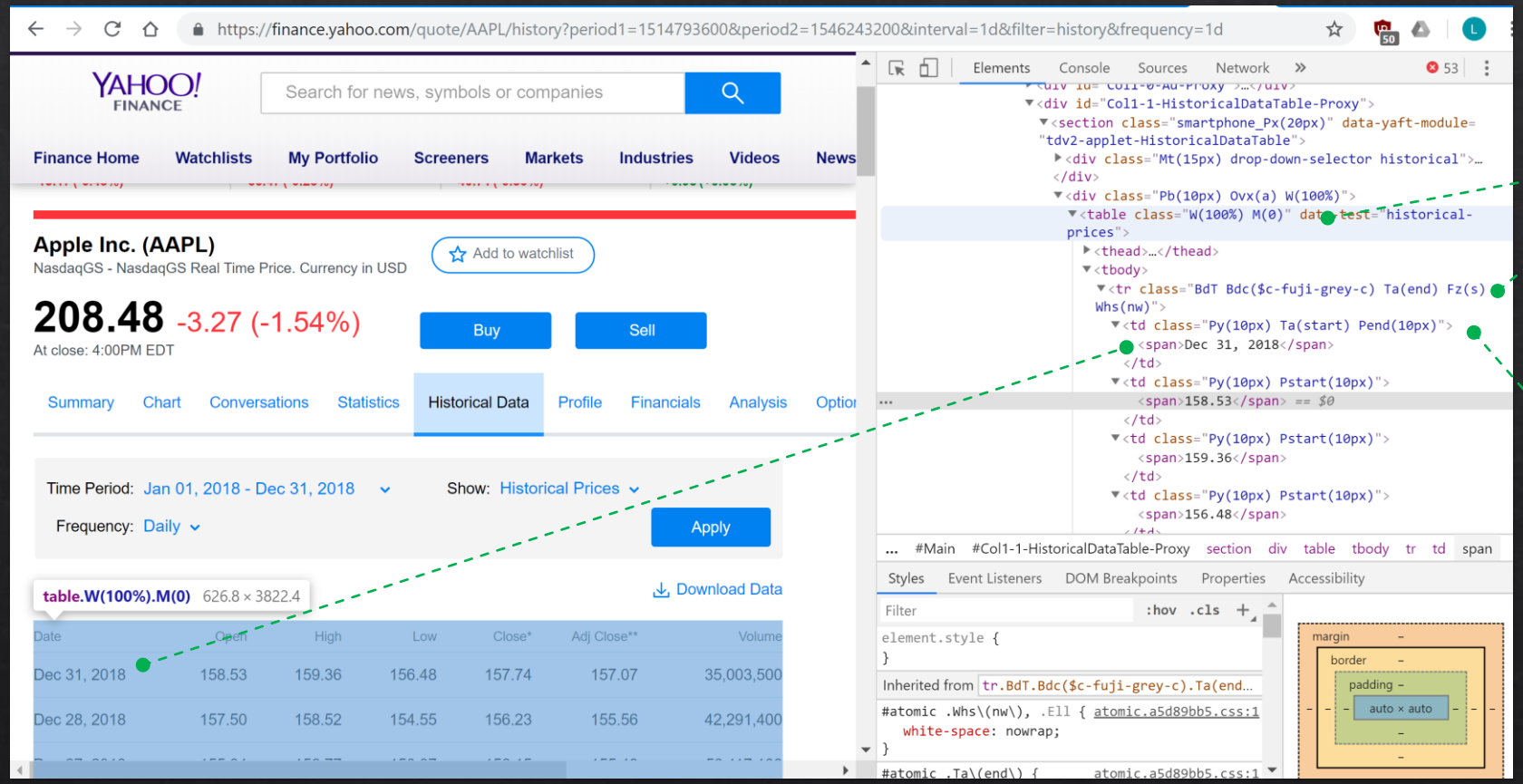
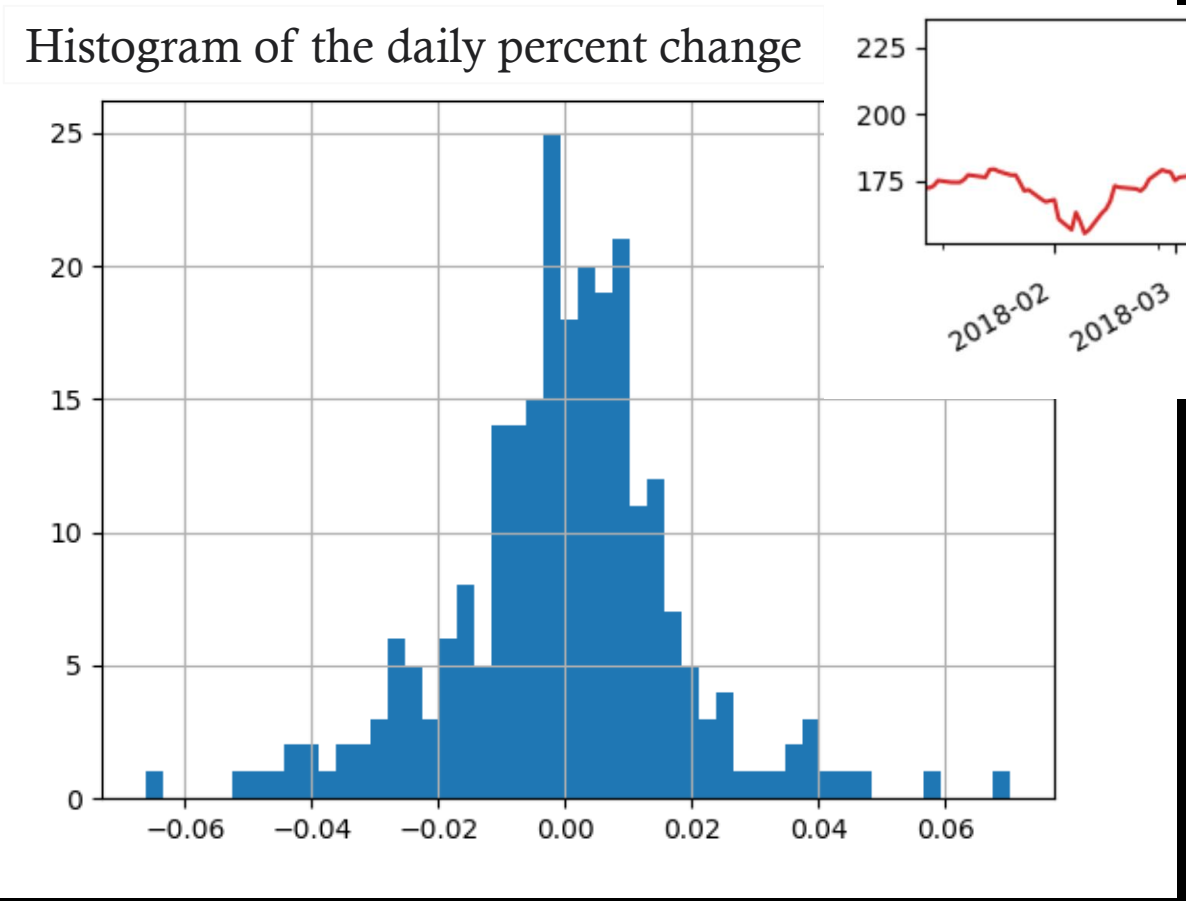
UCLA Department of Statistics

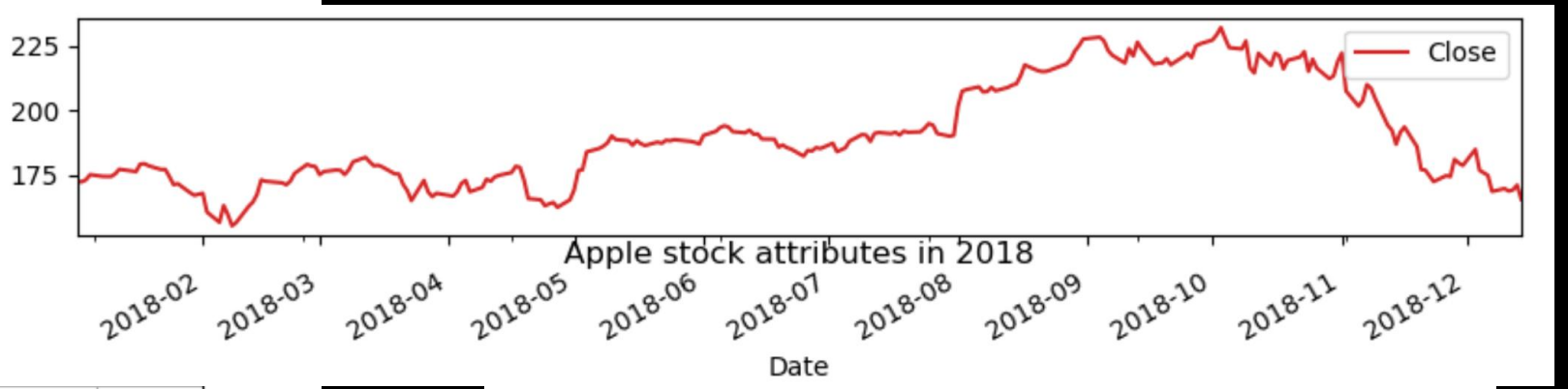
Attaining the dataset – Web Scrap

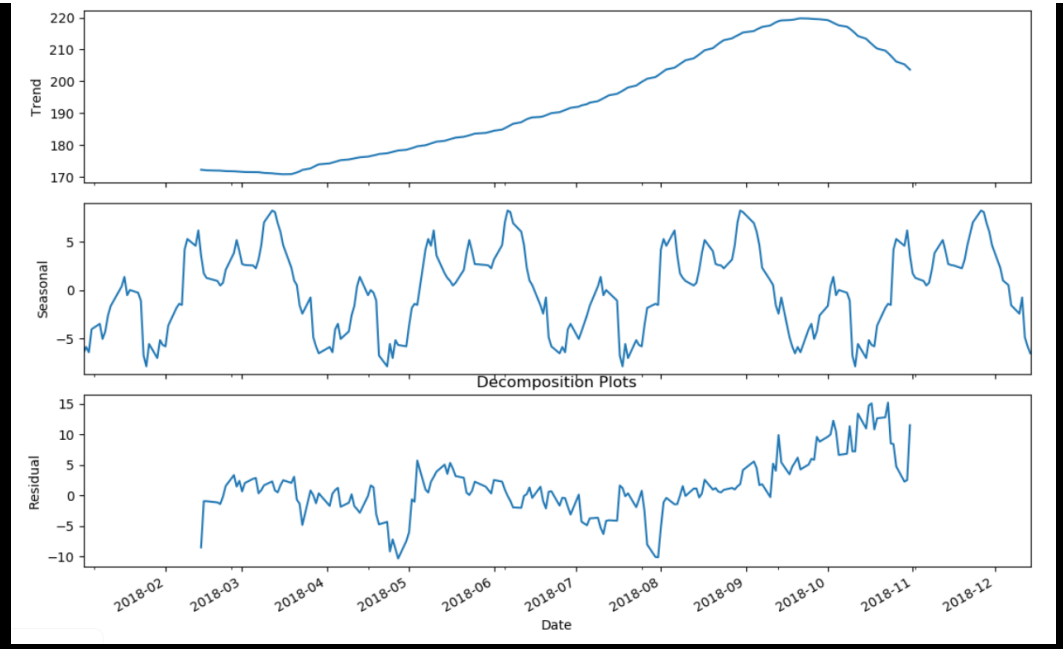



```
def web_scrap_data(url):
    web_raw = requests.get(url).text

    web_soup = BeautifulSoup(web_raw, 'html.parser')

    web_tables = web_soup.find_all('table')
    web_trs = web_tables[0].find_all('tr')

    # Represents each row of the table
    cleaned_data = []
    # List to temporary hold each column index in a
    # So they can be appended to a proper row when f
    temp = []
    # Loop to go through every row in table
    # HTML only loads up to 102 even though there ar
    for row in range(1, len(web_trs)):
        temp = []  # Clear the temp row after each i
        web_tds = web_trs[row].find_all('td')

        # Because dividend is displayed as an entire
        if len(web_tds) == 7:
            # should go from 0 to 6 (7 columns)
            for row2 in range(0, len(web_tds)):
                temp.append(web_tds[row2].text)
            cleaned_data.append(temp)

    data df = pd.DataFrame(cleaned data)
```

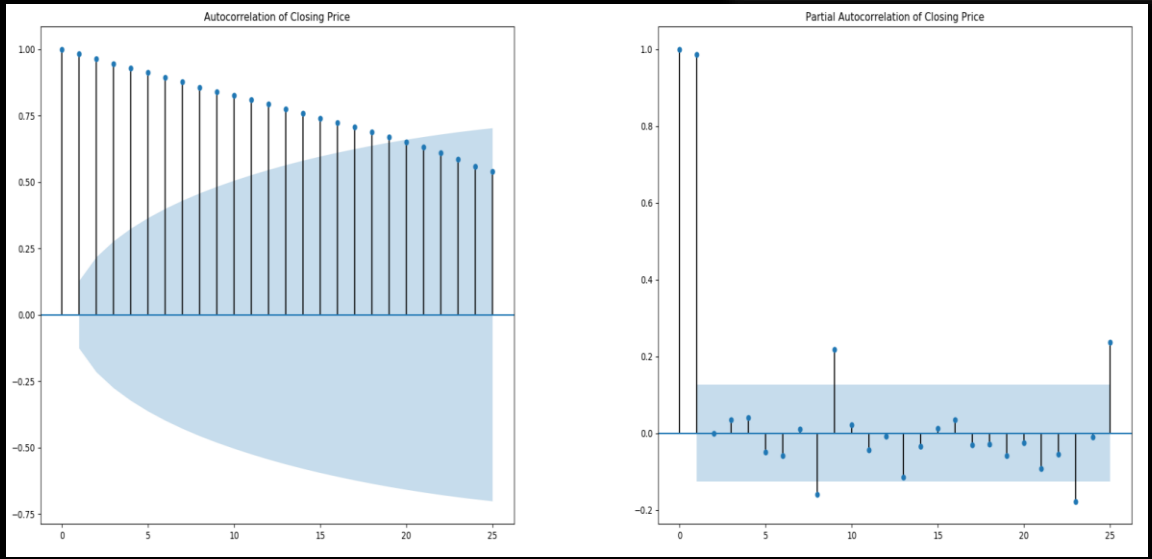
Exploratory Analysis

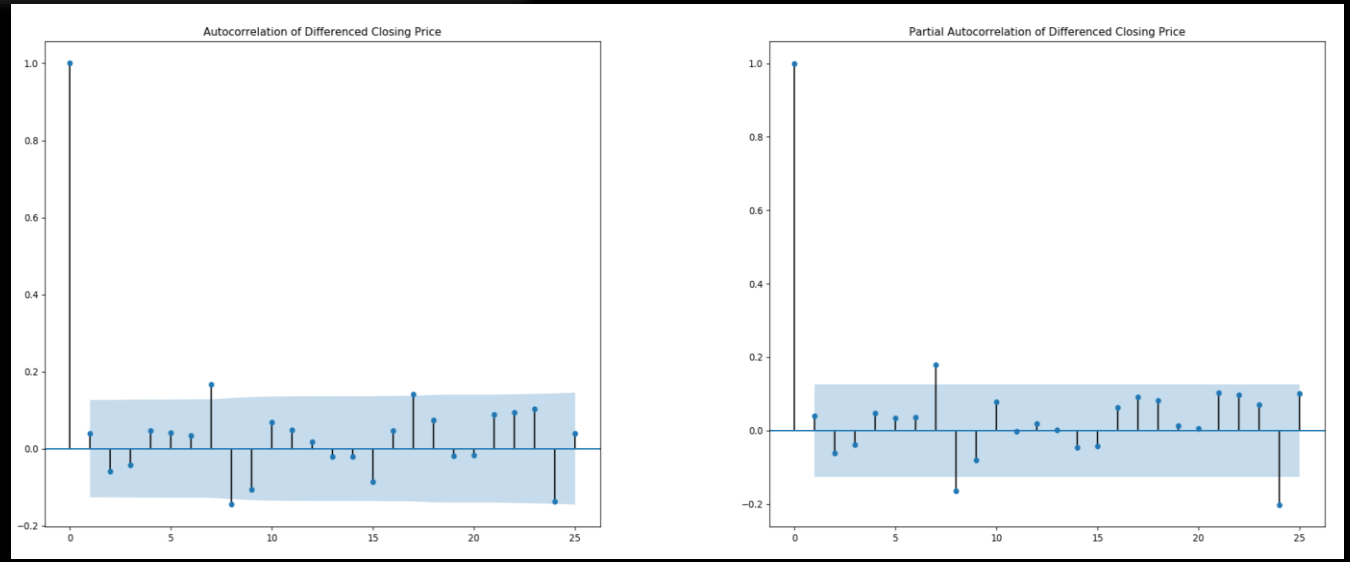


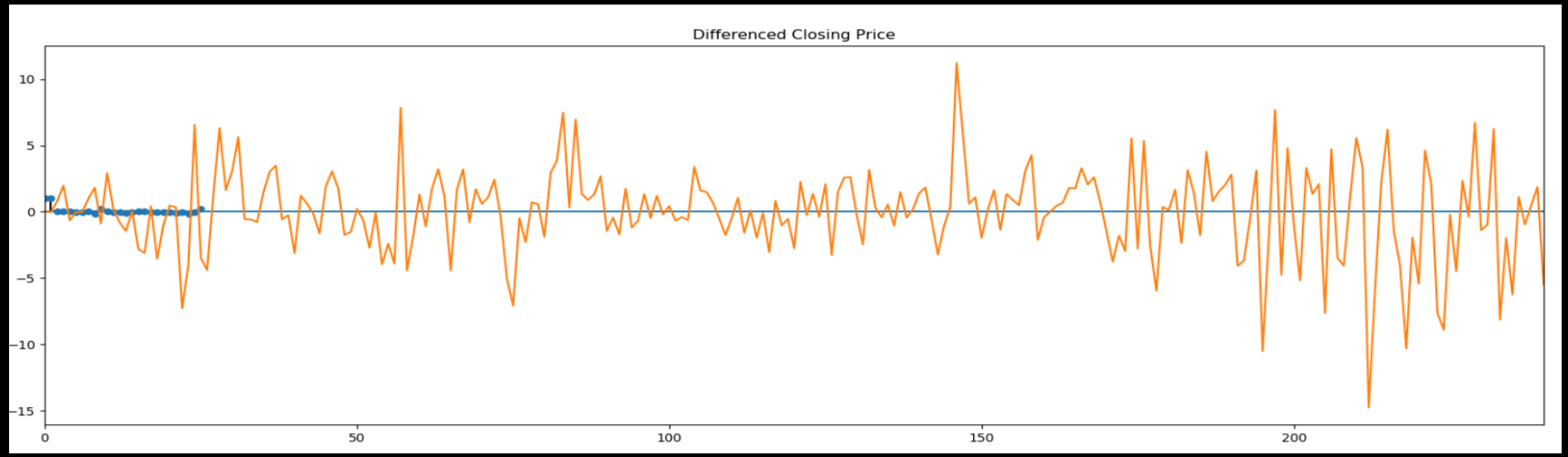




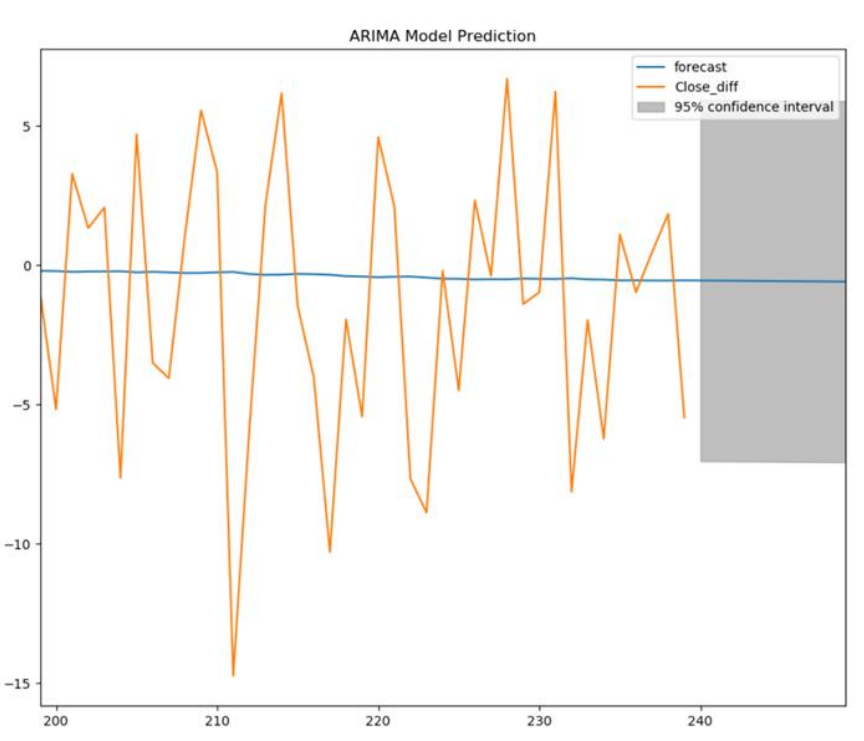
Exploratory Analysis







Model Analysis



Date	Forecasted Difference	Forecasted Price
2018-12-17	4.924397	170.40439737
2018-12-18	-0.004446	170.39995174
2018-12-19	-0.004446	170.39550612
2018-12-20	-0.004446	170.39106049
2018-12-21	-0.004446	170.38661486
2018-12-24	-0.004446	170.38216924
2018-12-26	-0.004446	170.37772361
2018-12-27	-0.004446	170.37327799
2018-12-28	-0.004446	170.36883236
2018-12-31	-0.004446	170.36438673

RMSE: 5.0224385057219685

Deployment

- Docker & Flask & AWS
- Input: Desired number of days to forecast (from 2018-12-14)
- Output: List of forecasted price for desired amount of days
- curl -H "Content-Type: application/json" -X POST -d '{"days":"10"}' http://54.193.125.41:5000/forecast_price
- { "forecast price": [170.40439737, 170.39995174, 170.39550612, 170.39106049, 170.38661486, 170.38216924, 170.37772361, 170.37327799, 170.36883236, 170.36438673] }

```
[ec2-user@ip-172-31-12-72 docker]$ curl -H "Content-Type: application/json" -X P
OST -d '{"days":"10"}' "http://54.183.113.16:5000/forecast_price"
{
  "forecast price": [
    170.40439767554767,
    170.399952049771,
    170.39550642399433,
    170.39106079821767,
    170.386615172441,
    170.38216954666433,
    170.37772392088766,
    170.373278295111,
    170.36883266933432,
    170.36438704355766
  ]
}
```