Predicting the value of market capitalization of **SOLANA** cryptocurrancy

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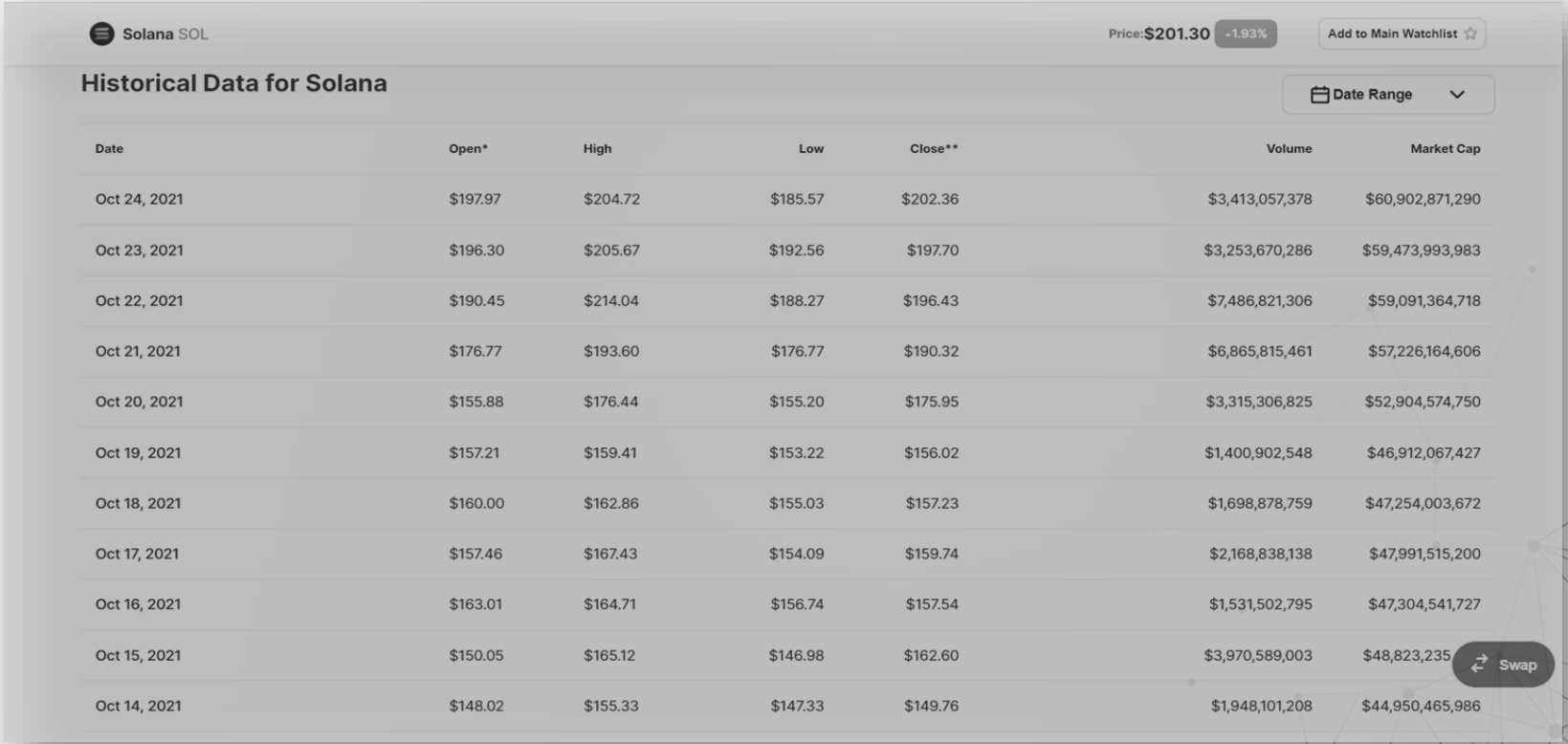
FIRST: Web scraping

https://coinmarketcap.com/currencies/solana/historical-data/



Date	Open*	High	Low	Close**	Volume	Market Cap
Oct 24, 2021	$197.97	$204.72	$185.57	$202.36	$3,413,057,378	$60,902,871,290
Oct 23, 2021	$196.30	$205.67	$192.56	$197.70	$3,253,670,286	$59,473,993,983
Oct 22, 2021	$190.45	$214.04	$188.27	$196.43	$7,486,821,306	$59,091,364,718
Oct 21, 2021	$176.77	$193.60	$176.77	$190.32	$6,865,815,461	$57,226,164,606
Oct 20, 2021	$155.88	$176.44	$155.20	$175.95	$3,315,306,825	$52,904,574,750
Oct 19, 2021	$157.21	$159.41	$153.22	$156.02	$1,400,902,548	$46,912,067,427
Oct 18, 2021	$160.00	$162.86	$155.03	$157.23	$1,698,878,759	$47,254,003,672
Oct 17, 2021	$157.46	$167.43	$154.09	$159.74	$2,168,838,138	$47,991,515,200
Oct 16, 2021	$163.01	$164.71	$156.74	$157.54	$1,531,502,795	$47,304,541,727
Oct 15, 2021	$150.05	$165.12	$146.98	$162.60	$3,970,589,003	$48,823,235
Oct 14, 2021	$148.02	$155.33	$147.33	$149.76	$1,948,101,208	$44,950,465,986

Scraping steps

01 Import URL

02 Chrome Driver

Using driver to get request to scraping the page

03 selenium

to click on the buttuns using (find_element_by_xpath())

04 BeautifulSoup

To find the rows by tags

05 For loop

to scrap all the rows and sort them into a list.

06 DataFrame

Covert data into a pandas dataframe

Second: Data Cleaning, EDA and features engineering.

	Date	Open*	High	Low	Close**	Volume	Market Cap
0	Date	Open*	High	Low	Close**	Volume	Market Cap
1	Oct 18, 2021	$160.00	$162.86	$155.03	$157.23	$1,698,878,759	$47,254,003,672
2	Oct 17, 2021	$157.46	$167.43	$154.09	$159.74	$2,168,838,138	$47,991,515,200
3	Oct 16, 2021	$163.01	$164.71	$156.74	$157.54	$1,531,502,795	$47,304,541,727
4	Oct 15, 2021	$150.05	$165.12	$146.98	$162.60	$3,970,589,003	$48,823,235,028

	MarkerCap	VOLUME	CLOSE	LOW	HIGH	OPEN	DATE
1	47254003672	1698878759	157.23	155.03	162.86	160.00	2021-10-18
2	47991515200	2168838138	159.74	154.09	167.43	157.46	2021-10-17
3	47304541727	1531502795	157.54	156.74	164.71	163.01	2021-10-16
4	48823235028	3970589003	162.60	146.98	165.12	150.05	2021-10-15

MarkerCap	VOLUME
47254003672	1698878759
47991515200	2168838138

np.log()

nMarketCap	nVOLUME
24.578803	21.253234
24.594290	21.497457

Rearrange the datafame date by weeks:

DATE	CLOSE	LOW	HIGH	OPEN	nMarketCap	nVOLUME
2021-06-20	35.335000	33.170000	36.640000	36.030000	22.988604	19.662188
2021-06-27	29.285714	26.371429	32.115714	29.877143	22.798656	20.420494
2021-07-04	34.081429	32.300000	35.207143	33.741429	22.952126	19.875457
2021-07-11	33.467143	32.377143	35.062857	33.757143	22.933317	19.665642
2021-07-18	28.505714	27.592857	30.217143	29.291429	22.771665	19.433213

ARIMA(p,d,q) Model

Market capitalization prediction

Step 1:

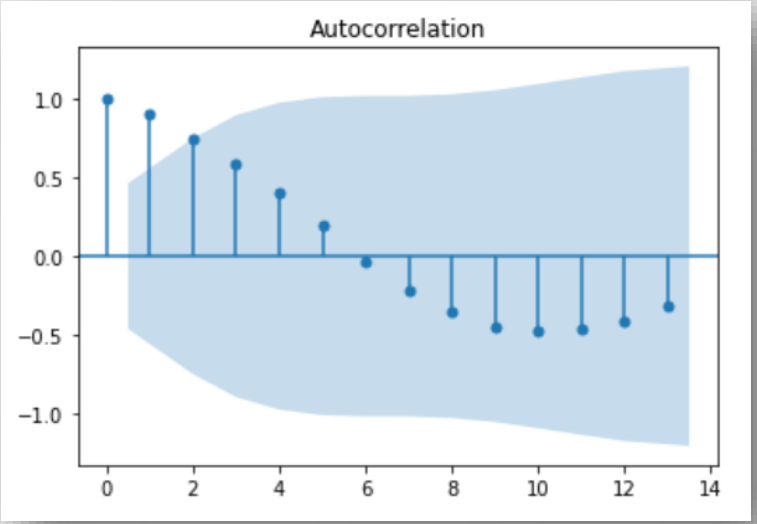
Create new dataframe that has only two columns (Market capitalization, weekly date)

Step 2:

Check of the stationarity by ACF.

Step 3:

Split the train data.



Step 4:

collect parameters (p,d,q).
AR(p), difference , MA(q)
p,q in range (0,6)
d in range (1,3)

Step 5:

Fit/train the data with each parameter .

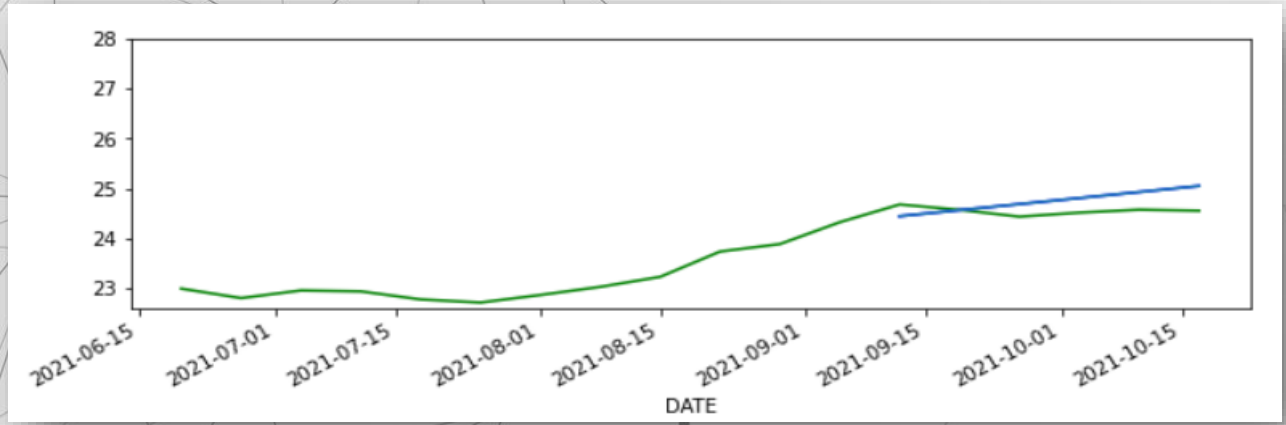
```
(0, 1, 0) AIC score  1.034454568498095 MAE score  0.23715581916827747
(0, 1, 1) AIC score  2.452191599639715 MAE score  0.2829520538793745
(0, 1, 2) AIC score  1.6377112000037002 MAE score  0.42002567978206407
(0, 1, 3) AIC score  2.5608149414368384 MAE score  0.38864783253830854
(0, 1, 4) AIC score  4.9436277197310545 MAE score  0.7145732029701998
(0, 2, 0) AIC score  2.2695834901955134 MAE score  1.8918604413017155
(0, 2, 1) AIC score  -2.3243832413030674 MAE score  1.552793030117795
(0, 2, 2) AIC score  -0.7086227840312915 MAE score  1.52834080853946
(0, 2, 3) AIC score  0.41776440266239945 MAE score  1.5754591563663287
(1, 1, 0) AIC score  1.910492155425942 MAE score  0.3715153909186903
(1, 2, 0) AIC score  0.8958101700660492 MAE score  1.3426637044680199
(2, 1, 0) AIC score  2.355847158987622 MAE score  0.5030365408266051
(2, 2, 0) AIC score  1.1143952517700768 MAE score  1.6139028882551
(3, 1, 0) AIC score  4.301779727228656 MAE score  0.5691860087016045
(3, 2, 0) AIC score  2.8183783436173755 MAE score  1.6366175214496628
(4, 1, 0) AIC score  5.634756748299985 MAE score  0.4326931992372851
(4, 2, 0) AIC score  37.97138515318035 MAE score  1.959951945272203
(5, 1, 0) AIC score  48.831155392198866 MAE score  0.8775976511028473
```

Step 6:

Print the AIC and MAE scores for each model.

Step 7:

select the best model and plot it.



THANKS

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