NFT COMPETITION
PREDICT THE AVERAGE PRICE OF NFT ITEMS BASED ON 4 VARIABLES

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17 April 2022

PROBLEM

This program was created to predict the average price ('stats_average_price') of NFT items with K Nearest Neighbor method based on the following attributes:

- stats_seven_day_volume
- stats_seven_day_change
- stats_seven_day_sales
- stats_seven_day_average_price

DATA

The dataset used is 'Collections.csv' in which there are attributes for detailed collections nft starting from primary_asset_contracts_address, primary_asset_contracts_asset_contract_type, primary_asset_contracts_created_date, primary_asset_contracts_name, primary_asset_contracts_ns_price_name, etc. However, we only use 4 variables to determine the average price of NFT items based on these 4 items, and the variable we are using is :

- stats_seven_day_volume
- stats_seven_day_change
- stats_seven_day_sales
- stats_seven_day_average_price.

MODEL BUILD

After importing all the attributes from 'Collections.csv' we select only the variables we need like :

- stats_seven_day_volume
- stats_seven_day_change
- stats_seven_day_sales
- stats_seven_day_average_price.
- stats_average_price

Then we delete the rows that have the value NaN. After that we determine the dependent variables. The independent variable is denoted by the symbol x where the attributes that are used as independent variables are :

- stats_seven_day_volume
- stats_seven_day_change
- stats_seven_day_sales
- stats_seven_day_average_price.

Then, we determine the dependent variable which is symbolized by y, where the attribute used is 'stats_average_price'. After splitting the data into 2 (x and y), then we will divide each of these data back into 30% testing data and 70% training data.

The next step is to create a machine learning model with the K-Nearest Neighbors algorithm. Training data that has been obtained previously and its accuracy is determined based on existing testing data. Then calculate the MSE (Mean Squared Error) predictions and existing testing data.

To get the best K value, a function is created, where this function will return accuracy values based on the given K value. After that, we can predict the average NFT price based on the 4 attributes that have been described.

RESULT

Accuracy of each value of K
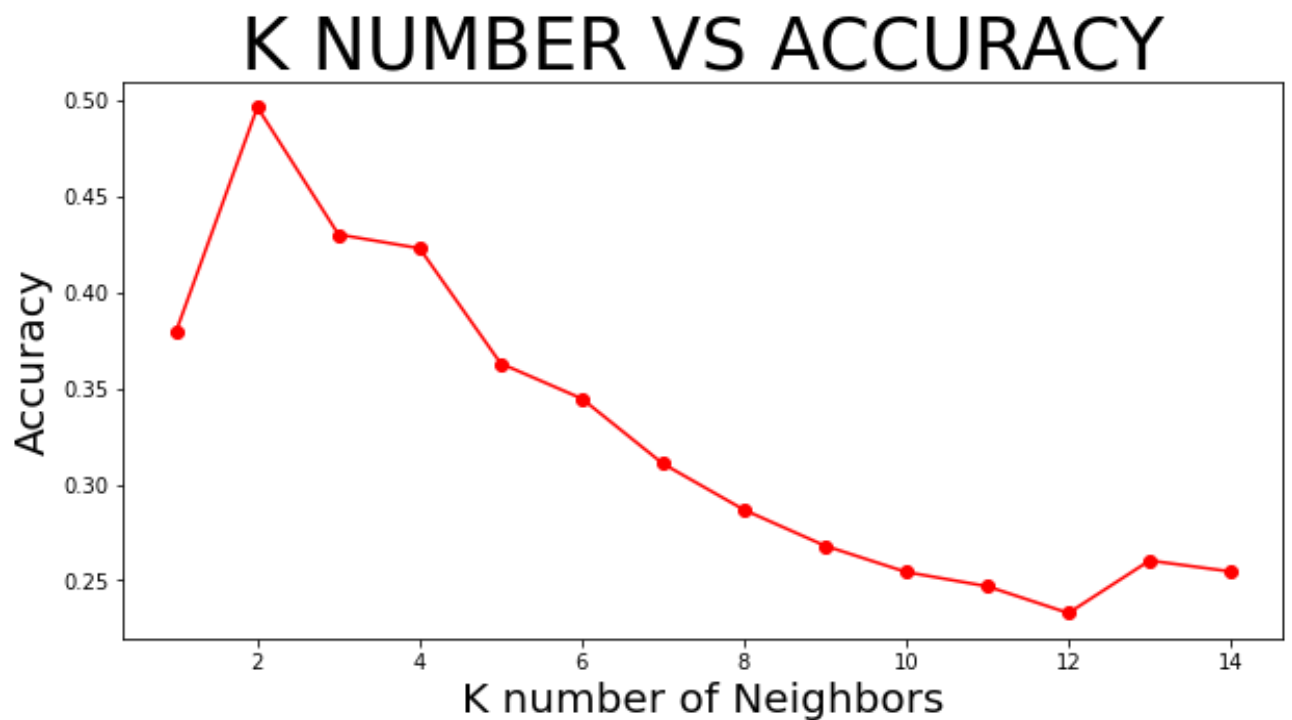
Based on the calculations on the functions that have been made, a graph is obtained that shows the accuracy for the K value from 1 to 15. The following are the details of determining the best K value measured from the accuracy produced by each given K value.

K	ACCURACY(%)
1	37.99172035115952 %
2	49.63996506986975 %
3	43.01248285523296 %
4	42.291790209800574 %
5	36.297252226197486 %
6	34.465474886637374 %
7	31.077411333359862 %
8	28.67436352914885 %
9	26.79953608036103 %
10	25.434051236354783 %
11	24.690328307552456 %

12	23.29706939140501 %
13	26.03122754339031 %
14	25.462329003621022 %

Average prediction based on specific input

Predictions made:

```
# PREDICTION

average_nft_price = np.array([[19, 5.1, 24, 0.236123]])
prediction = model.predict(average_nft_price)

print('Average NFT Price based on attributes a, b and c that have been
entered is ' + str(prediction), 'ETH\n\n')
```

Results :

```
Average NFT Price based on attributes a, b and c that have been entered
is [0.92045451] ETH
```

Explanation :

In this case, the following data are provided:

- stats_seven_day_volume = 19
- stats_seven_day_change = 5.1
- stats_seven_day_sales = 24
- stats_seven_day_average_price = 0.236123

Then based on calculations and machine learning models that have been made with the K-Nearest Neighbors algorithm, it is found that the average NFT price is 0.92045451 ETH

CONCLUSION

Making machine learning models with the KNN algorithm by relying on 4 attributes, namely stats_seven_day_volume, stats_seven_day_change, stats_seven_day_sales, stats_seven_day_average_price can still be said to be less effective because many other attributes are in the dataset used. The use of several other attributes can help and improve the accuracy of calculations so that the results obtained become more accurate.