

UTS Pengantar Sains Data

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1. Link Github :

<https://github.com/Alverno88/UTS-Pengantar-Sains-Data>

2. Ubah dataset dengan rentang waktu dari 1 September 2021 – 30 September 2021.

Currency in USD						Download
Date	Open	High	Low	Close*	Adj Close**	Volume
Sep 29, 2021	2,742.19	2,747.97	2,685.00	2,690.42	2,690.42	1,316,900
Sep 28, 2021	2,781.77	2,792.13	2,714.00	2,723.68	2,723.68	2,109,500
Sep 27, 2021	2,831.71	2,850.00	2,810.00	2,830.02	2,830.02	942,200
Sep 24, 2021	2,818.92	2,858.07	2,817.01	2,852.66	2,852.66	747,500
Sep 23, 2021	2,832.19	2,845.05	2,821.93	2,836.53	2,836.53	863,600
Sep 22, 2021	2,801.01	2,831.67	2,789.44	2,818.77	2,818.77	1,103,400
Sep 21, 2021	2,802.34	2,816.23	2,778.11	2,792.93	2,792.93	906,500
Sep 20, 2021	2,780.00	2,787.25	2,741.06	2,780.34	2,780.34	1,745,900
Sep 20, 2021	2,780.00	2,787.25	2,741.06	2,780.34	2,780.34	1,745,900
Sep 17, 2021	2,875.97	2,884.99	2,821.23	2,829.27	2,829.27	3,002,000
Sep 16, 2021	2,902.42	2,904.00	2,868.33	2,887.47	2,887.47	1,014,600
Sep 15, 2021	2,875.18	2,911.63	2,845.12	2,904.12	2,904.12	1,032,400
Sep 14, 2021	2,883.22	2,894.55	2,858.11	2,868.12	2,868.12	945,800
Sep 13, 2021	2,864.02	2,883.82	2,845.65	2,869.30	2,869.30	1,008,800
Sep 10, 2021	2,908.87	2,920.38	2,834.83	2,838.42	2,838.42	1,644,800
Sep 09, 2021	2,897.67	2,913.39	2,888.68	2,898.27	2,898.27	739,900
Sep 08, 2021	2,907.87	2,911.02	2,884.00	2,897.67	2,897.67	774,300
Sep 07, 2021	2,894.99	2,916.48	2,890.82	2,910.38	2,910.38	758,500
Sep 03, 2021	2,882.92	2,907.54	2,870.10	2,895.50	2,895.50	955,200
Sep 02, 2021	2,918.99	2,926.50	2,882.13	2,884.38	2,884.38	1,092,200
Sep 01, 2021	2,913.00	2,936.41	2,912.29	2,916.84	2,916.84	791,200

3. Tentukan hasil prediksi untuk tanggal 29 September 2021!

```
✓ [23] day = [[29]]
Od
print('The RBF SVR predicted:', rbf_svr.predict(day))
print('The Linear SVR predicted:', lin_svr.predict(day))
print('The Polynomial SVR predicted:', poly_svr.predict(day))

The RBF SVR predicted: [2689.53539967]
The Linear SVR predicted: [2811.80476585]
The Polynomial SVR predicted: [2757.68966763]
```

4. Sebutkan model mana yang paling baik untuk menentukan prediksi pada tanggal 29 September 2021! Linear, Polynomial, atau RBF?

Model terbaik dari Linear, Polynomial atau RBF adalah RBF karena model Regresi Vektor Pendukung yang menggunakan kernel yang disebut fungsi basis Radial.

Dan dari pengujian diatas model RBF SVR adalah yang terbaik karena model RBF SVR memperkirakan nilai \$2689.53539967 ketika harga sebenarnya adalah \$2690.419922, jadi hanya turun sekitar \$1 !

5. Jelaskan setiap langkah run yang sudah anda buat!

IMPORT LIBRARY

```
In [1]: #Import the libraries
from sklearn.svm import SVR #Support Vector Regression (SVR)
import numpy as np #library komputasi numerik
import pandas as pd #library untuk data science
import matplotlib.pyplot as plt #library untuk visualisasi data
plt.style.use('seaborn-darkgrid') #Style dari plot
```

LOAD DATA

```
In [2]: #Load the data
#from google.colab import files # Use to load data on Google Colab
#uploaded = files.upload() # Use to load data on Google Colab
df = pd.read_csv('GOOG.csv') #Load data .csv sesuai dengan nama file
df
```

PREPARE DATA TRAINING

```
In [4]: df = df.head(len(df)-1) #untuk menghapus baris ke 19
df
```

Membuat Variabel Independet dan Dependent Data Set

```
In [5]: #Create the Lists / X and y data set
days = list()
adj_close_prices = list()

In [6]: df_days = df.loc[:, 'Date'] #mengambil data kolom Date
df_adj_close = df.loc[:, 'Adj Close'] #mengambil data kolom Adj Close

In [7]: #Create the independent data set
for day in df_days:
    days.append([int(day.split('-')[2])] ) #Menambahkan data ke List yang sudah dipotong dengan pemisah '-' dan array ke [2] (tanggal)
#Create the dependent data set
for adj_close_price in df_adj_close:
    adj_close_prices.append(float(adj_close_price) ) #Menambahkan data ke List

In [8]: print(days) #Untuk print tanggal yang sudah didapat dari kode sebelum ini

[[3], [4], [5], [6], [7], [10], [11], [12], [13], [14], [17], [18], [19], [20], [21], [24], [25], [26], [27]]
```

Membuat dan Melatih Model SVR

```
In [9]: #Create and train an SVR model using a linear kernel
lin_svr = SVR(kernel='linear', C=1000.0)
lin_svr.fit(days,adj_close_prices)#Create and train an SVR model using a polynomial kernel
poly_svr = SVR(kernel='poly', C=1000.0, degree=2)
poly_svr.fit(days, adj_close_prices)#Create and train an SVR model using a RBF kernel
rbf_svr = SVR(kernel='rbf', C=2500.0, gamma=0.20)
rbf_svr.fit(days, adj_close_prices)

Out[9]: SVR(C=2500.0, gamma=0.2)
```

Membuat Grafik Model

```
In [10]: #Plot the models on a graph to see which has the best fit
plt.figure(figsize=(16,8))
plt.scatter(days, adj_close_prices, color = 'black', label='Original Data')
plt.plot(days, rbf_svr.predict(days), color = 'green', label='RBF Model')
plt.plot(days, poly_svr.predict(days), color = 'orange', label='Polynomial Model')
plt.plot(days, lin_svr.predict(days), color = 'purple', label='Linear Model')
plt.xlabel('Days')
plt.ylabel('Adj Close Price')
plt.title('Support Vector Regression')
plt.legend()
plt.show()
```

Membuat Prediksi

```
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```

```
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