

Install Pystan 2.14

```
!pip install pystan~=2.14
```

```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting pystan~=2.14
  Downloading pystan-2.19.1.1-cp38-cp38-manylinux1_x86_64.whl (62.6 MB)
    ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 62.6/62.6 MB 9.9 MB/s eta 0:00:00
Requirement already satisfied: numpy>=1.7 in /usr/local/lib/python3.8/dist-packages (from pystan~=2.14) (1.21.6)
Requirement already satisfied: Cython!=0.25.1,>=0.22 in /usr/local/lib/python3.8/dist-packages (from pystan~=2.14) (0.29.33)
Installing collected packages: pystan
  Attempting uninstall: pystan
    Found existing installation: pystan 3.3.0
    Uninstalling pystan-3.3.0:
      Successfully uninstalled pystan-3.3.0
Successfully installed pystan-2.19.1.1
```

Install fbprophet

```
!pip install fbprophet
```

```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting fbprophet
  Downloading fbprophet-0.7.1.tar.gz (64 kB)
    ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 64.0/64.0 KB 2.0 MB/s eta 0:00:00
  Preparing metadata (setup.py) ... done
Requirement already satisfied: Cython>=0.22 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (0.29.33)
Collecting cmdstanpy==0.9.5
  Downloading cmdstanpy-0.9.5-py3-none-any.whl (37 kB)
Requirement already satisfied: pystan>=2.14 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (2.19.1.1)
Requirement already satisfied: numpy>=1.15.4 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (1.21.6)
Requirement already satisfied: pandas>=1.0.4 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (1.3.5)
Requirement already satisfied: matplotlib>=2.0.0 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (3.2.2)
Requirement already satisfied: LunarCalendar>=0.0.9 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (0.0.9)
Requirement already satisfied: convertdate>=2.1.2 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (2.4.0)
Requirement already satisfied: holidays>=0.10.2 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (0.18)
Requirement already satisfied: setuptools-git>=1.2 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (1.2)
Requirement already satisfied: python-dateutil>=2.8.0 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (2.8.2)
Requirement already satisfied: tqdm>=4.36.1 in /usr/local/lib/python3.8/dist-packages (from fbprophet) (4.64.1)
Requirement already satisfied: pymeeus<1,>=0.3.13 in /usr/local/lib/python3.8/dist-packages (from convertdate>=2.1.2->fbprophet) (0.18)
Requirement already satisfied: korean-lunar-calendar in /usr/local/lib/python3.8/dist-packages (from holidays>=0.10.2->fbprophet) (0.18)
Requirement already satisfied: hijri-converter in /usr/local/lib/python3.8/dist-packages (from holidays>=0.10.2->fbprophet) (2.2.4)
Requirement already satisfied: ephemeris>=3.7.5.3 in /usr/local/lib/python3.8/dist-packages (from LunarCalendar>=0.0.9->fbprophet) (4.1)
Requirement already satisfied: pytz in /usr/local/lib/python3.8/dist-packages (from LunarCalendar>=0.0.9->fbprophet) (2022.7)
Requirement already satisfied: cyclical>=0.10 in /usr/local/lib/python3.8/dist-packages (from matplotlib>=2.0.0->fbprophet) (0.11.0)
Requirement already satisfied: kiwisolver>=1.0.1 in /usr/local/lib/python3.8/dist-packages (from matplotlib>=2.0.0->fbprophet) (1.4)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in /usr/local/lib/python3.8/dist-packages (from matplotlib>=2.0.0->fbprophet) (3.1.0)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.8/dist-packages (from python-dateutil>=2.8.0->fbprophet) (1.15.0)
Building wheels for collected packages: fbprophet
  Building wheel for fbprophet (setup.py) ... done
  Created wheel for fbprophet: filename=fbprophet-0.7.1-py3-none-any.whl size=9536270 sha256=4c3819d3caf563ef0b4c6be44062c0ff85c281
  Stored in directory: /root/.cache/pip/wheels/d0/d2/ae/c579b7fd160999d35908f3cb8ebcad7ef64ecaca7b78e4c3c8
Successfully built fbprophet
Installing collected packages: cmdstanpy, fbprophet
  Attempting uninstall: cmdstanpy
    Found existing installation: cmdstanpy 1.0.8
    Uninstalling cmdstanpy-1.0.8:
      Successfully uninstalled cmdstanpy-1.0.8
ERROR: pip's dependency resolver does not currently take into account all the packages that are installed. This behaviour is the so
prophet 1.1.1 requires cmdstanpy>=1.0.4, but you have cmdstanpy 0.9.5 which is incompatible.
Successfully installed cmdstanpy-0.9.5 fbprophet-0.7.1
```

import Pandas Library

```
import pandas as pd
```

To insert a csv file to DataFrame

```
df = pd.read_csv('USD_SILVER.csv')
```

To check the value for the DataFrame

```
df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1266 entries, 0 to 1265
Data columns (total 7 columns):
```

```
#    Column      Non-Null Count  Dtype
---  -
0    Date        1266 non-null    object
1    Open         1266 non-null    float64
2    High         1266 non-null    float64
3    Low          1266 non-null    float64
4    Close*       1266 non-null    float64
5    Adj Close**  1266 non-null    float64
6    Volume       1266 non-null    object
dtypes: float64(5), object(2)
memory usage: 69.4+ KB
```

To change the data type for Date Column

```
df['Date'] =pd.to_datetime(df['Date'])
```

To sort Date Column Value

```
df.sort_values(by='Date', inplace = True)
```

```
df.info()

<class 'pandas.core.frame.DataFrame'>
Int64Index: 1266 entries, 1265 to 0
Data columns (total 7 columns):
#    Column      Non-Null Count  Dtype
---  -
0    Date        1266 non-null    datetime64[ns]
1    Open         1266 non-null    float64
2    High         1266 non-null    float64
3    Low          1266 non-null    float64
4    Close*       1266 non-null    float64
5    Adj Close**  1266 non-null    float64
6    Volume       1266 non-null    object
dtypes: datetime64[ns](1), float64(5), object(1)
memory usage: 79.1+ KB
```

To Check the Tail of the Data Frame

```
df.tail()
```

	Date	Open	High	Low	Close*	Adj Close**	Volume
4	2023-01-13	23.89	24.23	23.50	24.23	24.23	30
3	2023-01-16	0.00	0.00	0.00	0.00	0.00	0
2	2023-01-17	24.31	24.32	23.94	23.94	23.94	118
1	2023-01-18	24.25	24.26	23.53	23.53	23.53	19
0	2023-01-19	23.75	23.75	23.75	23.75	23.75	19

To Create a New Empty DataFrame

```
sdf = pd.DataFrame()
```

To Copy the One DataFrame to Another DataFrame

```
sdf = df
```

Only Date And Close Column

```
sdf = sdf[['Date' , 'Close*']]
```

To Change the Column Rename

```
sdf.columns = ['ds' , 'y']
```

To Use Prophet Library

```
from fbprophet import Prophet
```

To Fit the Data in Prophet Algorithm

```
prophet = Prophet(daily_seasonality=True)
prophet.fit(sdf)

<fbprophet.forecaster.Prophet at 0x7f965a1121c0>
```

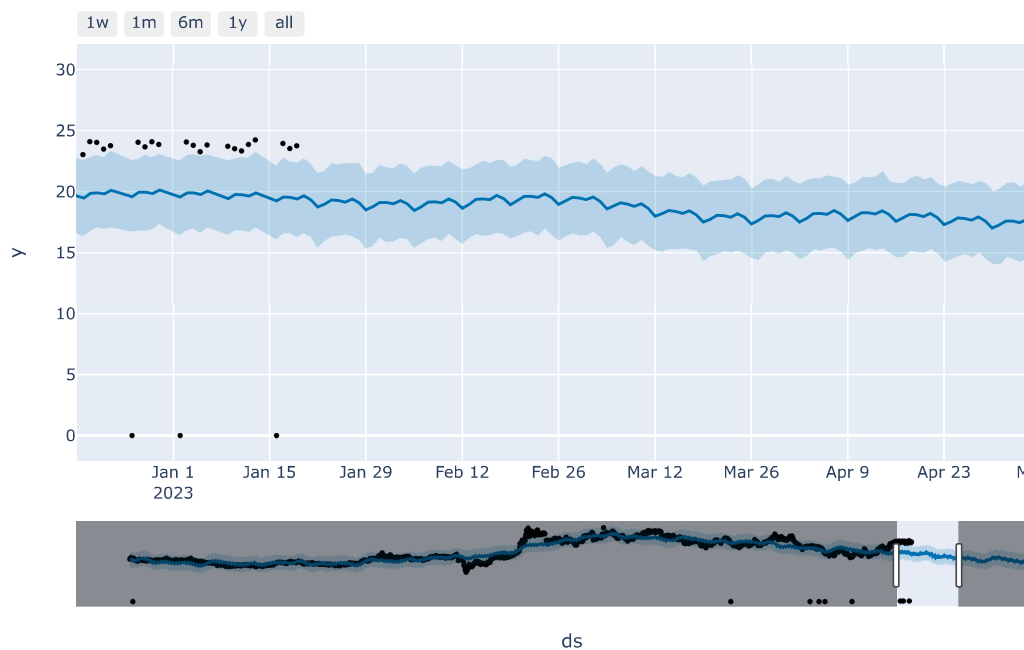
Future Date Predict for using 365 Days

```
future_dates = prophet.make_future_dataframe(periods=365)
predictions = prophet.predict(future_dates)
```

To view the Predicted Data and view a graph using Plotly

```
from fbprophet.plot import plot_plotly

plot_plotly(prophet, predictions)
```



To insert a csv file to DataFrame

```
tm = pd.read_csv('TATAMOTORS.NS.csv')
```

To check the value for the DataFrame

```
tm.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 248 entries, 0 to 247
Data columns (total 7 columns):
 #   Column      Non-Null Count  Dtype
---  ---
 0   Date        248 non-null   object
 1   Open        248 non-null   float64
 2   High        248 non-null   float64
 3   Low         248 non-null   float64
 4   Close       248 non-null   float64
 5   Adj Close   248 non-null   float64
 6   Volume      248 non-null   int64
dtypes: float64(5), int64(1), object(1)
memory usage: 13.7+ KB
```

To change the data type for Date Column

```
tm['Date'] =pd.to_datetime(tm['Date'])
```

To View the DataFrame Using Head Function

```
tm.head()
```

	Date	Open	High	Low	Close	Adj Close	Volume
0	2022-01-24	499.700012	504.299988	473.350006	478.450012	478.450012	25228959
1	2022-01-25	473.799988	492.500000	467.649994	490.549988	490.549988	22565698
2	2022-01-27	480.750000	502.700012	476.600006	494.399994	494.399994	26676094
3	2022-01-28	500.500000	509.350006	495.299988	497.299988	497.299988	21784640
4	2022-01-31	505.000000	520.000000	498.200012	517.750000	517.750000	27306578

```
sdf1 = tm
```

```
sdf1 = sdf1[['Date' , 'Close']]
```

```
sdf1.columns = ['ds' , 'y']
```

```
sdf1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 248 entries, 0 to 247
Data columns (total 2 columns):
#   Column  Non-Null Count  Dtype
---  -
0    ds      248 non-null    datetime64[ns]
1    y        248 non-null    float64
dtypes: datetime64[ns](1), float64(1)
memory usage: 4.0 KB
```

To Fit the Data in Prophet Algorithm

```
prophet1 = Prophet(daily_seasonality=True)
prophet1.fit(sdf1)
```

```
INFO:fbprophet:Disabling yearly seasonality. Run prophet with yearly_seasonality=True to override this.
<fbprophet.forecaster.Prophet at 0x7f964e0f8730>
```

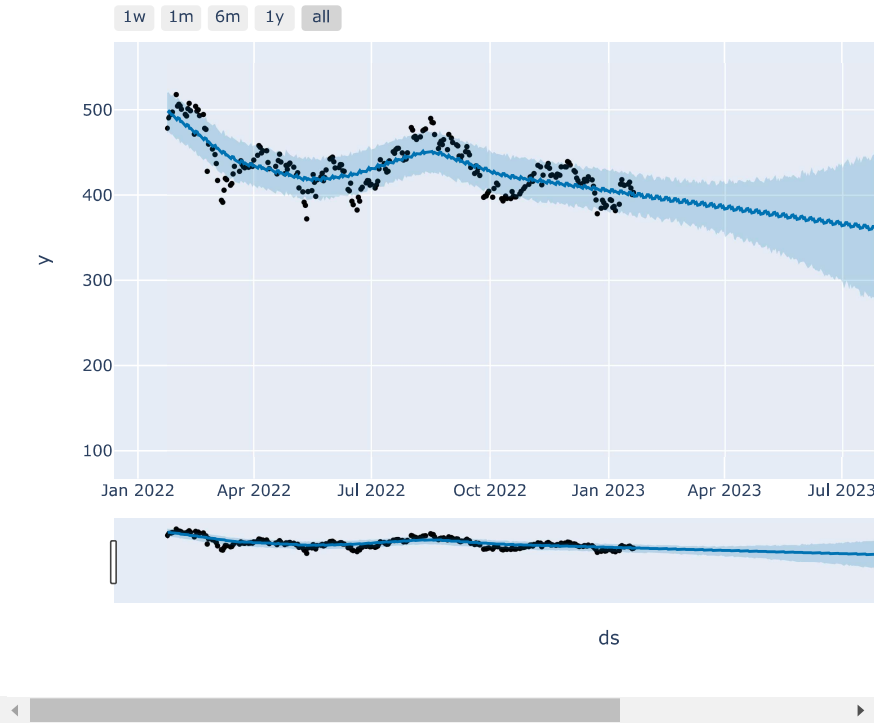
Future Date Predict for using 365 Days

```
future_dates = prophet1.make_future_dataframe(periods=365)
predicitons =prophet1.predict(future_dates)
```

To view the Predicted Data and view a graph using Plotly

```
from fbprophet.plot import plot_plotly
plot_plotly(prophet1,predicitons)
```





Colab notebook Google Colab

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