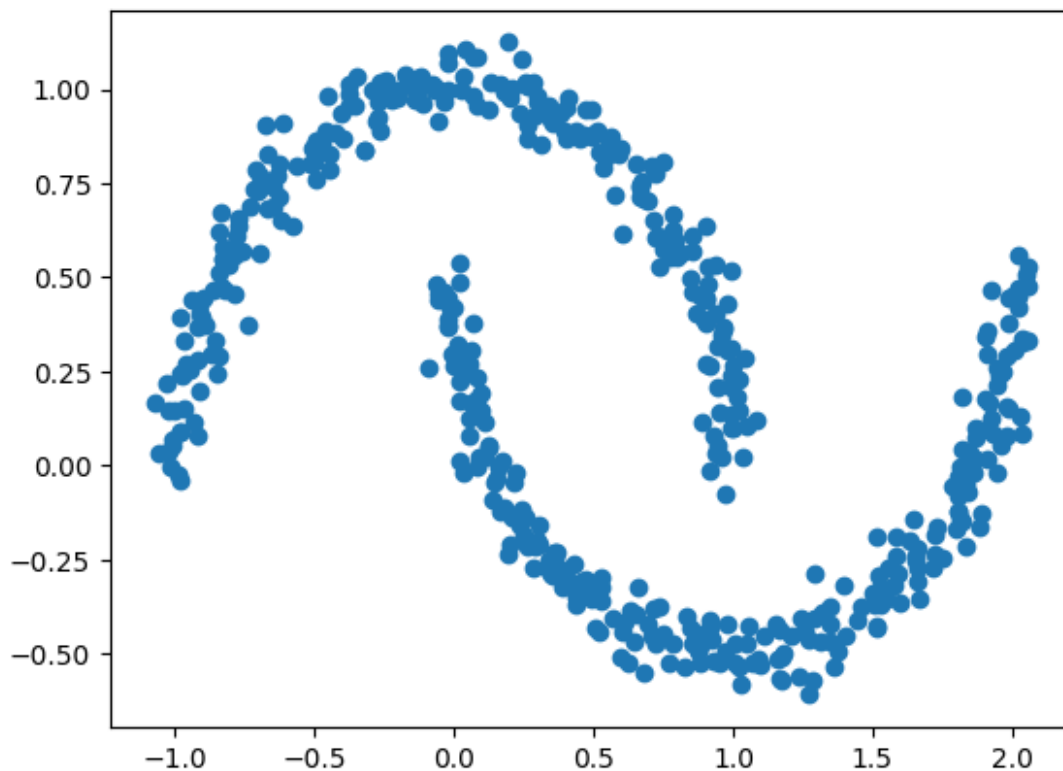


```
# Import required libraries and dependencies
import pandas as pd
from pathlib import Path
from sklearn.decomposition import PCA
from sklearn.preprocessing import StandardScaler
import numpy as np
import plotly.express as px
import matplotlib.pyplot as plt
from sklearn.cluster import DBSCAN
```

#Creating non linear dataset

```
from sklearn.datasets import make_moons
x,y=make_moons(n_samples=500,noise=.05) #Created the data
plt.scatter(x[:,0],x[:,1])
<matplotlib.collections.PathCollection at 0x7e7910a9b940>
```



###SO above datapoints are totally non linear

#Scaling the data

```

from sklearn.preprocessing import StandardScaler
scaler=StandardScaler()

x_scal=scaler.fit_transform(x)

```

#Model Creation

```

dbscan=DBSCAN(eps=.5)
dbscan.fit(x_scal)
DBSCAN()
dbscan.labels_
array([0, 0, 0, 1, 0, 0, 1, 1, 0, 0, 1, 1, 1, 0, 0, 1, 1, 0, 0, 0, 0,
1,
      1, 0, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 1, 1,
0,
      0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 1, 0, 0, 0, 1, 1, 1, 1, 1,
0,
      1, 0, 1, 1, 1, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0, 0, 1, 0, 1, 0,
1,
      0, 0, 0, 0, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 1, 1, 0, 0,
1,
      1, 1, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 1, 1, 1, 1, 1, 1, 0,
0,
      1, 1, 1, 0, 0, 0, 1, 0, 0, 1, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1, 1,
1,
      0, 1, 1, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 1,
1,
      1, 0, 0, 1, 1, 0, 0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 0, 1, 1, 0, 0,
0,
      1, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1, 1,
1,
      0, 1, 0, 0, 1, 1, 1, 0, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
1,
      1, 0, 0, 0, 1, 1, 1, 0, 0, 0, 1, 1, 1, 0, 1, 0, 1, 0, 0, 0, 0,
1,
      0, 0, 1, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 1, 0,
1,
      0, 1, 1, 0, 1, 1, 1, 0, 1, 0, 0, 0, 1, 1, 1, 0, 1, 0, 0, 1, 1,
0,
      1, 0, 1, 1, 1, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 1, 1, 0, 1, 1, 0,
0,
      0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1,
1,
      0, 0, 0, 1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1,
1,
      0, 0, 1, 1, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1,

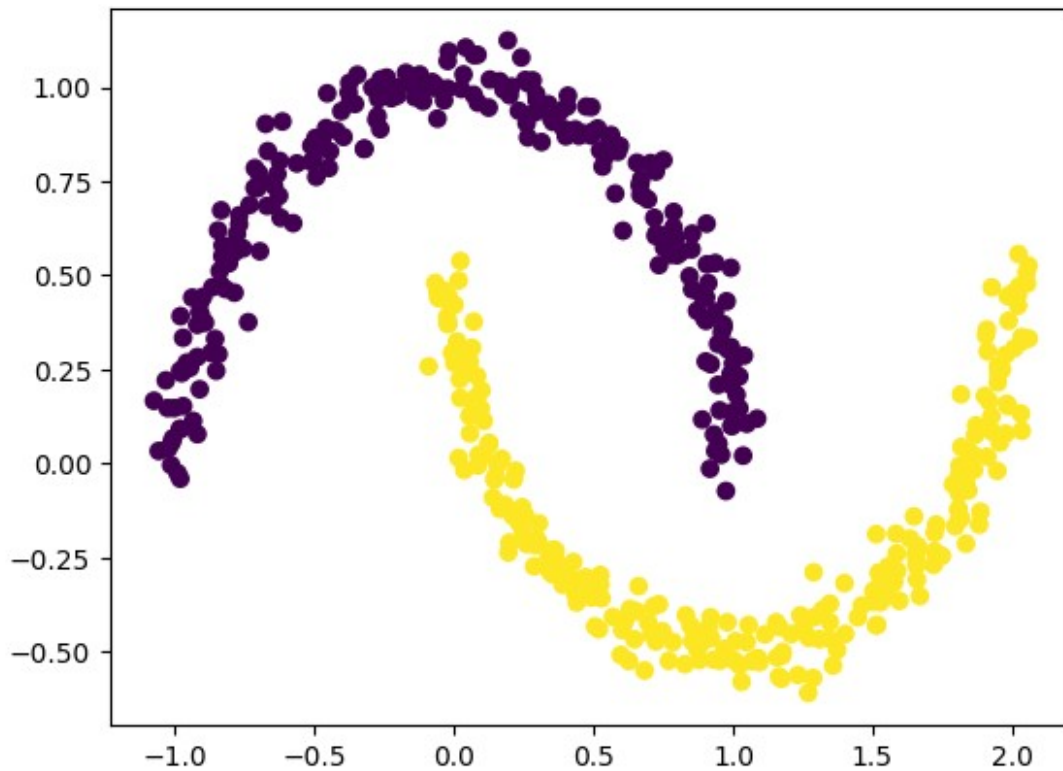
```

```

0,
    0, 0, 1, 1, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 1, 1, 0, 0, 1,
0,
    1, 0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 1,
1,
    0, 1, 1, 1, 0, 1, 0, 0, 0, 1, 1, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0,
1,
    1, 0, 1, 1, 1, 0, 0, 0, 1, 1, 1, 0, 0, 1, 1, 0, 0, 1, 1, 0, 0,
0,
    1, 0, 1, 1, 1, 1, 0, 0, 0, 1, 1, 0, 0, 0, 1, 1])

plt.scatter(x[:,0],x[:,1],c=dbscan.labels_)
<matplotlib.collections.PathCollection at 0x7e791091a3b0>

```



#SO DBSACN is best algorithm which helps to cluster even non-linear data