Practical 8

Implementation of Naïve Bayes Algorithm on Jupyter Notebook using Python.

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from sklearn.datasets import load_iris
iris = load_iris()
dir(iris)
```

#Output : Fig 8.1

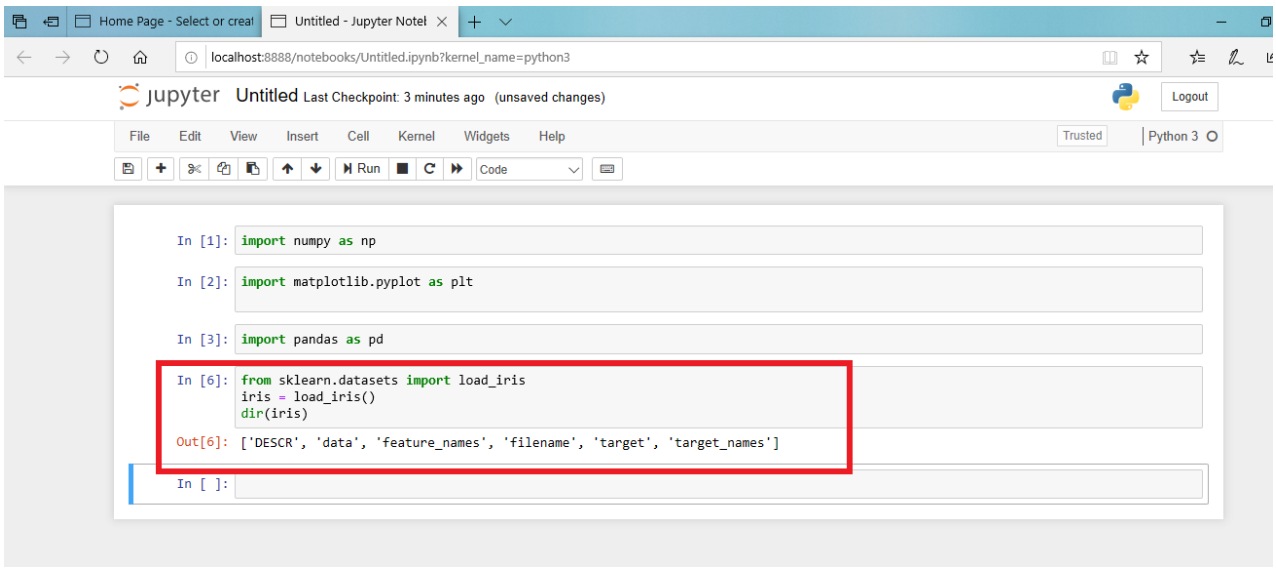
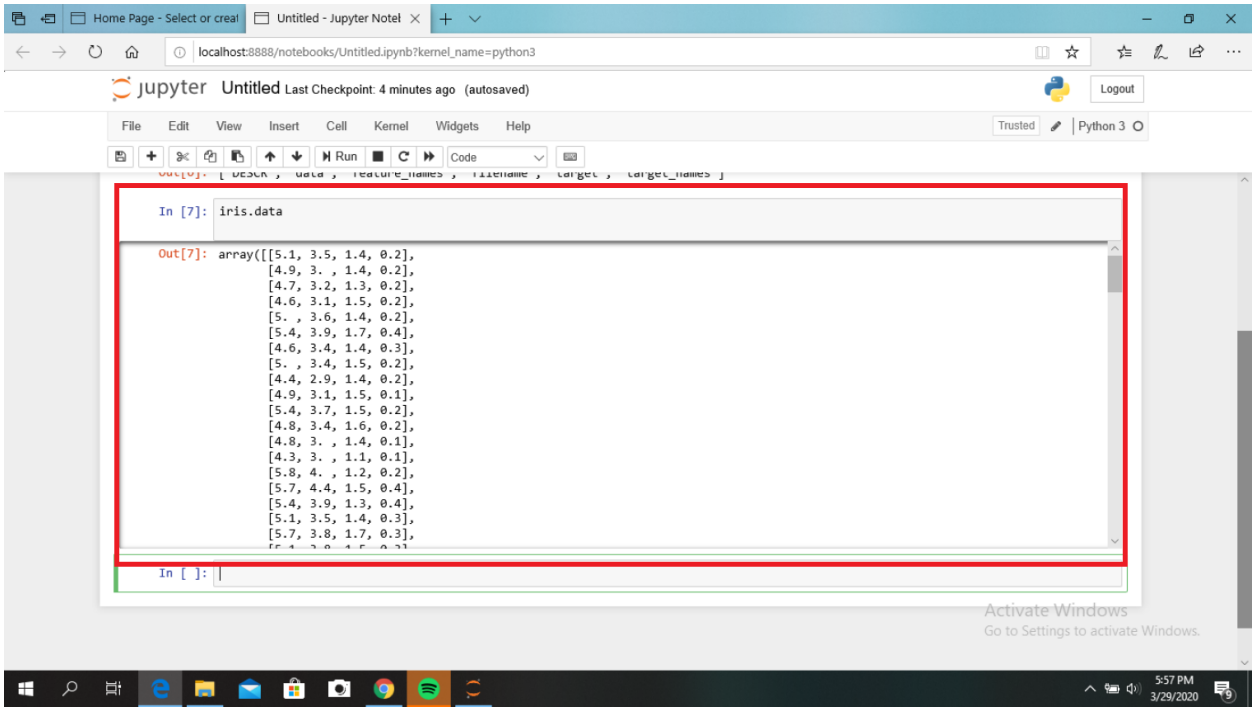


Fig8.1 dir(iris)

```
iris.data
```

#Output : Fig8.2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localhost:8888/notebooks/Untitled.ipynb?kernel_name=python3
jupyter Untitled Last Checkpoint: 4 minutes ago (autosaved)
Logout
File Edit View Insert Cell Kernel Widgets Help
Trusted Python 3
Run Code
In [7]: iris.data
Out[7]: array([[5.1, 3.5, 1.4, 0.2],
[4.9, 3. , 1.4, 0.2],
[4.7, 3.2, 1.3, 0.2],
[4.6, 3.1, 1.5, 0.2],
[5. , 3.6, 1.4, 0.2],
[5.4, 3.9, 1.7, 0.4],
[4.6, 3.4, 1.4, 0.3],
[5. , 3.4, 1.5, 0.2],
[4.4, 2.9, 1.4, 0.2],
[4.9, 3.1, 1.5, 0.1],
[5.4, 3.7, 1.5, 0.2],
[4.8, 3.4, 1.6, 0.2],
[4.8, 3. , 1.4, 0.1],
[4.3, 3. , 1.1, 0.1],
[5.8, 4. , 1.2, 0.2],
[5.7, 4.4, 1.5, 0.4],
[5.4, 3.9, 1.3, 0.4],
[5.1, 3.5, 1.4, 0.3],
[5.7, 3.8, 1.7, 0.3],
In [ ]:
Activate Windows
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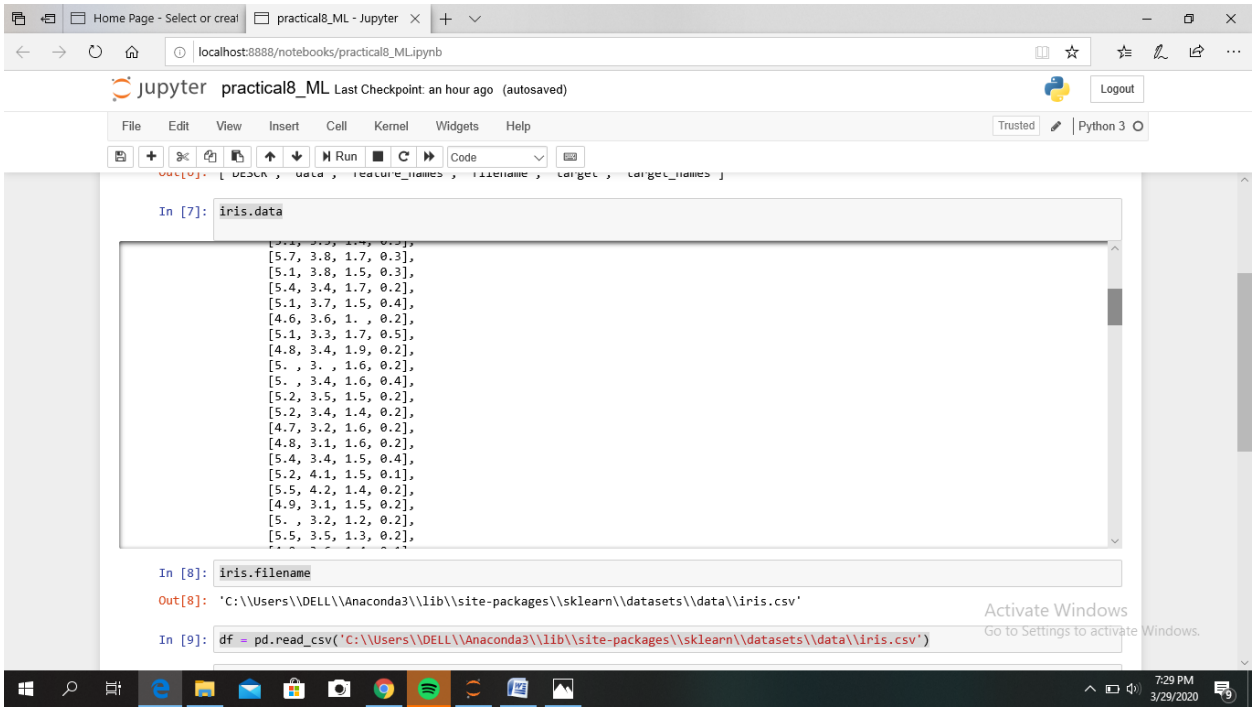
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File Edit View Insert Cell Kernel Widgets Help
Trusted Python 3
Run Code
In [7]: iris.data
[5.7, 3.8, 1.7, 0.3],
[5.1, 3.8, 1.5, 0.3],
[5.4, 3.4, 1.7, 0.2],
[5.1, 3.7, 1.5, 0.4],
[4.6, 3.6, 1. , 0.2],
[5.1, 3.3, 1.7, 0.5],
[4.8, 3.4, 1.9, 0.2],
[5. , 3. , 1.6, 0.2],
[5. , 3.4, 1.6, 0.4],
[5.2, 3.5, 1.5, 0.2],
[5.2, 3.4, 1.4, 0.2],
[4.7, 3.2, 1.6, 0.2],
[4.8, 3.1, 1.6, 0.2],
[5.4, 3.4, 1.5, 0.4],
[5.2, 4.1, 1.5, 0.1],
[5.5, 4.2, 1.4, 0.2],
[4.9, 3.1, 1.5, 0.2],
[5. , 3.2, 1.2, 0.2],
[5.5, 3.5, 1.3, 0.2],
In [8]: iris.filename
Out[8]: 'C:\\Users\\DELL\\Anaconda3\\lib\\site-packages\\sklearn\\datasets\\data\\iris.csv'
In [9]: df = pd.read_csv('C:\\Users\\DELL\\Anaconda3\\lib\\site-packages\\sklearn\\datasets\\data\\iris.csv')
Activate Windows
Go to Settings to activate Windows.
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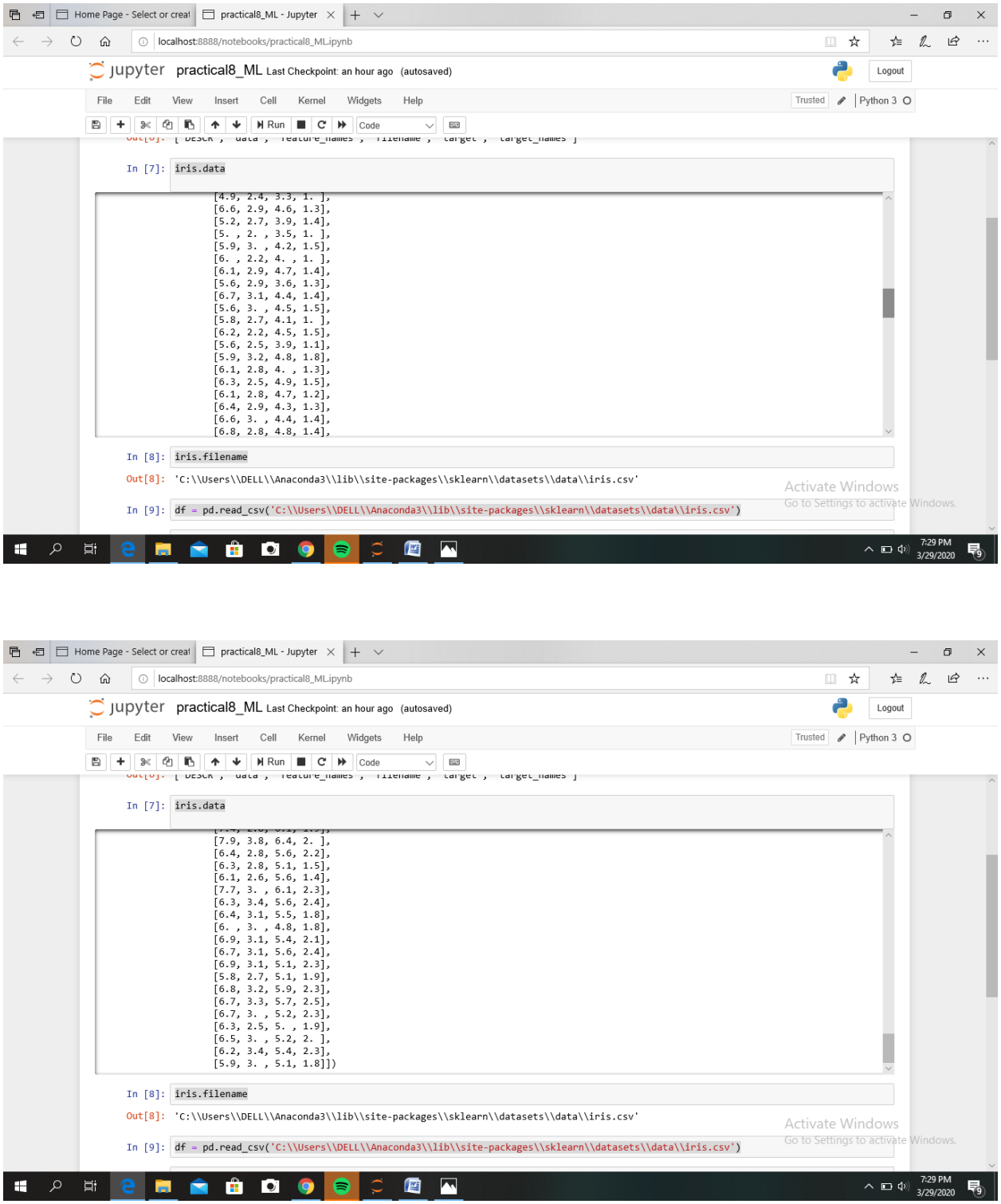

Fig.8.2 iris.data

iris.filename **#Output: Fig.8.3**

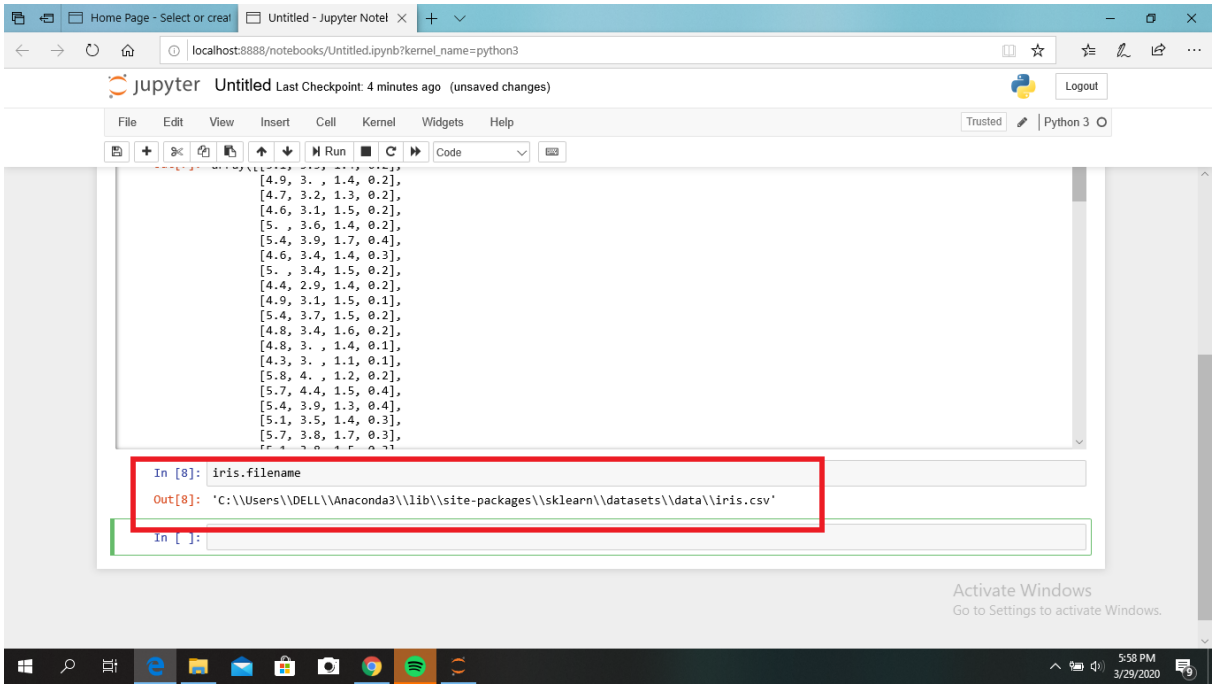

Fig. 8.3 iris.filename

```
df = pd.read_csv('C:\\Users\\DELL\\Anaconda3\\lib\\site-packages\\sklearn\\datasets\\data\\iris.csv')
from sklearn.datasets import load_iris
 iris = load_iris()
 x = iris.data
 y = iris.target
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test = train_test_split(x,y,test_size=0.4,random_state = 1)
from sklearn.naive_bayes import GaussianNB
model = GaussianNB()
model.fit(x_train,y_train)
```

#Output : Fig.8.4

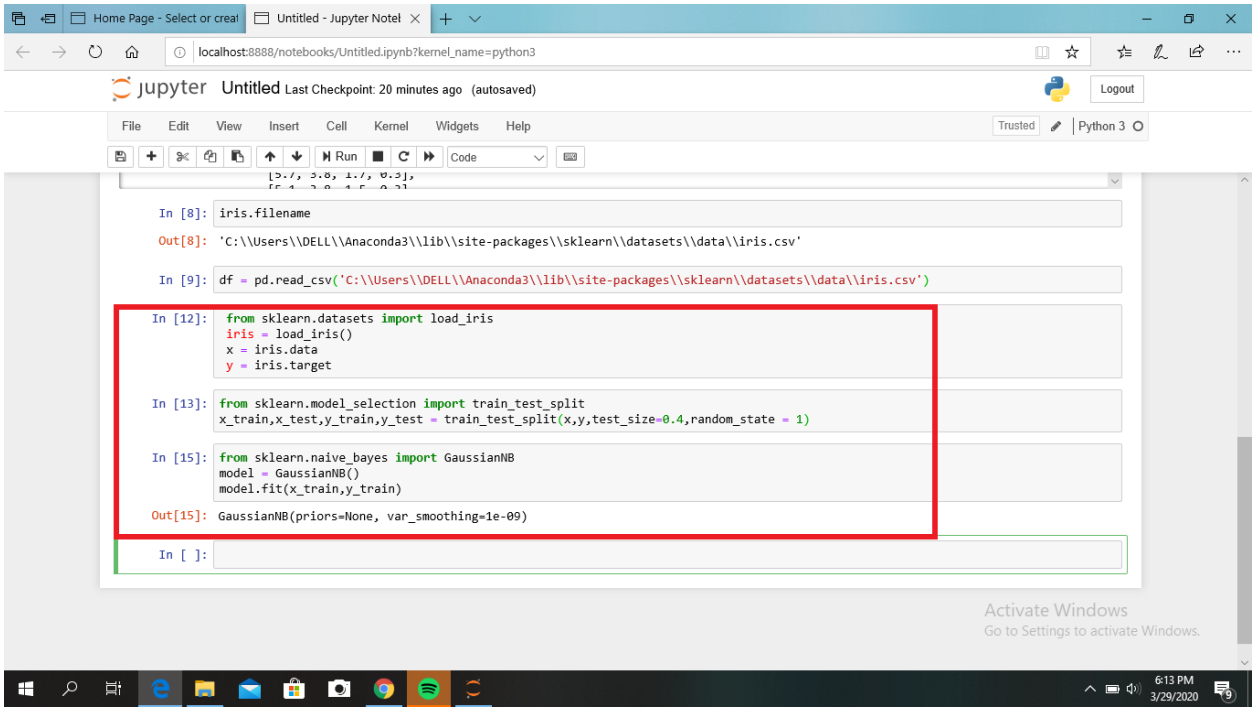

Fig.8.4 Model fitting

```
y_pred = model.predict(x_test)

from sklearn.metrics import accuracy_score

print(f'Guassian Naive Bayes model accuracy(in %) := {accuracy_score(y_test,y_pred)*100} %')

res = model.predict([[6.5,3.0,5.2,2.0]])

print (f'Result = {iris.target_names[res[0]]}')
```

Output :

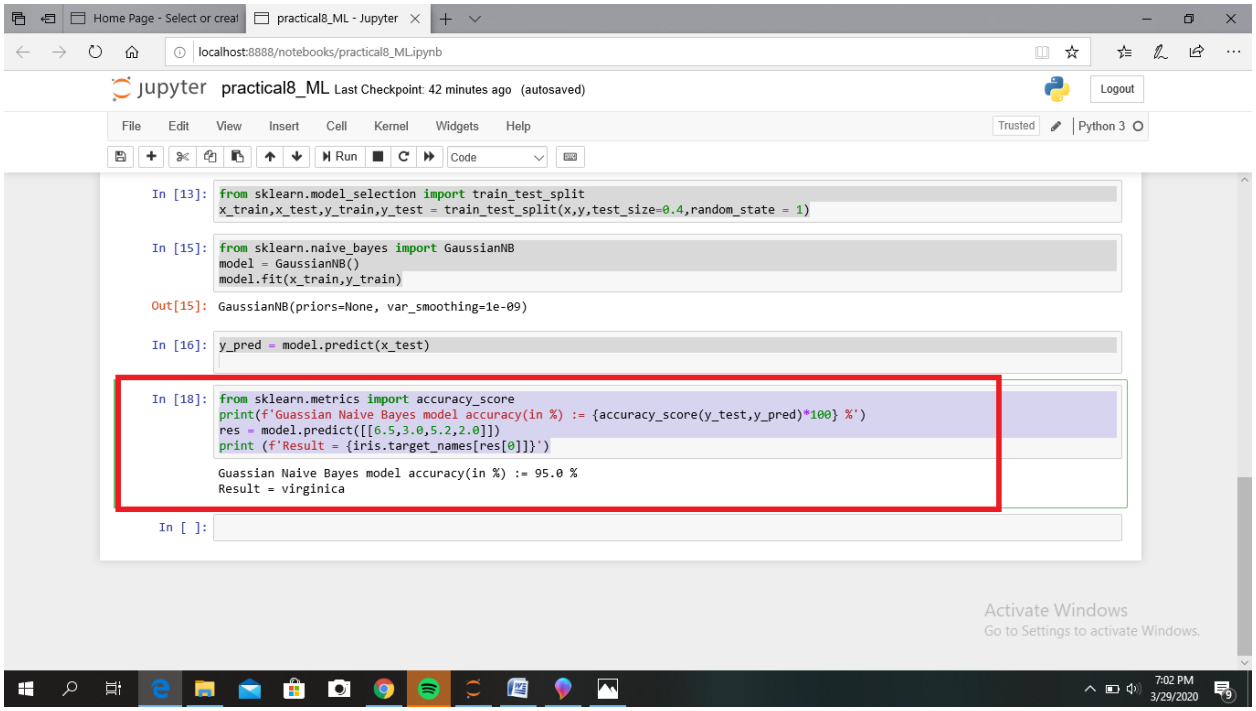

Fig.8.5 Result Output-Displaying target name as result