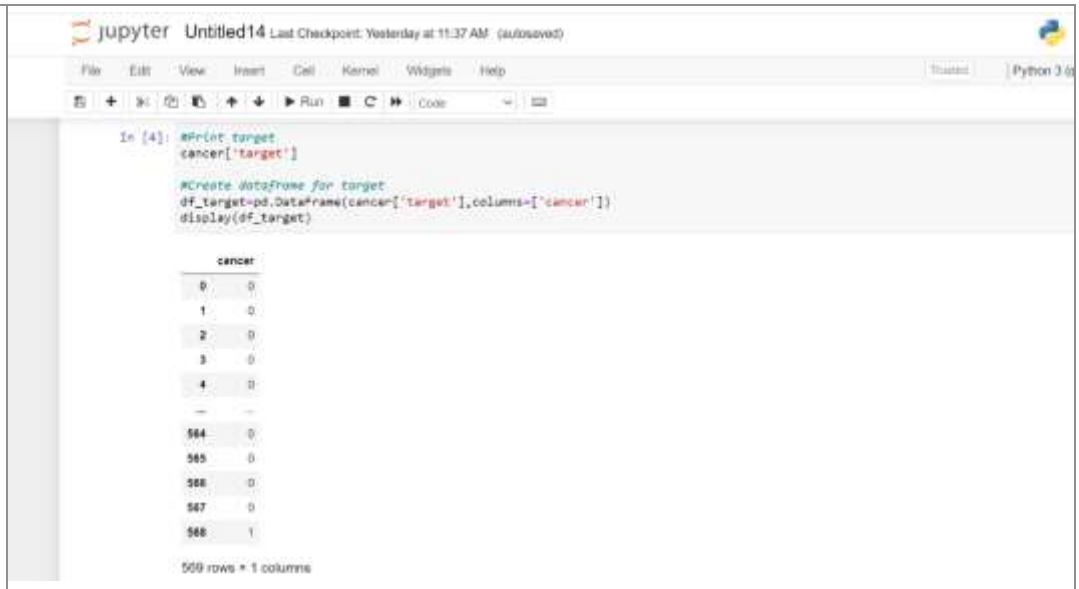
ML flow	Ml flow tracking	Mlflow projects	Mlflow models	Model registry

Mlflow demo

Introduction to ML flow	
ML flow demo	
Azure ML Demo - training the model	

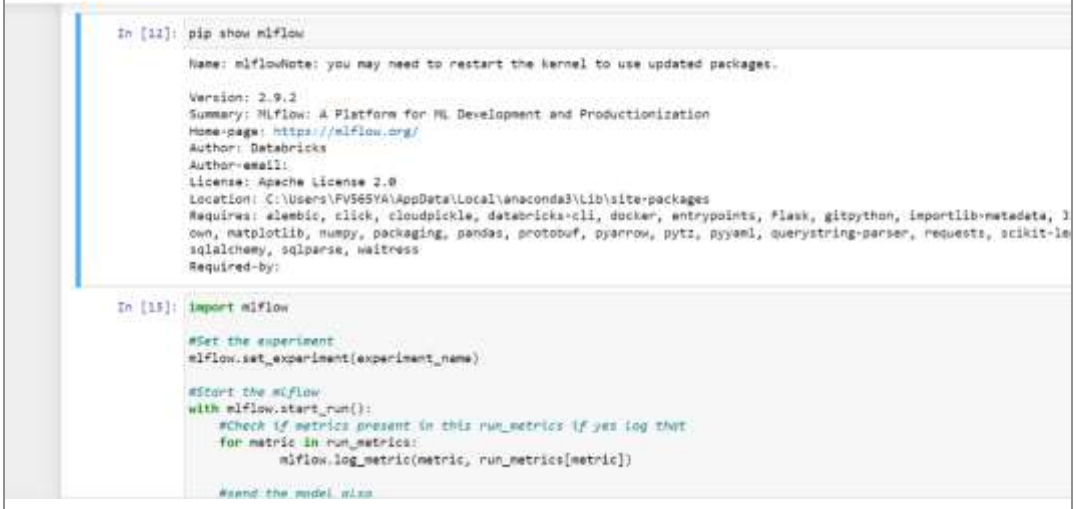
```
#!/usr/bin/env python
# coding: utf-8
# In[1]:

#install the libraries
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
#Get the data
from sklearn.datasets import load_breast_cancer
#Load this data to cancer
cancer=load_breast_cancer()


#this data set is presented in dictionary form
cancer.keys()
#print features name
cancer['feature_names']
#setup dataframe
df_feat=pd.DataFrame(cancer['data'],columns=cancer['feature_names'])
df_feat.info()

#Print target
cancer['target']
#Create dataframe for target
df_target=pd.DataFrame(cancer['target'],columns=['cancer'])
display(df_target)


#convert the values of dataframe to array
import numpy as np
np.ravel(df_target)

df_feat.head()
#now standarizing the model
from sklearn.preprocessing import StandardScaler
scaler=StandardScaler()
#Fit the model
scaler.fit(df_feat)
#Transform the dataset
scaled_features=scaler.transform(df_feat)
```

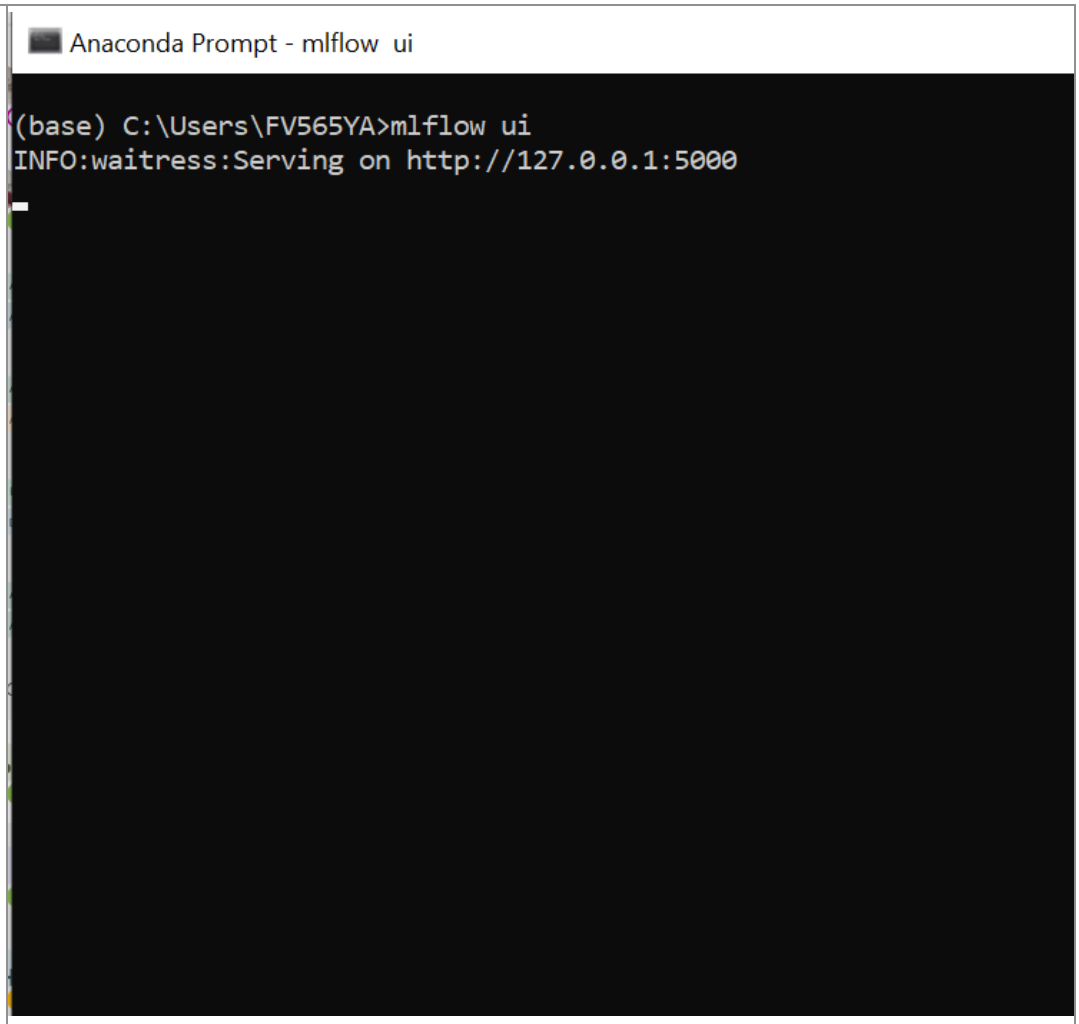
```
df_feat_scaled=pd.DataFrame(scaled_features,columns=df_feat.columns)
df_feat_scaled.head()
#Split the data
import numpy as np
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(
     scaled_features, np.ravel(df_target), test_size=0.20,
random_state=105)

from sklearn.neighbors import KNeighborsClassifier
knn=KNeighborsClassifier(n_neighbors=1) #this is k value,it mean it
will check 1 nearest data
knn.fit(X_train,y_train)
#Check the prediction
y_pred=knn.predict(X_test)


#Find matcis
def get_metrics(y_true, y_pred):
    from sklearn.metrics import
accuracy_score,precision_score,recall_score,log_loss
    acc = accuracy_score(y_test, y_pred)
    prec = precision_score(y_test, y_pred)
    recall = recall_score(y_test, y_pred)
    return {'accuracy': round(acc, 2), 'precision': round(prec, 2),
'recall': round(recall, 2)}



# In[24]:

experiment_name = "exp_1"
#Here am getting metrics in run_metrics
run_metrics = get_metrics(y_test, y_pred)
print(run_metrics)
```



Run This pip

```
pip install mlflow

pip show mlflow
```



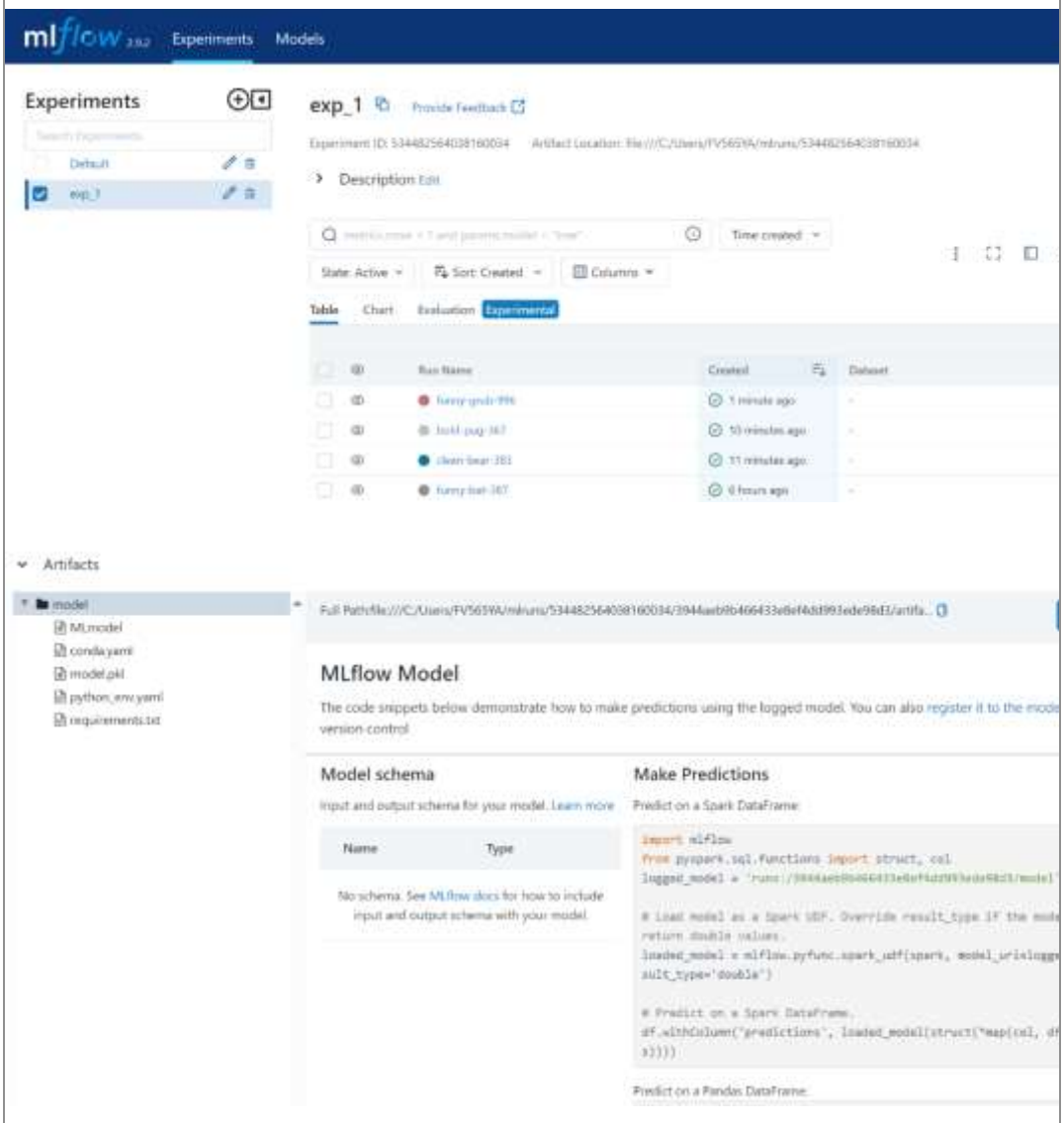



```
import mlflow
#Set the experiment
mlflow.set_experiment(experiment_name)
#Start the mlflow
with mlflow.start_run():
    #Check if metrics present in this run_metrics if yes log that
    for metric in run_metrics:
            mlflow.log_metric(metric, run_metrics[metric])

    #send the model also
    mlflow.sklearn.log_model(knn, "model")

print('It is logged to Experiment - %s' %( experiment_name))
```

```
own, matplotlib, numpy, packaging, pandas, protobuf, pyarrow,
sqlalchemy, sqlparse, waitress
Required-by:
```

In [12]:
```
import mlflow

#Set the experiment
mlflow.set_experiment(experiment_name)

#Start the mlflow
with mlflow.start_run():
    #Check if metrics present in this run_metrics if yes log
    for metric in run_metrics:
            mlflow.log_metric(metric, run_metrics[metric])

    #send the model also
    mlflow.sklearn.log_model(knn, "model")

print('It is logged to Experiment - %s' %( experiment_name))
```

```
It is logged to Experiment - exp_1
```



	`import mlflow`
	`logged_model = 'runs:/420e1098ea034b2fb182467ea5dd7a93/model'`
	`# Load model as a PyFuncModel.`
	`loaded_model = mlflow.pyfunc.load_model(logged_model)`
	`# Predict on a Pandas DataFrame.`
	`import pandas as pd`
	`loaded_model.predict(pd.DataFrame(X_test))`
	
	`# In[19]:`

Introduction to Azure ML	
Azure Ml Demo- Deploying the model It has 3 Parts	<<Classification Model Deployment using Azure ML designer.docx>>