Unit 3.4 Graded Assignment:

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Daily Assignment :

Run your Classification model that you trained on the day dedicated to Supervised Learning in MLFlow.

Answer:

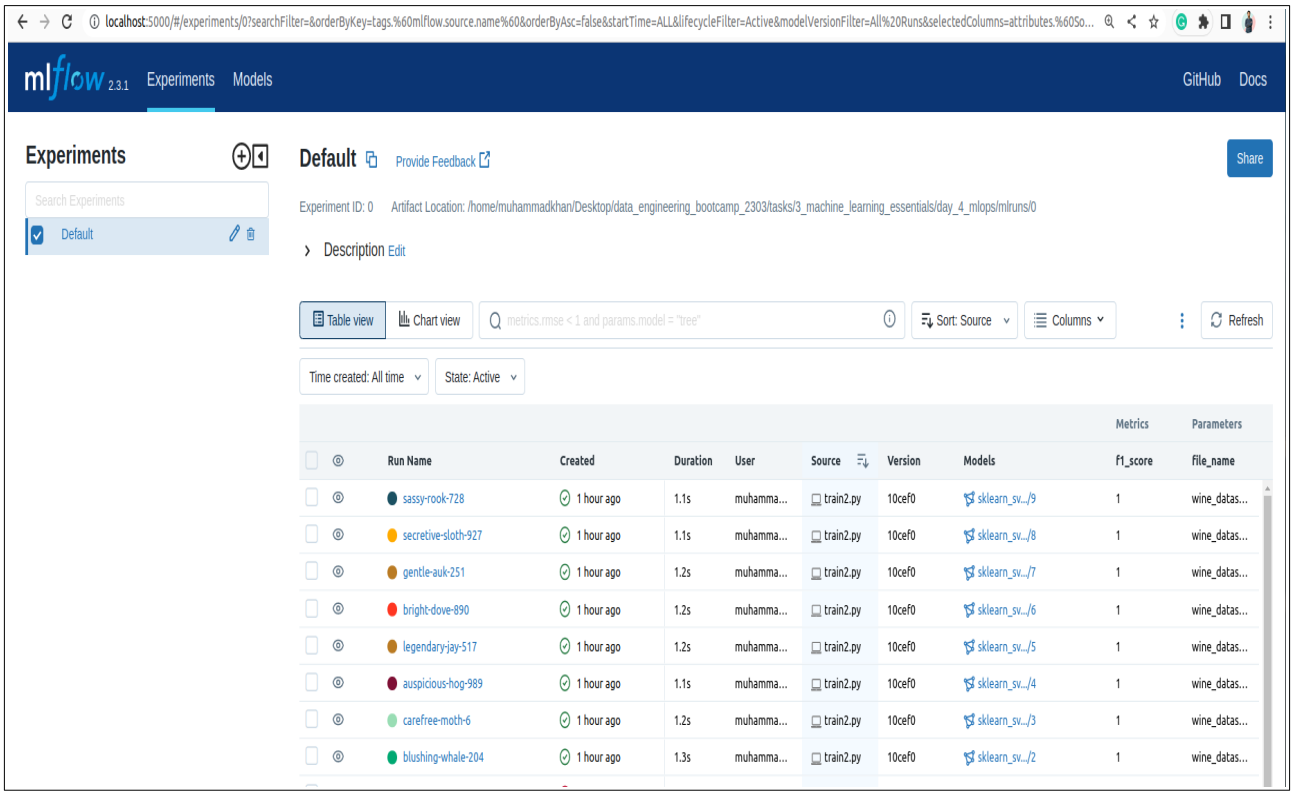
train.py

```python
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.datasets import load_wine
from sklearn.svm import SVC
from sklearn.metrics import f1_score
from sklearn.preprocessing import StandardScaler

def preprocess_data(df: pd.DataFrame):
    scaler = StandardScaler()
    X_train = scaler.fit_transform(df)
    y_train = df.target
    return X_train, y_train
def train_svm(X_train, y_train):
    clf = SVC(kernel='linear')
    clf.fit(X_train, y_train)
    return clf
def evaluate_svm(clf, X_test, y_test):
    y_pred = clf.predict(X_test)
    f1 = f1_score(y_test, y_pred, average='micro')
    return f1
def main(file_name: str):
    df = preprocess_data(pd.read_csv(file_name)
    X_train, X_test, Y_train, Y_test = split_data(df)
    with mlflow.start_run():
        clf = train_svm(X_train, y_train)
        f1 = evaluate_svm(clf, X_test, y_test)
            # Log parameters and metrics with MLflow
        mlflow.log_param("file_name", file_name)
        mlflow.log_metric("f1_score", f1)
            # Save the trained model
        mlflow.sklearn.log_model(clf, "svm_model",registered_model_name="sklearn_svm")
        print(f"F1 Score: {f1}")
        print("Model saved with run_id:", mlflow.active_run().info.run_id)

if __name__ == "__main__":
    file_name = "wine_dataset.csv"  # Replace with the actual path to your data file
    main(file_name)
```

Mlflow Production Screen



WE used the sklearn algorithm SVM.