Experiment No: 10

Code:

```
import pandas as pd

from sklearn import svm

from sklearn.model_selection import train_test_split

from sklearn.preprocessing import LabelEncoder, StandardScaler

from sklearn.metrics import accuracy_score


# Load your dataset

data =
pd.read_csv(r'D:\Current_Learning\TY_NOTES\ML\Practical\Exp_No_10\Experiment10.csv')


# Encode 'species' if it's categorical

if data['Species'].dtype == 'object':

    encoder = LabelEncoder()

    data['Species'] = encoder.fit_transform(data['Species'])


# Define features and target

X = data[['Weight', 'Width']]

y = data['Species']


# Split the data into training and testing sets

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)


scaler = StandardScaler()
```

```
X_train = scaler.fit_transform(X_train)

X_test = scaler.transform(X_test)


# Create and train the SVM classification model

model = svm.SVC()

model.fit(X_train, y_train)


y_pred = model.predict(X_test)


accuracy = accuracy_score(y_test, y_pred)

print(f"Model Accuracy: {accuracy:.2f}")


y_pred_labels = encoder.inverse_transform(y_pred)

print("SVM Predictions (Species):", y_pred_labels)
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

Microsoft Windows [Version 10.0.26100.2314]
(c) Microsoft Corporation. All rights reserved.

D:\Current_Learning\TY_NOTES\ML\Practical\Exp_No_10>python -u "d:\Current_Learning\TY_NOTES\ML\Practical\Exp_No_10\ML_10_01.py"
Model Accuracy: 0.75
SVM Predictions (Species): ['Perch' 'Smelt' 'Perch' 'Perch' 'Perch' 'Perch' 'Smelt' 'Perch' 'Perch'
 'Pike' 'Bream' 'Perch' 'Bream' 'Perch' 'Bream' 'Bream' 'Perch' 'Perch'
 'Perch' 'Bream' 'Smelt' 'Bream' 'Bream' 'Bream' 'Bream' 'Perch' 'Perch'
 'Perch' 'Smelt' 'Smelt' 'Bream' 'Perch']

D:\Current_Learning\TY_NOTES\ML\Practical\Exp_No_10>
```