

sl-support-vector-mechanism-1

August 26, 2023

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#Project Title: Using the support vector mechanism algorithm of supervised machine learning, predict iris.csv dataset to find out species will be same or different.

#Problem Statement: A American based botanical gardens grow iris flower in their labs but using bio technology in a single tree different type of variety flower is grow.As a Data Science Engineer find out how much accuracy is there all categories contains same species.

#Task1:Preprocess the data in sklearn library. **#Task2:** Load the data using sklearn model selection default argument. **#Task3:**On the basis of dataset train test split your SVM model. **#Task4:** Implement support vector mechanism classifier using svm_classifier.The svm must be "Linear". **#Task5:** Train the classifier on the training data. **#Task6:** Find out the prediction values on the test data. **#Task7:** Test the model with the help of accuracy,accuracy should be lie in the range of 0 to 1.

```
[1]: from sklearn.datasets import load_iris
      from sklearn.model_selection import train_test_split
      from sklearn.svm import SVC
      from sklearn.metrics import accuracy_score
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[2]: # Load the Iris dataset
iris = load_iris()
X = iris.data
y = iris.target
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[3]: # Consider only two classes for simplicity
X = X[y != 2]
y = y[y != 2]
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```
[4]: # Split the dataset 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)
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[5]: # Create an SVM classifier
svm_classifier = SVC(kernel='linear')
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[6]: # Train the classifier on the training data
svm_classifier.fit(X_train, y_train)
```

```
[6]: SVC(kernel='linear')
```

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[7]: # Make predictions on the test data
y_pred = svm_classifier.predict(X_test)
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[8]: # Calculate accuracy
accuracy = accuracy_score(y_test, y_pred)
print(f"Accuracy: {accuracy:.2f}")
```

Accuracy: 1.00

#Conclusion: According to my support vector model the species are linear. With the accuracy of 1.00. # Hence model was successfully implemented.