In [25]:

```
import numpy as np
```

In [26]:

```
class KNNClassifier:

    def __init__(self, n_neighbours='auto', p=2):
        self.n_neighbours = n_neighbours
        self.p = p


    def fit(self, X, y):

        self.X = X
        self.y = y

        if self.n_neighbours == 'auto':
            self.n_neighbours = int(np.sqrt(len(self.X)))
            if self.n_neighbours % 2 != 0:
                self.n_neighbours += 1

        return self


    def predict(self, X):
#         dim_check([X], [2], ['X'])
        predictions = []
        self.confidence = []
        for pred_row in X:
            euclidean_distances = []
            for X_row in self.X:
                distance = np.linalg.norm(X_row - pred_row, ord=sel
                euclidean_distances.append(distance)

            neighbours = self.y[np.argsort(euclidean_distances)[:se
            neighbours_bc = np.bincount(neighbours)
            prediction = np.argmax(neighbours_bc)
            self.confidence.append(neighbours_bc[prediction]/len(ne
            predictions.append(prediction)

        predictions = np.array(predictions)
        return predictions
```

In [34]:

```
from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
```

In [35]:

```
X,y = load_iris(return_X_y=True)
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size
In [36]: knn = KNNClassifier()
         knn.fit(X_train,y_train)

Out[36]: <__main__.KNNClassifier at 0x145be4c40>
```

```
In [37]: y_pred=knn.predict(X_test)
```

```
In [32]: from sklearn.metrics import confusion_matrix, accuracy_score
```

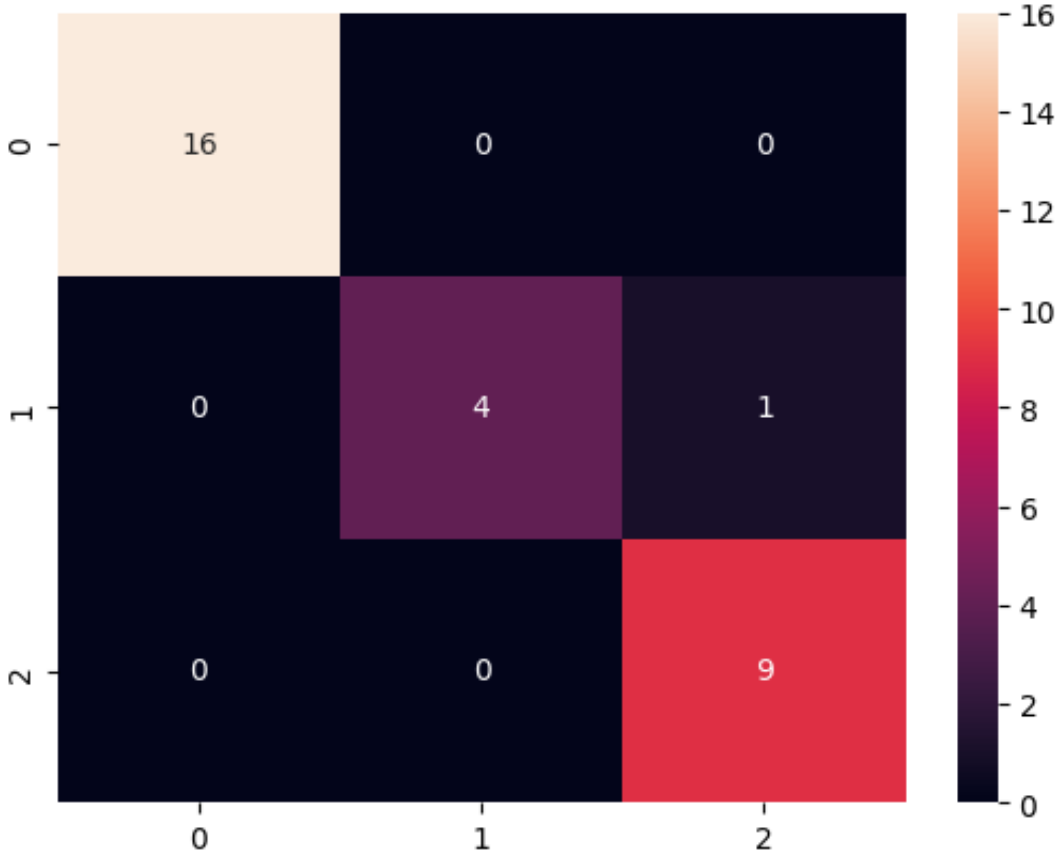
```
In [38]: cm = confusion_matrix(y_test, y_pred)
         print(cm)
         accuracy_score(y_test, y_pred)

         [[16  0  0]
          [ 0  4  1]
          [ 0  0  9]]

Out[38]: 0.9666666666666667
```

```
In [22]: import seaborn as sns
         from sklearn.metrics import confusion_matrix
         sns.heatmap(confusion_matrix(y_test, y_pred),annot = True)

Out[22]: <AxesSubplot: >
```



```
In [ ]:
```