[1]:
```
import numpy as np
import matplotlib.pyplot as plt
from sklearn.cluster import KMeans
from sklearn.datasets import make_blobs

# Generate sample data
X, y_true = make_blobs(n_samples=600, centers=3, cluster_std=0.60, random_state=0)

# Apply KMeans
kmeans = KMeans(n_clusters=3, random_state=0)
kmeans.fit(X)
y_kmeans = kmeans.predict(X)

# Plot the result
plt.scatter(X[:, 0], X[:, 1], c=y_kmeans, s=50, cmap='viridis')
centers = kmeans.cluster_centers_
plt.scatter(centers[:, 0], centers[:, 1], c='red', s=200, alpha=0.75, marker='X', label='Centroids')
plt.title("K-Means Clustering")
plt.legend()
plt.show()
```

```
D:\Users\MGM\anaconda3\Lib\site-packages\joblib\externals\loky\backend\context.py:136: UserWarning: Could not find the number of physical cores for the
following reason:
[WinError 2] The system cannot find the file specified
Returning the number of logical cores instead. You can silence this warning by setting LOKY_MAX_CPU_COUNT to the number of cores you want to use.
  warnings.warn(
  File "D:\Users\MGM\anaconda3\Lib\site-packages\joblib\externals\loky\backend\context.py", line 257, in _count_physical_cores
    cpu_info = subprocess.run(
               ^^^^^^^^^^^^^^^
  File "D:\Users\MGM\anaconda3\Lib\subprocess.py", line 548, in run
    with Popen(*popenargs, **kwargs) as process:
         ^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "D:\Users\MGM\anaconda3\Lib\subprocess.py", line 1026, in __init__
    self._execute_child(args, executable, preexec_fn, close_fds,
  File "D:\Users\MGM\anaconda3\Lib\subprocess.py", line 1538, in _execute_child
    hp, ht, pid, tid = _winapi.CreateProcess(executable, args,
                       ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
D:\Users\MGM\anaconda3\Lib\site-packages\sklearn\cluster\_kmeans.py:1429: UserWarning: KMeans is known to have a memory leak on Windows with MKL, when t
here are less chunks than available threads. You can avoid it by setting the environment variable OMP_NUM_THREADS=3.
  warnings.warn(
```

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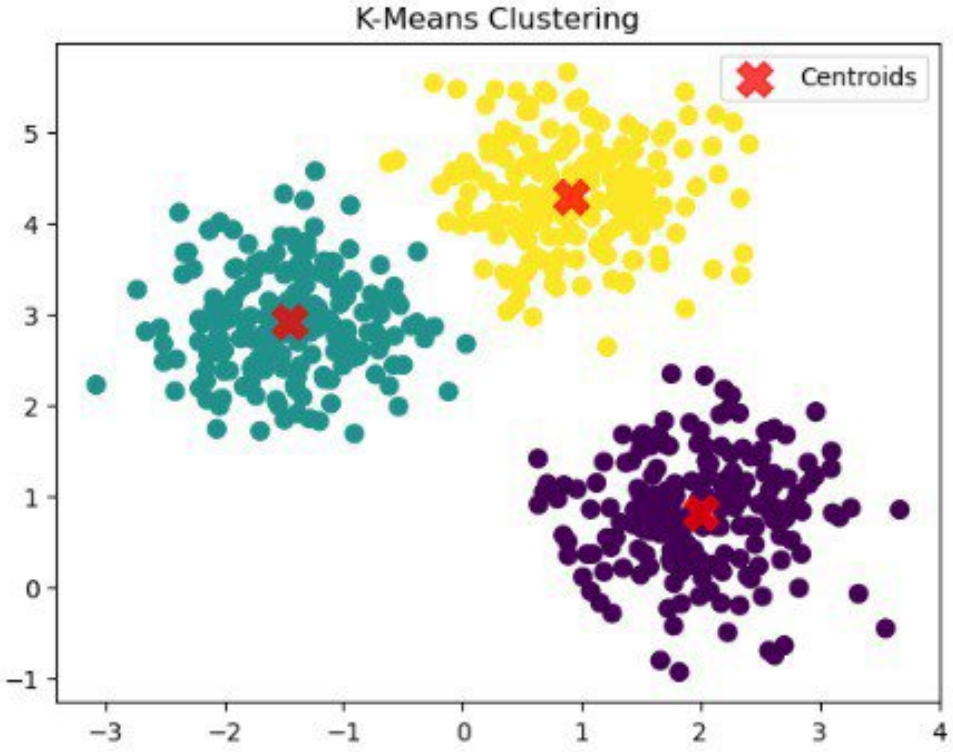
  warnings.warn(
```



[2]:
```python
from sklearn.metrics import accuracy_score
from scipy.optimize import linear_sum_assignment
import numpy as np

def cluster_accuracy(y_true, y_pred):
    # Create confusion matrix
    from sklearn.metrics import confusion_matrix
    cm = confusion_matrix(y_true, y_pred)

    # Use Hungarian algorithm to find best matching between cluster labels and true labels
    row_ind, col_ind = linear_sum_assignment(-cm)  # maximize matching by minimizing negative

    # Calculate accuracy
    accuracy = cm[row_ind, col_ind].sum() / y_true.size
    return accuracy

acc = cluster_accuracy(y_true, y_kmeans)
print(f"Clustering accuracy: {acc:.4f}")
```

```
Clustering accuracy: 0.9950
```

[ ]: