Skillshed Clustering 2023 Project

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Python Code

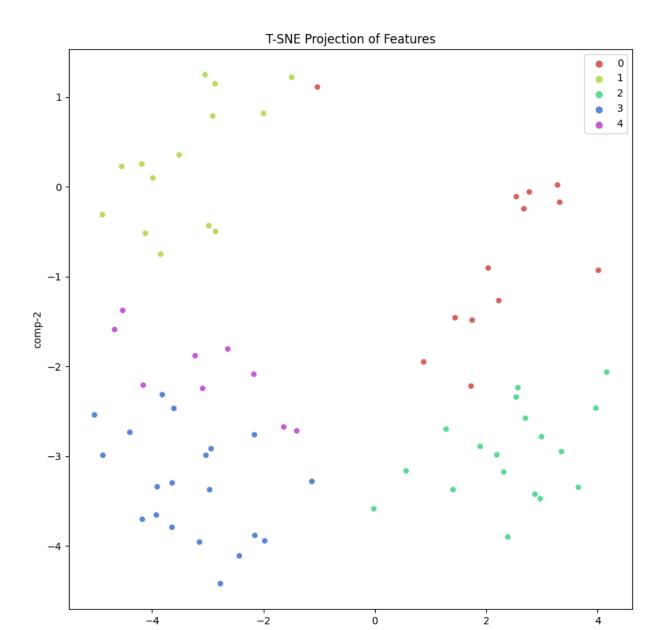
FuzzyClusteringTestRun.py

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from os import getcwd, listdir
from fcmeans import FCM
from sklearn.manifold import TSNE
# Path to the data
data_path = getcwd() + "/data/raw"
# Read the OCC Test Run CSV into pandas
df = pd.read_csv(f"{data_path}/OCC_testrun.csv")
# Columns
print(df.columns)
# Num clusters variable
num_clusters = 5
# Instantiate a FCM model with 4 clusters
model = FCM(n_clusters=num_clusters)
# Features are everything except SOC_Code
features = df.drop(['SOC_Code', 'Title'], axis=1).values
print(type(features))
print(features.shape)
# Fit FCM Model
model.fit(features)
# Centers, Labels
centers = model.centers
labels = model.predict(features)
print(centers.shape)
print(labels.shape)
# Look at the the two artifacts as a DataFrame
df['cluster labels'] = labels
# Value Counts of Predicted Labels with 4 Clusters
## Transform counts into a DataFrame
label_counts = df['cluster_labels'].value_counts().reset_index()
# Verify that result is a DataFrame
print(type(label_counts))
# Rename Columns
```

```
label_counts.columns = ['cluster_label', 'frequency']
# Create Pie Chart of Frequencies
label_counts.plot(x='cluster_labels', y='frequency', kind='pie', figsize=(10,10))
plt.show()
# Get DF COlumns
cols = df.columns.tolist()
# FCM Labels
fcm_labels = model.u.argmax(axis=1)
# Create tSNE Components
tsne = TSNE(n_components=2, verbose=1, random_state=123)
z = tsne.fit_transform(features)
# DataFrame
result_df = pd.DataFrame()
result_df['target'] = df['cluster_labels']
result_df['comp-1'] = z[:,0]
result_df['comp-2'] = z[:,1]
plt.figure(figsize=(10,10))
sns.scatterplot(x="comp-1", y='comp-2', hue=result_df['target'].tolist(), palette=sns.cc
plt.show()
```

Visualizations

5 clusters



comp-1