In [2]:

```python
#28/01/2025

import pandas as pd
from sklearn.preprocessing import LabelEncoder

# Sample data
data = {
    "customer_id": [1, 2, 3, 4],
    "gender": ["Male", "Female", "Female", "Male"],
    "subscription_status": ["Active", "Inactive", "Active", "Inactive"]
}

# Convert data to a DataFrame
df = pd.DataFrame(data)
print("Original DataFrame:")
print(df)

# Initialize LabelEncoder
label_encoder = LabelEncoder()

# Encode the 'gender' column
df['gender_encoded'] = label_encoder.fit_transform(df['gender'])

# Encode the 'subscription_status' column
df['subscription_status_encoded'] = label_encoder.fit_transform(df['subscription_status'])

print("\nDataFrame with Label Encoding:")
print(df)
```

```
Original DataFrame:
   customer_id  gender subscription_status
0            1    Male              Active
1            2  Female            Inactive
2            3  Female              Active
3            4    Male            Inactive

DataFrame with Label Encoding:
   customer_id  gender subscription_status  gender_encoded  \
0            1    Male              Active               1
1            2  Female            Inactive               0
2            3  Female              Active               0
3            4    Male            Inactive               1

   subscription_status_encoded
0                            0
1                            1
2                            0
3                            1
```

In [4]:

```python
import pandas as pd
from sklearn.preprocessing import OneHotEncoder

data = {
    "customer_id": [1, 2, 3, 4],
    "gender": ["Male", "Female", "Female", "Male"],
    "city": ["Hyderabad", "Pune", "Banglore", "Mumbai"]
}

# Convert data to a DataFrame
df = pd.DataFrame(data)
print("Original DataFrame:")
print(df)

# One-Hot encoding with sklearn
one_hot_encoder = OneHotEncoder(sparse_output=False)

# Select columns to encode
columns_to_encode = ["gender", "city"]

# Fit and transform the data
encoded_data = one_hot_encoder.fit_transform(df[columns_to_encode])

# Create a new dataframe for encoded data
encoded_columns = one_hot_encoder.get_feature_names_out(columns_to_encode)
encoded_df = pd.DataFrame(encoded_data, columns=encoded_columns)

# Combine with the original dataframe (excluding the columns we encoded)
final_df = pd.concat([df.drop(columns=columns_to_encode), encoded_df], axis=1)

print("\nOne-Hot Encoded DataFrame with sklearn:")
print(final_df)
```

```
Original DataFrame:
   customer_id  gender       city
0            1    Male  Hyderabad
1            2  Female       Pune
2            3  Female   Banglore
3            4    Male     Mumbai

One-Hot Encoded DataFrame with sklearn:
   customer_id  gender_Female  gender_Male  city_Banglore  city_Hyderabad  \
0            1            0.0          1.0            0.0             1.0
1            2            1.0          0.0            0.0             0.0
2            3            1.0          0.0            1.0             0.0
3            4            0.0          1.0            0.0             0.0

   city_Mumbai  city_Pune
0          0.0        0.0
1          0.0        1.0
2          0.0        0.0
3          1.0        0.0
```

In [6]:

```python
import pandas as pd
from sklearn.preprocessing import OneHotEncoder

data = {
    "customer_id": [1, 2, 3, 4],
    "gender": ["Male", "Female", "Female", "Male"],
    "city": ["Hyderabad", "Pune", "Banglore", "Mumbai"],
    "fruits":["apple","banana","carrot","orange"]
}

# Convert data to a DataFrame
df = pd.DataFrame(data)
print("Original DataFrame:")
print(df)

# One-Hot encoding with sklearn
one_hot_encoder = OneHotEncoder(sparse_output=False)

# Select columns to encode
columns_to_encode = ["gender", "city","fruits"]

# Fit and transform the data
encoded_data = one_hot_encoder.fit_transform(df[columns_to_encode])

# Create a new dataframe for encoded data
encoded_columns = one_hot_encoder.get_feature_names_out(columns_to_encode)
encoded_df = pd.DataFrame(encoded_data, columns=encoded_columns)

# Combine with the original dataframe (excluding the columns we encoded)
final_df = pd.concat([df.drop(columns=columns_to_encode), encoded_df], axis=1)

print("\nOne-Hot Encoded DataFrame with sklearn:")
print(final_df)
```

```
Original DataFrame:
   customer_id  gender       city  fruits
0            1    Male  Hyderabad   apple
1            2  Female       Pune  banana
2            3  Female   Banglore  carrot
3            4    Male     Mumbai  orange

One-Hot Encoded DataFrame with sklearn:
   customer_id  gender_Female  gender_Male  city_Banglore  city_Hyderabad  \
0            1            0.0          1.0            0.0             1.0
1            2            1.0          0.0            0.0             0.0
2            3            1.0          0.0            1.0             0.0
3            4            0.0          1.0            0.0             0.0

   city_Mumbai  city_Pune  fruits_apple  fruits_banana  fruits_carrot  \
0          0.0        0.0           1.0            0.0            0.0
1          0.0        1.0           0.0            1.0            0.0
2          0.0        0.0           0.0            0.0            1.0
3          1.0        0.0           0.0            0.0            0.0

   fruits_orange
0            0.0
1            0.0
```

```
2           0.0
3           1.0
```

```
In [ ]:
```