```
# read the csv file ans save it as dataframe
df = pd.read_csv('heartattack.csv')
# printing the firts 5 rows
print("First few rows of the dataset:")
print(df.head())

# function that contains the procedure for label or onehot encoding
for categorical data
def encode_categorical_data(df, columns, encoding_type='label'):
    if encoding_type not in ['label', 'onehot']:
        raise ValueError("encoding_type should be either 'label' or
'onehot'")

    df_encoded = df.copy()
    if encoding_type == 'label':
        for col in columns:
            le = LabelEncoder()
            df_encoded[col] = le.fit_transform(df_encoded[col])
    elif encoding_type == 'onehot':
        df_encoded = pd.get_dummies(df_encoded, columns=columns,
dtype=float)

    return df_encoded

def main():
    # Using the dataset loaded from the file
    df = pd.read_csv('heartattack.csv')

    # Identify categorical columns
    categorical_columns = identify_categorical_columns(df)
    print("Categorical columns identified:", categorical_columns)

    # Choose encoding type ('onehot' or 'label')
    encoding_type = input("Choose encoding type ('label' or 'onehot'):
").strip().lower()
    df_encoded = encode_categorical_data(df, categorical_columns,
encoding_type)

    # Display the transformed dataset
    print(df_encoded)

if __name__ == "__main__":
    main()
```

```
First few rows of the dataset:
   Patient_ID        State_Name  Age  Gender  Diabetes  Hypertension
Obesity  \
0           1         Rajasthan   42  Female         0             0
1
1           2  Himachal Pradesh   26    Male         0             0
```

```
0
2           3             Assam   78    Male         0              0
1
3           4            Odisha   58    Male         1              0
1
4           5         Karnataka   22    Male         0              0
0

   Smoking  Alcohol_Consumption  Physical_Activity  ...  Diastolic_BP
\
0        1                    0                  0  ...           119

1        0                    1                  1  ...           115

2        0                    0                  1  ...           117

3        0                    0                  1  ...            65

4        0                    0                  1  ...           109


   Air_Pollution_Exposure  Family_History  Stress_Level
Healthcare_Access  \
0                       1               0             4
0
1                       0               0             7
0
2                       0               1            10
1
3                       0               0             1
1
4                       0               0             9
0

   Heart_Attack_History  Emergency_Response_Time  Annual_Income  \
0                     0                      157         611025
1                     0                      331         174527
2                     0                      186        1760112
3                     1                      324        1398213
4                     0                      209          97987

   Health_Insurance  Heart_Attack_Risk
0                 0                  0
1                 0                  0
2                 1                  0
3                 0                  0
4                 0                  1

[5 rows x 26 columns]
```

```
Categorical columns identified: Index(['State_Name', 'Gender'],
dtype='object')

Choose encoding type ('label' or 'onehot'):  onehot

      Patient_ID  Age  Diabetes  Hypertension  Obesity  Smoking  \
0              1   42         0             0        1        1
1              2   26         0             0        0        0
2              3   78         0             0        1        0
3              4   58         1             0        1        0
4              5   22         0             0        0        0
...          ...  ...       ...           ...      ...      ...
9995        9996   20         0             0        0        1
9996        9997   34         0             0        0        0
9997        9998   76         0             0        0        0
9998        9999   52         0             0        0        0
9999       10000   25         0             1        0        1

      Alcohol_Consumption  Physical_Activity  Diet_Score
Cholesterol_Level  \
0                       0                  0           9
248
1                       1                  1           4
272
2                       0                  1           6
268
3                       0                  1           9
224
4                       0                  1           5
277
...                   ...                ...         ...
...
9995                    0                  1           6
160
9996                    0                  0           5
257
9997                    0                  0           2
205
9998                    0                  1           5
155
9999                    0                  1           8
278

      ...  State_Name_Rajasthan  State_Name_Sikkim  State_Name_Tamil
Nadu  \
0     ...                  1.0                0.0
0.0
1     ...                  0.0                0.0
0.0
2     ...                  0.0                0.0
```

```
0.0
3     ...                   0.0                 0.0
0.0
4     ...                   0.0                 0.0
0.0
...   ...                   ...                 ...
...
9995  ...                   0.0                 0.0
0.0
9996  ...                   1.0                 0.0
0.0
9997  ...                   0.0                 0.0
0.0
9998  ...                   0.0                 0.0
0.0
9999  ...                   0.0                 0.0
0.0

      State_Name_Telangana  State_Name_Tripura  State_Name_Uttar
Pradesh  \
0                      0.0                 0.0
0.0
1                      0.0                 0.0
0.0
2                      0.0                 0.0
0.0
3                      0.0                 0.0
0.0
4                      0.0                 0.0
0.0
...                    ...                 ...                          .
..
9995                   0.0                 0.0
0.0
9996                   0.0                 0.0
0.0
9997                   0.0                 0.0
0.0
9998                   0.0                 0.0
0.0
9999                   0.0                 0.0
0.0

      State_Name_Uttarakhand  State_Name_West Bengal  Gender_Female  \
0                        0.0                     0.0            1.0
1                        0.0                     0.0            0.0
2                        0.0                     0.0            0.0
3                        0.0                     0.0            0.0
4                        0.0                     0.0            0.0
```

```
...                         ...                         ...             ...
9995                        0.0                         0.0             1.0
9996                        0.0                         0.0             1.0
9997                        0.0                         0.0             0.0
9998                        0.0                         0.0             0.0
9999                        0.0                         0.0             1.0

      Gender_Male
0             0.0
1             1.0
2             1.0
3             1.0
4             1.0
...           ...
9995          0.0
9996          0.0
9997          1.0
9998          1.0
9999          0.0

[10000 rows x 54 columns]
```