# Python Code for Hospital Dataset Analysis

pip install numpy  
  
pip install pandas  
  
pip install matplotlib  
  
import pandas as pd  
  
df = pd.read\_excel('/content/Length\_of\_Stay\_Dataset.xlsx')  
  
df.head()  
  
total\_patients = df['Patient ID'].nunique()  
print(f"total patients:" , total\_patients)  
  
average\_length\_of\_the\_stay = df['Length of Stay in days'].mean()  
print(f"average length of the stay: {average\_length\_of\_the\_stay} days")  
  
admission\_types = df['Admission Type'].unique()  
print("Admission Type:" , admission\_types)  
  
primary\_diagnosis = df['Primary Diagnosis'].value\_counts()  
print("Primary Diagnosis:" , primary\_diagnosis)  
  
avg\_age = df.groupby('Admission Type')['Age'].mean()  
print(avg\_age)  
  
critical\_patients = df[(df['Severity of Illness'] == 'Critical') & (df['Length of Stay in days'] > 30) ]  
print("Number of critical patients with LOS > 30 days:", len(critical\_patients))  
  
import matplotlib.pyplot as plt  
plt.hist(df['Length of Stay in days'], bins=15, edgecolor='black')  
plt.title('Distribution of Length of Stay')  
plt.xlabel('Length of Stay (days)')  
plt.ylabel('Frequency')  
plt.show()  
  
admission\_type\_counts = df['Admission Type'].value\_counts()  
  
admission\_type\_counts.plot(kind='pie', autopct='%1.1f%%', startangle=90, figsize=(8, 8), legend=True)  
plt.title('Distribution of Patients by Admission Type')  
plt.ylabel('') # Remove the y-label for cleaner visualization  
plt.show()  
  
admission\_type\_counts = df['Admission Type'].value\_counts()  
  
admission\_type\_counts.plot(kind='bar', figsize=(8, 5), edgecolor='black')  
plt.title('Number of Patients by Admission Type')  
plt.xlabel('Admission Type')  
plt.ylabel('Number of Patients')  
plt.xticks(rotation=45)  
plt.show()  
  
import matplotlib.pyplot as plt  
  
plt.scatter(df['Age'], df['Length of Stay in days'], alpha=0.7)  
plt.title('Age vs Length of Stay')  
plt.xlabel('Age')  
plt.ylabel('Length of Stay (days)')  
plt.show()