import matplotlib.pyplot as plt

import csv

import tkinter as tk

from tkinter import filedialog

def upload\_data():

file\_path = filedialog.askopenfilename()

if file\_path:

# Clear the existing patient list

patient\_list.delete(0, tk.END)

# Read the patient data from the selected file

with open(file\_path, 'r') as csv\_file:

reader = csv.reader(csv\_file)

next(reader) # Skip the header row

for row in reader:

patient\_list.insert(tk.END, f"Name: {row[0]}, Age: {row[1]}, Gender: {row[2]}, Disease: {row[3]}")

# Function to handle the submit button click event

def submit\_data():

name = name\_entry.get()

age = age\_entry.get()

gender = gender\_entry.get()

disease = disease\_entry.get()

with open('patient\_data.csv', 'a', newline='') as csv\_file:

writer = csv.writer(csv\_file)

writer.writerow([name, age, gender, disease])

name\_entry.delete(0, tk.END)

age\_entry.delete(0, tk.END)

gender\_entry.delete(0, tk.END)

disease\_entry.delete(0, tk.END)

patient\_list.insert(tk.END, f"Name: {name}, Age: {age}, Gender: {gender}, Disease: {disease}")

# Create the GUI

root = tk.Tk()

root.title('Patient Data')

# Patient list

patient\_list = tk.Listbox(root, width=50)

patient\_list.pack(pady=10)

# Upload button

upload\_button = tk.Button(root, text='Upload Data', command=upload\_data)

upload\_button.pack(pady=5)

# Entry fields for new patient data

name\_label = tk.Label(root, text='Name:')

name\_label.pack()

name\_entry = tk.Entry(root)

name\_entry.pack()

age\_label = tk.Label(root, text='Age:')

age\_label.pack()

age\_entry = tk.Entry(root)

age\_entry.pack()

gender\_label = tk.Label(root, text='Gender:')

gender\_label.pack()

gender\_entry = tk.Entry(root)

gender\_entry.pack()

disease\_label = tk.Label(root, text='Disease:')

disease\_label.pack()

disease\_entry = tk.Entry(root)

disease\_entry.pack()

submit\_button = tk.Button(root, text='Submit', command=submit\_data)

submit\_button.pack(pady=5)

root.mainloop()

patients = []

ages = []

genders = []

diseases = []

with open('patient\_data.csv', 'r') as csv\_file:

reader = csv.reader(csv\_file)

next(reader)

for row in reader:

name, age, gender, disease = row

patients.append(name)

ages.append(int(age))

genders.append(gender)

diseases.append(disease)

plt.figure(figsize=(8, 6))

plt.bar(patients, ages, color='skyblue')

plt.xlabel('Patients')

plt.ylabel('Age')

plt.title('Patient Ages')

plt.xticks(rotation=45)

plt.show()

gender\_counts = {}

for gender in genders:

if gender in gender\_counts:

gender\_counts[gender] += 1

else:

gender\_counts[gender] = 1

plt.figure(figsize=(6, 6))

plt.bar(gender\_counts.keys(), gender\_counts.values(), color=['pink', 'lightblue'])

plt.xlabel('Gender')

plt.ylabel('Count')

plt.title('Patient Genders')

plt.show()

disease\_counts = {}

for disease in diseases:

if disease in disease\_counts:

disease\_counts[disease] += 1

else:

disease\_counts[disease] = 1

plt.figure(figsize=(10, 6))

plt.bar(disease\_counts.keys(), disease\_counts.values(), color='orange')

plt.xlabel('Disease')

plt.ylabel('Count')

plt.title('Disease Types')

plt.xticks(rotation=45)

plt.show()

plt.figure(figsize=(6, 6))

plt.pie(gender\_counts.values(), labels=gender\_counts.keys(), autopct='%1.1f%%', colors=['pink', 'lightblue'])

plt.title('Gender Distribution')

plt.show()

plt.figure(figsize=(8, 6))

plt.scatter(diseases, ages, s=ages, c=ages, cmap='viridis')

plt.xlabel('Disease')

plt.ylabel('Age')

plt.title('Patient Ages vs. Disease Types')

plt.xticks(rotation=45)

plt.colorbar(label='Age')

plt.show()

plt.figure(figsize=(6, 6))

plt.boxplot(ages, vert=False)

plt.xlabel('Age')

plt.title('Patient Age Distribution')

plt.show()

plt.figure(figsize=(8, 6))

plt.hist(ages, bins=5, color='green', edgecolor='black')

plt.xlabel('Age')

plt.ylabel('Count')

plt.title('Age Distribution')

plt.show()

plt.figure(figsize=(8, 6))

plt.barh(list(disease\_counts.keys()), list(disease\_counts.values()), color='salmon')

plt.xlabel('Count')

plt.ylabel('Disease')

plt.title('Disease Counts')

plt.show()