Class Exercise:

List v2

You have been hired as a data scientist at a research institute, and your task is to develop a program that analyzes a dataset containing information about patients' medical records. The dataset is represented as a list of dictionaries, where each dictionary represents a patient's record with keys such as 'name', 'age', 'gender', 'diagnosis', and 'treatments'. Your task is to write a Python program that implements the following features:

1. Create an empty list to store the patient records.
2. Use a while loop to keep the program running until the user chooses to quit.
3. Display the menu options to the user: "Add patient record", "Search patients", "Analyze data", and "Quit".
4. Use if-else statements to execute the corresponding operation based on the user's choice.
5. For the "Add patient record" option, prompt the user to enter the patient's information and add it as a dictionary to the list of patient records.
6. For the "Search patients" option, prompt the user to enter a search keyword and display the patient records that match the keyword in any of the keys.
7. For the "Analyze data" option, calculate and display the average age of the patients in the dataset.
8. If the user enters an invalid choice, display an error message.

Remember to use list operations and methods, while and for loops, if and else operators, and functions to implement this program.

def display\_menu():

# Your code here

def add\_patient\_record(records):

# Your code here

def search\_patients(records):

# Your code here

def analyze\_data(records):

# Your code here

patient\_records = []

choice = 0

while choice != 4:

# Your code here

Menu Options:

1. Add patient record

2. Search patients

3. Analyze data

4. Quit

Enter your choice (1-4): 1

Enter the patient's name: John Smith

Enter the patient's age: 45

Enter the patient's gender: Male

Enter the patient's diagnosis: Hypertension

Enter the patient's treatments: Medication

Patient record added successfully!

Menu Options:

1. Add patient record

2. Search patients

3. Analyze data

4. Quit

Enter your choice (1-4): 1

Enter the patient's name: Sarah Johnson

Enter the patient's age: 32

Enter the patient's gender: Female

Enter the patient's diagnosis: Diabetes

Enter the patient's treatments: Insulin

Patient record added successfully!

Menu Options:

1. Add patient record

2. Search patients

3. Analyze data

4. Quit

Enter your choice (1-4): 2

Enter the search keyword: John

Matching patient records:

{'name': 'John Smith', 'age': 45, 'gender': 'Male', 'diagnosis': 'Hypertension', 'treatments': 'Medication'}

Menu Options:

1. Add patient record

2. Search patients

3. Analyze data

4. Quit

Enter your choice (1-4): 3

Average age of patients: 38.50

Menu Options:

1. Add patient record

2. Search patients

3. Analyze data

4. Quit

Enter your choice (1-4): 4

Goodbye!