//HOME TASKS

#include <iostream>

using namespace std;

// Task 1: Record AQI for 4 cities over 7 days

void recordAQI(int aqi[4][7])

{

    for (int i = 0; i < 4; i++)

    {

        cout << "Enter AQI for city " << i + 1 << ":\n";

        for (int j = 0; j < 7; j++)

        {

            cin >> aqi[i][j];

        }

    }

}

// Task 2: Calculate Weekly Average AQI for Each City

void calculateWeeklyAQI(int aqi[4][7])

{

    for (int i = 0; i < 4; i++)

    {

        int sum = 0;

        for (int j = 0; j < 7; j++)

        {

            sum += aqi[i][j];

        }

        cout << "City " << i + 1 << " Weekly AQI: " << sum / 7 << endl;

    }

}

// Task 3: Identify the City with the Worst Air Quality

void findWorstAirQualityCity(int aqi[4][7])

{

    int maxAvg = 0, cityIndex = 0;

    for (int i = 0; i < 4; i++)

    {

        int sum = 0;

        for (int j = 0; j < 7; j++)

        {

            sum += aqi[i][j];

        }

        int avg = sum / 7;

        if (avg > maxAvg)

        {

            maxAvg = avg;

            cityIndex = i;

        }

    }

    cout << "City " << cityIndex + 1 << " has the worst air quality (Highest AQI: " << maxAvg << ")" << endl;

}

// Task 4: Display AQI Data in Tabular Form

void displayAQITable(int aqi[4][7])

{

    cout << "City\\Day\t";

    for (int j = 0; j < 7; j++)

    {

        cout << "Day " << j + 1 << "\t";

    }

    cout << endl;

    for (int i = 0; i < 4; i++)

    {

        cout << "City " << i + 1 << "\t";

        for (int j = 0; j < 7; j++)

        {

            cout << aqi[i][j] << "\t";

        }

        cout << endl;

    }

}

// Task 5: Identify Critical Pollution Days

void findCriticalPollutionDays(int aqi[4][7])

{

    int threshold = 150;

    for (int i = 0; i < 4; i++)

    {

        cout << "City " << i + 1 << " critical pollution days (AQI > 150):\n";

        for (int j = 0; j < 7; j++)

        {

            if (aqi[i][j] > threshold)

            {

                cout << "Day " << j + 1 << ": " << aqi[i][j] << endl;

            }

        }

    }

}

int main()

{

    int aqi[4][7];

    recordAQI(aqi);

    calculateWeeklyAQI(aqi);

    findWorstAirQualityCity(aqi);

    displayAQITable(aqi);

    findCriticalPollutionDays(aqi);

    return 0;

}

