#include <iostream>

#include <fstream>

#include <string>

#include <vector>

using namespace std;

struct ReadingRow {

int sensorNumber;

string timestamp;

int sensorReading;

};

const string DATAFILE = "datafile.txt";

vector<ReadingRow> sensorReadings;

int numberOfReadings = 0;

double averageTemperature = 0.0;

void readDataFromFile() {

ifstream dfile;

ReadingRow tempRow;

int sumOfTemps = 0;

dfile.open(DATAFILE);

if (dfile.is\_open()) {

while (dfile >> tempRow.sensorNumber >> tempRow.timestamp >> tempRow.sensorReading) {

sensorReadings.push\_back(tempRow);

sumOfTemps += tempRow.sensorReading;

}

numberOfReadings = sensorReadings.size();

averageTemperature = static\_cast<double>(sumOfTemps) / numberOfReadings;

dfile.close();

} else {

cerr << "Error: Unable to open data file" << endl;

exit(1);

}

}

void displayDataForSensor(unsigned int sensorID) {

cout << "Sensor number: " << sensorReadings[sensorID].sensorNumber << endl;

cout << "Timestamp : " << sensorReadings[sensorID].timestamp << endl;

cout << "Temperature : " << sensorReadings[sensorID].sensorReading << endl;

}

int main() {

readDataFromFile();

cout << "Overall average temperature: " << averageTemperature << endl;

int selectedSensor;

cout << "Enter sensor number to display reading: ";

cin >> selectedSensor;

for (unsigned int i = 0; i < numberOfReadings; ++i) {

if (sensorReadings[i].sensorNumber == selectedSensor) {

displayDataForSensor(i);

break;

}

}

return 0;

}

