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\* Lab 4

\* Question 1

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#include <iostream>

#include <fstream>

using namespace std;

class Weather

{

private:

string mon;

int htemp;

int ltemp;

double train;

public:

Weather();

Weather(string m, int h, int l, int r) {

mon = m, htemp = h, ltemp = l, train = r;

}

~Weather();

string getMon()const;

int getHtemp()const;

int getLtemp()const;

double getTrain()const;

double getArain()const;

};

//Constructor

Weather::Weather() {

mon = "", htemp = 0, ltemp = 0, train = 0;

}

Weather::~Weather(){}

string Weather::getMon()const { return mon; }

int Weather::getHtemp()const { return htemp; }

int Weather::getLtemp()const { return ltemp; }

double Weather::getTrain()const { return train; }

double Weather::getArain()const { return ((htemp + ltemp) / 2); }

int main()

{

const int months = 12;

Weather yearData[months], highest, lowest;

string mon;

int htemp, ltemp;

double train, yearRain = 0;

ifstream weather;

weather.open("weather.txt");

if (!weather)

{

cout << "Error opening file." << endl;

}

for (int i = 0; i < months; i++)

{

weather >> mon >> htemp >> ltemp >> train;

yearData[i] = Weather(mon, htemp, ltemp, train);

yearRain += train;

if (highest.getHtemp() < yearData[i].getHtemp())

{

highest = yearData[i];

}

if (yearData[i].getLtemp() < lowest.getLtemp())

{

lowest = yearData[i];

}

cout << yearData[i].getMon() << " = " << yearData[i].getArain() << endl;

}

cout << endl << "YEAR DATA:" << endl;

cout << "The total rainfall: " << yearRain << endl;

cout << "The average rainfall: " << yearRain / months << endl;

cout << "The lowest temperature: (" << lowest.getMon() << ") " << lowest.getLtemp() << endl;

cout << "The highest temperature: (" << highest.getMon() << ") " << highest.getHtemp() << endl;

weather.close();

return 0;

}

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\* Lab 4

\* Question 2

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#include <iostream>

#include <fstream>

using namespace std;

class Car

{

private:

string owner;

int year;

string make;

int speed;

public:

Car() { owner = "", year = 0, make = "", speed = 0; }

Car(string o, int y, string m) {

owner = o, year = y, make = m;

srand(time(0));

speed = rand()%201;

}

~Car() {}

string getO()const;

int getY()const;

string getM()const;

int getS()const;

void accel() { speed += 5; }

void decel() { speed -= 5; }

void update()

{

srand(time(0));

if (rand() % 2 == 0)

{

decel();

}

else

{

accel();

}

}

};

string Car::getO()const { return owner; }

int Car::getY()const { return year; }

string Car::getM()const { return make; }

int Car::getS()const { return speed; }

int main()

{

ifstream carFile;

carFile.open("cars.txt");

int speed, year;

string owner, make;

Car cars[5];

if (!carFile)

{

cout << "Error opening file." << endl;

}

for (int i = 0; i < 5; i++)

{

carFile >> owner >> year >> make;

cars[i] = Car(owner, year, make);

}

carFile.close();

for (int i = 0; i < 10; i++)

{

cout << endl << "UPDATE " << i + 1 << endl;

for (int j = 0; j < 5; j++)

{

cars[j].update();

cout << "Car " << j + 1 << endl;

cout << "Owner: " << cars[j].getO() << endl << "Year: " << cars[j].getY() << endl << "Make: " << cars[j].getM() << endl << "Speed: " << cars[j].getS() << endl;

}

}

return 0;

}

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