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//Demo:Wednesday

#include <iostream>

#include <string>

#include <iomanip>

using namespace std;

class Airplane {

private:

string model;

int altitude;

int minAltitude;

int maxAltitude;

public:

Airplane();

Airplane(string model, int altitude, int minAltitude, int maxAltitude);

void display();

void setAltitude();

bool crash (Airplane);

};

Airplane::Airplane() {

model = " ";

altitude = 0;

maxAltitude = 0;

minAltitude = 0;

}

Airplane::Airplane(string m, int alt, int min, int max) {

model = m;

altitude = alt;

maxAltitude = max;

minAltitude = min;

alt = max - min;

}

void Airplane::display() {

cout << "Model: " << model << endl;

cout << "Altitude: " << altitude << endl;

cout << "Minimum Altitude: " << minAltitude << endl;

cout << "Maximum Altitude: " << maxAltitude << endl;

}

void Airplane::setAltitude() {

altitude = (rand() % (maxAltitude - minAltitude + 1) + minAltitude);

}

bool Airplane::crash (Airplane a) {

if (abs(altitude - a.altitude) <= 200) {

return true;

}

else {

return false;

}

}

int main() {

Airplane one("F22", 0, 1000, 2000);

Airplane two("F18", 0, 2000, 5000);

bool crash;

int planeCrash = 0;

srand(time(NULL));

for (int i = 0; i < 1000; i++) {

one.setAltitude();

two.setAltitude();

if((one.crash(two) == true) || (two.crash(one) == true)) {

cout << "Number of times it loops: " << i << endl;

cout << "It crashed!" << endl;

cout << planeCrash;

one.display();

two.display();

planeCrash++;

} //else {

//cout << "The planes made it to their destination!\n";

//}

}

cout << "Number of crashes: " << planeCrash << endl;

double percentage = (planeCrash / 1000.0) \* 100;

cout << "Percentage of crashes: " << percentage << "%";

}

