#include <bits/stdc++.h>

using namespace std;

int main()

{

float numbers[20];

float ratio[20], ratiominus[20];

float Dplus[20], Dminus[20];

float DplusMax, DminusMax;

float D, Dalpha;

int i, j, n;

cout << "How many number?: ";

cin >> n;

cout << "Enter " << n << " numbers" << endl;

for(i=0; i<n; i++) {

cout <<"Enter " << (i+1) << " number: ";

cin >> numbers[i];

}

// sort the numbers in ascending order

sort(numbers, numbers+n);

for(i=0; i<n; i++) {

j = i+1;

ratio[i] = (float) j / n;

ratiominus[i] = (float) i / n;

Dplus[i] = ratio[i] - numbers[i];

Dminus[i] = numbers[i] - ratiominus[i];

}

cout<< endl;

cout << endl;

// print headers

cout << setw(10) << "i";

for(i=1; i<=n; i++) {

cout << setw(10) << i;

}

cout << endl;

// print R(i)

cout << setw(10) << "R(i)";

for(i=0; i<n; i++) {

cout << setw(10) << numbers[i];

}

cout << endl;

// print ratio

cout << setw(10) << "i-/n";

for(i=0; i<n; i++) {

cout << setw(10) << setprecision(2) << ratio[i];

}

cout << endl;

// print D+

cout << setw(10) << "D+";

for(i=0; i<n; i++) {

cout << setw(10) << setprecision(2) << Dplus[i];

}

cout << endl;

// print D-

cout << setw(10) << "D-";

for(i=0; i<n; i++) {

cout << setw(10) << setprecision(2) << Dminus[i];

}

cout << endl;

DplusMax = Dplus[0];

DminusMax = Dminus[0];

for(i=1; i<n; i++) {

if(Dplus[i] > DplusMax){

DplusMax = Dplus[i];

}

if(Dminus[i] > DminusMax) {

DminusMax = Dminus[i];

}

}

cout << "D+ max: " << DplusMax << endl;

cout << "D- max: " << DminusMax << endl;

D = max(DplusMax, DminusMax);

cout << "D = max(" << DplusMax << ", " << DminusMax << ") = " << D << endl;

cout << "Enter the tabulated value (D Alpha): ";

cin >> Dalpha;

if(D < Dalpha) {

cout << "The test is accepted." << endl;

} else {

cout << "The test is rejected." << endl;

}

return 0;

}