1. #include <iostream>

using namespace std;

int main()

{

double x, y;

cout << "Input x and y: \n";

cin >> x >> y;

if (y <= 1 && y >= 0) {

if (x >=0 && x <= 1) {

cout << "true";

}

if (y > 0 && y <= x) {

cout << "true";

}

}

else {

cout << "false";

}

return 0;

}

2.

1) #include <iostream>

#include <cmath>

using namespace std;

int main()

{

int p[11], pnum=0, pn=1;

for (int i = 0; i < 11; i++) {

cout << "Input p[" << i + 1 << "]: \n";

cin >> p[i];

if (p[i]%3 == true) {

pn\*=p[i];

pnum++;

}

}

cout << pn<<"Result "<<pow(double(pn),1/ double(pnum));

return 0;

}

2) #include <iostream>

#include <string>

using namespace std;

int pa[9], pb[9], pp[18];

void lp(int \*pb, int a, string p) {

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

cout << p << i + 1 << "]: \n";

cin >> pb[i];

}

}

void print(int \*pb, int a) {

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

cout << pb[i]<<" ";

}

cout << endl;

}

void big(int \*pb, int a) {

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

for (int e = a-1; e > 0; e--) {

if (pb[e] < pb[e - 1]) {

int aaa;

aaa = pb[e];

pb[e] = pb[e - 1];

pb[e - 1] = aaa;

}

}

}

}

int main()

{

lp(pa, 9, "Input a[");

lp(pb, 9, "Input b[");

big(pa, 9);

big(pb, 9);

int e = 0;

for (int i = 0; i < 9; i++) {

pp[e]=pa[i];

e++;

}

for (int i = 0; i < 9; i++) {

pp[e]=pb[i];

e++;

}

big(pp, 18);

cout << endl;

print(pa, 9);

print(pb, 9);

print(pp, 18);

return 0;

}

3.

1) #include <iostream>

#include <string>

using namespace std;

int main()

{

int z[7][3];

for (int i = 0; i < 7; i++) {

for (int e = 0; e < 3; e++) {

cout <<"input z[" << i + 1<<";"<<e+1 << "]: \n";

cin >> z[i][e];

}

}

cout << "Zero elements indexes: \n";

for (int i = 0; i < 7; i++) {

for (int e = 0; e < 3; e++) {

if (z[i][e] == 0) {

cout << "Z[" << i + 1 << ";" << e + 1 << "]=0 \n";

}

}

}

cout << "Matri Z: \n";

for (int i = 0; i < 7; i++) {

for (int e = 0; e < 3; e++) {

cout << z[i][e]<<" ";

}

cout << endl;

}

return 0;

}

2) #include <iostream>

using namespace std;

int main()

{

int z[7][3];

for (int i = 0; i < 7; i++) {

for (int e = 0; e < 3; e++) {

cout <<"input W[" << i + 1<<";"<<e+1 << "]: \n";

cin >> z[i][e];

}

}

cout << "Second elements less than 0 indexes: \n";

for (int e = 0; e < 3; e++) {

int check = 0;

for (int i = 0; i < 7; i++) {

if (z[i][e] < 0) {

if (check == 1) {

cout << "W[" << i + 1 << ";" << e + 1 << "]=" << z[i][e] << endl;

break;

}

if (check == 0) {

check++;

}

}

}

}

cout << "Matri Z: \n";

for (int i = 0; i < 7; i++) {

for (int e = 0; e < 3; e++) {

cout << z[i][e]<<" ";

}

cout << endl;

}

return 0;

}

3) #include <iostream>

using namespace std;

int main()

{

int z[5][5];

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

for (int e = 0; e < 5; e++) {

cout <<"input W[" << i + 1<<";"<<e+1 << "]: \n";

cin >> z[i][e];

}

}

cout << "Matri W: \n";

for (int e = 0; e < 5; e++) {

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

cout << z[i][e]<<" ";

}

tt--;

cout << endl;

}

for (int e = 0; e < 5; e++) {

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

cout << z[i][e] << " ";

}

cout << endl;

}

return 0;

}

4.

1) #include <iostream>

using namespace std;

int main()

{

int z[5][5];

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

for (int e = 0; e < 5; e++) {

cout <<"input W[" << i + 1<<";"<<e+1 << "]: \n";

cin >> z[i][e];

}

}

cout << "Matri W: \n";

for (int e = 0; e < 5; e++) {

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

cout << z[i][e]<<" ";

}

tt--;

cout << endl;

}

for (int e = 0; e < 5; e++) {

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

cout << z[i][e] << " ";

}

cout << endl;

}

return 0;

}

2) #include <iostream>

using namespace std;

int main()

{

int ma, mb;

cin >> ma >> mb;

int \*\*z= new int\*[mb];

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

z[i] = new int[ma];

}

int min, max, minc=0, maxc=0;

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

for (int e = 0; e < mb; e++) {

cout <<"input W[" << i + 1<<";"<<e+1 << "]: \n";

cin >> z[i][e];

}

}

min = z[0][0];

max = min;

cout << "Matri W: \n";

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

for (int e = 0; e < mb; e++) {

if (z[i][e] < min) {

min = z[i][e];

}

if (z[i][e] > max) {

max = z[i][e];

}

}

}

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

for (int e = 0; e < mb; e++) {

if (z[i][e] == min) {

minc++;

}

if (z[i][e] == max) {

maxc++;

}

}

}

cout << "max & min: " << max << " / " << maxc << "; " << min <<" /"<< minc<<endl;

for (int e = 0; e < mb; e++) {

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

cout << z[i][e] << " ";

}

cout << endl;

}

return 0;

}

5. #include <iostream>

using namespace std;

int main()

{

int ma, b;

cout << "Input array size: \n";

cin >> ma;

cout << "Input array elements: \n";

int \*z= new int[ma];

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

cin>>z[i];

}

int kilk = ma;

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

int num = 0;

for (int e = 0; e < ma-1; e++) {

if (z[i]==z[e]) {

if (num == 0) {

num++;

}

else {

b = z[e];

z[e] = z[ma - 1];

z[ma - 1] = b;

ma--;

e--;

}

}

}

}

cout << endl << "num= " << ma<<endl;

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

cout << z[i]<<" ";

}

}

6.

1) #include <iostream>

#include <iostream>

#include <stdlib.h>

#include <iomanip>

using namespace std;

int main()

{

int kandydat[6][7], maxs, maxnum;

for (int i = 0; i < 7; i++) {

kandydat[0][i] = i;

}

for (int i = 0; i < 6; i++) {

kandydat[i][0] = i;

}

for (int i = 1; i < 6; i++) {

for (int e = 1; e < 7; e++) {

kandydat[i][e] = rand() % 250;

}

}

for (int i = 0; i < 6; i++) {

for (int e = 0; e < 7; e++) {

cout << setw(4) << kandydat[i][e] << " ";

}

cout << endl;

}

maxs = kandydat[1][1] + kandydat[2][1] + kandydat[3][1] + kandydat[4][1] + kandydat[5][1];

maxnum = 1;

for (int i = 1; i < 6; i++) {

if (kandydat[1][i] + kandydat[2][i] + kandydat[3][i] + kandydat[4][i] + kandydat[5][i]>maxs) {

maxs = kandydat[1][i] + kandydat[2][i] + kandydat[3][i] + kandydat[4][i] + kandydat[5][i];

maxnum = i;

}

}

cout <<"Kandydat "<< maxnum << ": " << maxs << endl;

}

2) #include <iostream>

#include <string>

using namespace std;

int main()

{

char bik;

string slip = "", init = "";

int a = 0;

getline(cin, init);

cout << endl << "Kilk symvoliv: " << init.size() << endl;

for (int i = 0; i < init.size(); i++) {

bik = init.at(i);

if (bik == 'a' || bik =='A') {

a++;

}

if (bik != 'a' && bik != 'o' && bik != 'A' && bik != 'O') {

slip += bik;

}

}

cout << "a: " << a << endl << slip;

}

7.

1)

2) #include <iostream>

#include<cmath>

using namespace std;

void cinn(int t[4][4]) {

for (int i = 0; i < 4; i++) {

for (int e = 0; e < 4; e++) {

t[i][e] = 2 \* rand() % 8 \* i + 8 \* (e + 1);

cout << t[i][e] << " ";

}

cout << endl;

}

cout << endl;

}

void sort(int array[4][4]) {

int max = array[0][0], x = 0, y = 0;

for (int i = 0; i < 4; i++) {

for (int e = 0; e < 4; e++) {

if (array[i][e] > max) {

max = array[i][e];

x = i;

y = e;

}

}

}

int dob = 1;

for (int i = 0; i < 4; i++) {

for (int e = 0; e < 4; e++) {

if (array[i][e] < 0) {

dob \*= t[i][e];

}

}

}

cout << "max [" << x << ";" << y << "]=" << max <<endl<< "dob elem<0= " << dob;

}

int main()

{

int re[4][4];

cinn(re);

sort(re);

}

8. #include <iostream>

#include<cmath>

using namespace std;

void area(int x1, int x2, int x3, int y1, int y2, int y3, int &s) {

int a = sqrt(pow(x1 - x2, 2) + pow(y1 - y2, 2));

int b = sqrt(pow(x2 - x3, 2) + pow(y2 - y3, 2));

int c = sqrt(pow(x3 - x1, 2) + pow(y3 - y1, 2));

s = sqrt((a + b + c) \* (b + c - a) \* (a + c - b) \* (a + b - c)) \* 1 / 4;

}

int main()

{

int x1, x2, x3, x11, x22, x33, y1, y2, y3, y11, y22, y33, s1=0, s2=0;

cout << "A1(x y) \n";

cin >> x1 >> y1;

cout << "B1(x y) \n";

cin >> x2 >> y2;

cout << "C1(x y) \n";

cin >> x3 >> y3;

cout << "A2(x y) \n";

cin >> x11 >> y11;

cout << "B2(x y) \n";

cin >> x22 >> y22;

cout << "C2(x y) \n";

cin >> x33 >> y33;

area(x1, x2, x3, y1, y2, y3, s1);

area(x11, x22, x33, y11, y22, y33, s2);

if (s1 > s2) {

cout << "triangles are similar";

}

if (s1 == s2) {

cout << "Area of second triangle is bigger";

}

else {

cout << "Area of second triangle is bigger";

}

}

9. #include <iostream>

using namespace std;

unsigned int rt()

{

static unsigned int seed = -46869;

seed = (-45996 \* seed + 64568);

return seed%13-10 ;

}

int main()

{

cout << "Input array size: "<<endl;

int a;

cin >> a;

int \*mas = new int[a];

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

mas[i] = rt();

}

cout << endl;

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

cout << mas[i] << " ";

}

int bom = a - 1;

for (int i = 0; i <= a/2; i++) {

int tepo = mas[i];

mas[i] = mas[bom];

mas[bom] = tepo;

bom--;

}

cout << endl<< "Result: " << endl;

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

cout << mas[i] << " ";

}

delete mas;

}

10. #include <iostream>

#include <string>

using namespace std;

struct rozklad {

string punkt;

int No, vdo, vh, vm, ph, pm, rh, rm;

rozklad() {

}

void input() {

cout << "Vvedit stancju pryznachenia: " << endl;

cin >> punkt;

cout << "Vvedit nomer pojizda: \n";

cin >> No;

cout << "Vvedit vidstan do stancji pryznachenia \n";

cin >> vdo;

cout << "Chas vidpravlenia (hh min) \n";

cin >> vh >> vm;

cout << "Chas prybutia (hh min) \n";

cin >> ph >> pm;

if (pm < vm) {

ph--;

pm += 60;

}

rh = ph - vh;

rm = pm - vm;

}

~rozklad() {

}

void output() {

cout << "Stancja pryznachenia: " << punkt << endl;

cout << "Nomer pojizda: " << No << endl;

cout << "Vvedit vidstan do stancji pryznachenia " << vdo << endl;

cout << "Chas vidpravlenia (hh min) " << vh <<" " <<vm << endl;

cout << "Chas prybutia (hh min) " << ph << " " << pm << endl;

cout << "Chas u dorozi (hh min) " << rh << " " << rm << endl;

}

};

int main()

{

int im;

cout << "Number of trains to add" << endl;

cin >> im;

rozklad \*list = new rozklad[im];

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

list[i].input();

}

cout << endl;

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

list[i].output();

}

cout << endl;

int max = list[0].rh \* 60 + list[0].rm;

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

if (list[i].rh \* 60 + list[i].rm > max) {

max = list[i].rh \* 60 + list[i].rm;

}

}

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

if (list[i].rh \* 60 + list[i].rm == max) {

cout << "Max chas poiznd: " << endl << "Stancja pryznachenia: " << list[i].punkt << endl <<

"Nomer pojizda: " << list[i].No << endl;

}

}

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

if (list[i].punkt == "Kiev" && list[i].vh >= 6 && (list[i].ph \* 60) + list[i].pm <= 600) {

list[i].output();

}

}

return 0;

}

11.

#include <iostream>

#include<cmath>

#include <string>

#include<sstream>

using namespace std;

struct team {

int goal, defeat;

string result;

team() {

goal = 0;

defeat = 0;

result = "";

}

void input() {

cout << "Vvedit kilkist zabytyh mjachiv: " << endl;

goal = rand() % 31;

cout << "Vvedit kilkist propushchenyh mjachiv: " << endl;

defeat = rand() % 31;

if (goal > defeat) {

result = "Victory";

}

if (goal < defeat) {

result = "Defeat";

}

if (goal == defeat) {

result = "Draw";

}

}

void output() {

cout << "Goals: " << goal << endl;

cout << "Missed balls: " << defeat << endl;

cout << result << endl;

}

};

int main()

{

int draw=0, defeat=0, victory=0;

team g[22];

for (int i = 0; i < 22; i++) {

g[i].input();

}

for (int i = 0; i < 22; i++) {

if (g[i].result == "Victory") {

victory++;

}

if (g[i].result == "Defeat") {

defeat++;

}

if (g[i].result == "Draw") {

draw++;

}

g[i].output();

}

cout << "All victories: " << victory << endl;

cout << "All defeats: " << defeat << endl;

cout << "All draws: " << draw << endl;

}

12. #include <iostream>

#include <queue>

#include <string>

using namespace std;

struct car {

int year, cost;

string name;

car(){

name = "";

}

void input() {

cout << "Input name: " << endl;

cin >> name;

cout << "Input year: " << endl;

cin >> year;

cout << "Input cost: " << endl;

cin >> cost;

}

void output() {

cout << "Name: " << name << endl;

cout << "Year: "<< year << endl;

cout << "Cost: " <<cost << endl;

}

};

int main()

{

queue <car> mu;

cout << "Input queue size: ";

int a;

cin >> a;

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

car sop;

cout << "Input queue element " << i + 1 << endl;

sop.input();

mu.push(sop);

}

queue <car> teri;

cout << "Queue " << endl;

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

mu.front().output();

if (mu.front().year >2010 || mu.front().cost>5000) {

mu.pop();

}

else {

teri.push(mu.front());

mu.pop();

}

}

cout << endl << "Sorted queue " << endl;

while (!teri.empty()) {

teri.front().output();

teri.pop();

}

}

13. #include <iostream>

#include <string>

#include<fstream>

#include<sstream>

using namespace std;

int main()

{

char kol;

ifstream file;

file.open("text.txt");

if (!file.is\_open()) {

cout << "ERROR, file text.txt isn't created";

}

else {

int a = 0, e = 0, i = 0, o = 0, u = 0;

while (file.get(kol)) {

cout << kol;

if (kol == 'u' || kol == 'U') {

u++;

}

if (kol == 'o' || kol == 'O') {

o++;

}

if (kol == 'u' || kol == 'U') {

u++;

}

if (kol == 'a' || kol == 'A') {

a++;

}

if (kol == 'e' || kol == 'E') {

e++;

}

if (kol == 'i' || kol == 'I') {

i++;

}

}

cout << endl << "A: " << a << endl;

cout << "E: " << e << endl;

cout << "I: " << i << endl;

cout << "O: " << o << endl;

cout << "U: " << u << endl;

}

file.close();

}

14.

1) #include <iostream>

#include <string>

#include<sstream>

using namespace std;

int main()

{

string s;

cout << "S=";

getline(cin, s);

for (int i = 0; i < s.size(); i++) {

if (s.at(i) == ' ') {

s.at(i) = '\_';

}

}

cout <<endl<<"Result: \n"<< s;

}

2) #include <iostream>

#include <string>

#include<fstream>

#include<sstream>

using namespace std;

int main()

{

char kol;

string test = "", testmax;

ifstream file;

file.open("text.txt");

if (!file.is\_open()) {

cout << "ERROR, file text.txt isn't created";

}

else {

while (file.get(kol)) {

cout << kol;

if (kol == ' ' || kol == '\n') {

if (test.size() % 2 == 0 && testmax.size()<test.size()) {

testmax = test;

}

test = "";

}

else {

test += kol;

}

}

}

file.close();

cout << "The bigest word: " << testmax;

}