**<https://www.youtube.com/watch?v=z74JnD_pZZk&list=PLoa_roVVsxA1CJu4DsOljb9d7FJkMCynM&index=5>**

**[L1]Class - 5 ( Almost everything about STL pair with practice problems ) [Bangla]**

**Class Video link :**

<https://www.youtube.com/watch?v=z74JnD_pZZk&list=PLoa_roVVsxA1CJu4DsOljb9d7FJkMCynM&index=5>

**Discussed topics :**

1) STL Pair & Practice problems

Full code : https://pastebin.com/jUBm08tq

2) https://codeforces.com/contest/44/problem/A

My Code : https://codeforces.com/contest/44/submission/87993765

3) <https://practice.geeksforgeeks.org/problems/count-distinct-pairs-with-difference-k/0>

My Code : <https://practice.geeksforgeeks.org/problems/count-distinct-pairs-with-difference-k/0>

4)<https://codeforces.com/problemset/problem/166/A>

My code=https://codeforces.com/contest/166/submission/87997879

**Class Task :**

1. <https://classroom.google.com/u/0/c/MTE2NTUzNTIxNDIx/a/MTE4NzY4MjkxMjk3/details>
2. <https://classroom.google.com/u/0/c/MTE2NTUzNTIxNDIx/a/MTE4Nzc3NzM1NzI2/details>
3. <https://classroom.google.com/u/0/c/MTE2NTUzNTIxNDIx/a/MTE4Nzc3NzM1NzQy/details>

*#include<bits/stdc++.h>*

using namespace std;

*#define endl '\n'*

*#define optimize() ios\_base::sync\_with\_stdio(0);cin.tie(0);cout.tie(0);*

int main()

{

optimize();

pair<int,int>p;

p.first=2;

p.second=5;

cout<<p.first<<endl;

cout<<p.second<<endl<<endl;

pair<string,int>q;

q.first="Hamid";

q.second=5;

cout<<q.first<<endl;

cout<<q.second<<endl<<endl;

pair<string,vector<int>>x;

x.first="hamid";

x.second= {1,2,3};

cout<<x.first<<endl;

**for** (auto u:x.second)cout<<u<<" ";

cout<<endl;

pair<int,int>y;

y=make\_pair(2,3);

cout<<y.first<<" "<<y.second<<endl<<endl;

pair<int,int>a;

a= {2,3};

cout<<a.first<<" "<<a.second<<endl<<endl;

pair<string,vector<int>>s;

//s={"hamid",{3,4,5}};

s.first="hamid",s.second= {3,4,5};

cout<<s.second.size()<<endl;

cout<<s.first.size()<<endl;

cout<<s.first<<endl;

**for**(auto u:s.second)cout<<u<<" ";

cout<<endl<<endl;

pair<int,int>p1,p2,p3,p4;

p1= {2,3},p2= {3,2};

**if**(p1<p2)cout<<"Yes"<<endl<<endl;

**else** cout<<"No"<<endl<<endl;

p3=min(p1,p2);

cout<<p3.first<<" "<<p3.second<<endl<<endl;

p4=max(p1,p2);

cout<<p4.first<<" "<<p4.second<<endl<<endl;

//pair sort

vector<pair<int,int>>v;

v.push\_back({6,5});

//v.push\_back(make\_pair(6,5));

v.push\_back({2,3});

v.push\_back({4,5});

v.push\_back({6,1});

v.push\_back({1,9});

//sort(v.begin(),v.end());

//sort(v.rbegin(),v.rend());

**for**(auto u:v) cout<<u.first<<" "<<u.second<<endl;

cout<<endl<<endl;

pair<int,int> c[]= {{6,5},{2,3},{4,5},{6,1},{1,9}};

sort(c,c+5);

//sort(c,c+5,greater<int>());

**for**(auto u:c)cout<<u.first<<" "<<u.second<<endl;

cout<<endl<<endl;

vector<pair<string,int>> d;

d.push\_back({"hamid",21});

d.push\_back({"momo",13});

d.push\_back({"hamid",34});

d.push\_back({"hosi",35});

d.push\_back({"hamid",34});

sort(v.begin(),v.end());

**for**(auto u:d) cout<<u.first<<" "<<u.second<<endl;

cout<<endl<<endl;

int array[]={1,2,4,5};

**for**(auto u:array) cout<<u<<" ";

cout<<endl<<endl;

vector<pair<string,int>> e;

e.push\_back({"hamid",21});

e.push\_back({"hamid",21});

e.push\_back({"momo",13});

e.push\_back({"momo",13});

e.push\_back({"hamid",34});

e.push\_back({"hosi",35});

e.push\_back({"hamid",34});

sort(e.begin(),e.end());

int size=unique(e.begin(),e.end())-e.begin();

**for**(int i=0;i<size;i++) cout<<e[i].first<<" "<<e[i].second<<endl;

cout<<endl<<endl;

//cout<<"User Input:";

pair<int,int>n;

cin>>n.first>>n.second;

cout<<n.first<<" "<<n.second<<endl;

**return** 0;

}

**Output:**

3 4

2

5

Hamid

5

hamid

1 2 3

2 3

2 3

3

5

hamid

3 4 5

Yes

2 3

3 2

6 5

2 3

4 5

6 1

1 9

1 9

2 3

4 5

6 1

6 5

hamid 21

momo 13

hamid 34

hosi 35

hamid 34

1 2 4 5

hamid 21

hamid 34

hosi 35

momo 13

3 4

*#include<bits/stdc++.h>*

using namespace std;

bool cmp ( const pair<int,int> &p1, const pair<int, int> &p2 ){

**if** ( p1.first > p2.first ) **return** 1;

**if** ( p1.first == p2.first ) **return** ( p1.second < p2.second );

**return** 0;

}

int main()

{

/// Declear a pair o integers

pair<int,int> p;

p = make\_pair ( 2, 3 );

cout << p.first << " " << p.second << endl; /// 2 3

p.first++;

cout << p.first << " " << p.second << endl; /// 3 3

pair<int, int> p1 = { 2, 3 };

pair<int, int> p2 = { 1, 6 };

/// Getting minimum of 2 pairs

p = min ( p1, p2 );

cout << p.first << " " << p.second << endl; /// 1 6

/// Getting maximum of 2 pairs

p = max ( p1, p2 );

cout << p.first << " " << p.second << endl; /// 2 3

/// Sorting pair of integers

vector<pair<int,int>> v;

v.push\_back ( { 1, 5 } );

v.push\_back ( { 2, 5 } );

v.push\_back ( { 7, 1 } );

v.push\_back ( { 3, 6 } );

v.push\_back ( { 3, 6 } );

v.push\_back ( { 7, 1 } );

sort ( v.begin(), v.end() );

**for** ( auto u : v ) cout << u.first << " " << u.second << endl;

cout << endl;

/\*\*

1 5

2 5

3 6

3 6

7 1

7 1

\*/

/// Making unique pair of integers

int Sz = unique ( v.begin(), v.end() ) - v.begin();

cout << Sz << endl;

**for** ( int i = 0; i < Sz; i++ ) cout << v[i].first << " " << v[i].second << endl;

cout << endl;

/\*\*

4

1 5

2 5

3 6

7 1

\*/

/// sorting using comparator

v = { {2, 3}, {4, 5}, {1, 5}, {1, 6}, {6, 7}, {6, 8} };

sort ( v.begin(), v.end(), cmp );

**for** ( auto u : v ) cout << u.first << " " << u.second << endl;

cout << endl;

/\*\*

6 7

6 8

4 5

2 3

1 5

1 6

\*/

v = { {2, 3}, {4, 5}, {1, 5}, {1, 6}, {6, 7}, {6, 8} };

**for** ( int i = 0; i < v.size(); i++ ) v[i].first \*= -1;

sort ( v.begin(), v.end() );

**for** ( auto u : v ) cout << (u.first\*-1) << " " << u.second << endl;

cout << endl;

/\*\*

6 7

6 8

4 5

2 3

1 5

1 6

\*/

**return** 0;

}

**Output:**

2 3

3 3

1 6

2 3

1 5

2 5

3 6

3 6

7 1

7 1

4

1 5

2 5

3 6

7 1

6 7

6 8

4 5

2 3

1 5

1 6

6 7

6 8

4 5

2 3

1 5

1 6

**problem link=**[**https://codeforces.com/contest/44/problem/A**](https://codeforces.com/contest/44/problem/A)

**code link=**[**https://codeforces.com/contest/44/submission/87993765**](https://codeforces.com/contest/44/submission/87993765)

*#include<bits/stdc++.h>*

using namespace std;

*#define endl '\n'*

*#define optimize() ios\_base::sync\_with\_stdio(0);cin.tie(0);cout.tie(0);*

int main()

{

optimize();

int t;

cin>>t;

vector<pair<string,string>>v(t);

**for**(int i=0;i<t;i++) cin>>v[i].first>>v[i].second;

sort(v.begin(),v.end());

cout<<unique(v.begin(),v.end())-v.begin()<<endl;

**return** 0;

}

**Output:**

3

oak yellow

oak yellow

oak yellow

1

**problem link=**[**https://practice.geeksforgeeks.org/problems/count-distinct-pairs-with-difference-k/0**](https://practice.geeksforgeeks.org/problems/count-distinct-pairs-with-difference-k/0)

*#include<bits/stdc++.h>*

using namespace std;

*#define endl '\n'*

*#define optimize() ios\_base::sync\_with\_stdio(0);cin.tie(0);cout.tie(0);*

int main()

{

optimize();

int t;

cin>>t;

**while** (t--){

int n;

cin>>n;

int a[n];

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

cin>>a[i];

}

vector<pair<int,int>>v;

int k,c=0;

cin>>k;

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

**for**(int j=0;j<n;j++){

**if**(i!=j){

**if**(a[i]-a[j]==k){

v.push\_back(make\_pair(a[i],a[j]));

}

}

}

}

int s=unique(v.begin(),v.end())-v.begin();

cout<<s<<endl;

}

**return** 0;

}

**Output:**

"C:\Users\Md.Hamid Hosen\CLionProjects\untitled\cmake-build-debug\untitled.exe"

3

5

1 5 4 1 2

0

3

1 1 1

0

3

1 5 3

2

1

1

2

**link=**[**https://codeforces.com/problemset/problem/166/A**](https://codeforces.com/problemset/problem/166/A)

**code=**[**https://codeforces.com/contest/166/submission/87997879**](https://codeforces.com/contest/166/submission/87997879)

*#include <bits/stdc++.h>*

using namespace std;

*#define endl '\n'*

*#define optimeze() ios\_base::sync\_with\_stdio(0);cin.tie(0);cout.tie(0);*

int main()

{

optimeze();

int n,k;

cin>>n>>k;

vector<pair<int,int>>v(n);

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

cin>>v[i].first>>v[i].second;

v[i].first\*=-1;

}

sort(v.begin(),v.end());

int c=0;

**for**(auto u:v) **if**(u==v[k-1]) c++;

cout<<c<<endl;

**return** 0;

}

**Output:**

"C:\Users\Md.Hamid Hosen\CLionProjects\untitled\cmake-build-debug\untitled.exe"

5 4

3 1

3 1

5 3

3 1

3 1

4

*#include <bits/stdc++.h>*

using namespace std;

*#define endl '\n'*

*#define optimeze() ios\_base::sync\_with\_stdio(0);cin.tie(0);cout.tie(0);*

bool cmp(const pair<int,int> &p1,const pair<int,int> &p2)

{

**if**(p1.first>p2.first) **return** 1;

**else** **if**(p1.first==p2.first) **return** (p1.second<p2.second);

**else** **return** 0;

}

int main()

{

optimeze();

int n,k;

cin>>n>>k;

vector<pair<int,int>>v(n);

**for**(int i=0;i<n;i++) cin>>v[i].first>>v[i].second;

sort(v.begin(),v.end(),cmp);

int c=0;

**for**(auto u:v) **if**(u==v[k-1]) c++;

cout<<c<<endl;

**return** 0;

}

**Output:**

"C:\Users\Md.Hamid Hosen\CLionProjects\untitled\cmake-build-debug\untitled.exe"

5 4

3 1

3 1

5 3

3 1

3 1

4