Assignement 38

List functions in C++ STL (Standard Template Library)

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L )

{

    list<int>::iterator it;

    for(it= L.begin();it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

    cout<<endl;

}

int main()

{

    list<int> list\_01;

        list\_01.push\_front(10);

        list\_01.push\_back(20);

        list\_01.push\_back(30);

        list\_01.push\_front(50);

        list\_01.push\_back(50);

        cout<<"\n the entered values in the list are :"<<endl;

        display(list\_01);

        list<int>:: iterator it1;

        it1=list\_01.begin();

        list\_01.insert(it1, 100);

        list\_01.insert(it1, 200);

        list\_01.insert(it1, 300);

        list\_01.insert(it1, 400);

        cout<<"\n the entered value after the insertion: "<<endl;

        display(list\_01);

        cout<<"\n the size of the list is : "<<list\_01.size()<<endl;

        list\_01.sort();

        cout<<"\n the entered values after the sorting are : "<<endl;

        display(list\_01);

        list\_01.reverse();

        cout<<"\n the entered values after the reversing are : "<<endl;

        display(list\_01);

        list\_01.remove(100);

        cout<<"\n the entered values after the reversing are : "<<endl;

        display(list\_01);

        cout<<"\nthe first element :  "<<list\_01.front();

        cout<<"\nthe last element :   "<<list\_01.back();

        list\_01.pop\_front();

        cout<<"\n the entered values after the pop\_front are : "<<endl;

        display(list\_01);

        list\_01.pop\_back();

        cout<<"\n the entered values after the reversing are : "<<endl;

        display(list\_01);

        list<int>:: iterator iter;

        cout<<"\n diplay of element using begin and end() : "<<endl;

        for(iter= list\_01.begin(); iter!=list\_01.end(); iter++)

        {

            cout<<\*iter<<" ";

        }

     /\*   list<int>:: iterator it1;

        cout<<"\n diplay of element in reverse using begin and end() : "<<Endl;

        for(it1= list\_01.rbegin(); it1!=list\_01.rend(); it1++)

        {

            cout<<\*it1<<" ";

        }\*/

        list<int> list\_02;

        list\_02.assign(5,1000);

        cout<<"\n after assigne new element in new list : "<<endl;

        display(list\_02);

        list\_01.merge(list\_02);

        cout<<"\n list\_01 after merging with list\_02 : "<<endl;

        display(list\_01);

        list\_01.unique();

        cout<<"\n element after using unique : "<<endl;

        display(list\_01);

        it1=list\_01.begin();

        list\_01.erase(it1);

        cout<<"\n element after using erase : "<<endl;

        display(list\_01);

    return 0;

}

Output:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem\_01.cpp -o problem\_01 } ; if ($?) { .\problem\_01 }

the entered values in the list are :

50 10 20 30 50

the entered value after the insertion:

100 200 300 400 50 10 20 30 50

the size of the list is : 9

the entered values after the sorting are :

10 20 30 50 50 100 200 300 400

the entered values after the reversing are :

400 300 200 100 50 50 30 20 10

the entered values after the reversing are :

400 300 200 50 50 30 20 10

the first element : 400

the last element : 10

the entered values after the pop\_front are :

300 200 50 50 30 20 10

the entered values after the reversing are :

300 200 50 50 30 20

diplay of element using begin and end() :

300 200 50 50 30 20

after assigne new element in new list :

1000 1000 1000 1000 1000

list\_01 after merging with list\_02 :

300 200 50 50 30 20 1000 1000 1000 1000 1000

element after using unique :

300 200 50 30 20 1000

element after using erase :

200 50 30 20 1000

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2. Assign the elements to the list (different methods) - Example of list::assign() | C++

STL

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L)

{

    list<int> :: iterator it;

    for(it= L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

}

int main()

{

    list<int> list\_1;

    list<int> list\_2;

    list<int> list\_3;

    list<int> list\_4;

    //type 1

    list\_1.assign(5,100);

    cout<<"the size of the list is "<<list\_1.size()<<endl;

    cout<<"the element in the list are ";

    display(list\_1);

    //type 2

    list\_2.assign(list\_1.begin(), list\_1.end());

    cout<<"\nthe size of the list is "<<list\_2.size()<<endl;

    cout<<"the element in the list are ";

    display(list\_2);

    //type 3

    int arr[]={10,20,30,40,50,60};

    list\_3.assign(arr, arr+6);

    cout<<"\nthe size of the list is "<<list\_3.size()<<endl;

    cout<<"the element in the list are ";

    display(list\_3);

    return 0;

}

Output:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem02.cpp -o problem02 } ; if ($?) { .\problem02 }

the size of the list is 5

the element in the list are 100 100 100 100 100

the size of the list is 5

the element in the list are 100 100 100 100 100

the size of the list is 6

the element in the list are 10 20 30 40 50 60

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3. Iterate a list C++ STL

#include<bits/stdc++.h>

using namespace std;

int main()

{

    list<int> list\_1;

    list\_1.assign(5,100);

    cout<<"the etered element int he list is : "<<endl;

    list<int>:: iterator it;

    for(it=list\_1.begin(); it!=list\_1.end(); it++)

    {

        cout<<\*it<<" ";

    }

    return 0;

}

Output:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element int he list is :

100 100 100 100 100

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4. Iterate a list in reverse order C++ STL

#include<bits/stdc++.h>

using namespace std;

int main()

{

    list<int> list\_1;

    list\_1.assign({10,20,30,40,50});

    cout<<"the etered element int he list is : "<<endl;

    for(auto it=list\_1.rbegin(); it!=list\_1.rend(); it++)

    {

        cout<<\*it<<" ";

    }

    return 0;

}

Output:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element int he list is :

50 40 30 20 10

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5. Input and add elements to a list C++ STL

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L)

{

    for(auto it=L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

}

int main()

{

    list<int> list\_1;

    list\_1.assign({10,20,30,40,50});

    cout<<"the etered element int he list is : "<<endl;

    display(list\_1);

    int sum = accumulate(list\_1.begin(),list\_1.end(), 0);

    cout<<"\nthe sum of the nubmers is "<<sum<<endl;

    return 0;

}

Ouput:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element int he list is :

10 20 30 40 50

the sum of the nubmers is 150

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6. Get the first and last element of the list C++ STL

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L)

{

    for(auto it=L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

    cout<<endl;

}

int main()

{

    list<int> list\_1;

    list\_1.assign({10,20,30,40,50});

    cout<<"the etered element int he list is : "<<endl;

    display(list\_1);

    cout<<"the first element of list is : "<<list\_1.front()<<endl;

    cout<<"the last element of list is  : "<<list\_1.back()<<endl;

    return 0;

}

Output:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element int he list is :

10 20 30 40 50

the first element of list is : 10

the last element of list is : 50

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7. Insert the element at beginning and end of the list | C++ STL

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L)

{

    for(auto it=L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

    cout<<endl;

}

int main()

{

    list<int> list\_1;

    list\_1.assign({10,20,30,40,50});

    cout<<"the etered element int he list is : "<<endl;

    display(list\_1);

    cout<<"the first element of list is : "<<list\_1.front()<<endl;

    cout<<"the last element of list is  : "<<list\_1.back()<<endl;

    list\_1.push\_front(5);

    list\_1.push\_back(60);

    display(list\_1);

    cout<<"the first element of list is : "<<list\_1.front()<<endl;

    cout<<"the last element of list is  : "<<list\_1.back()<<endl;

    return 0;

}

Output:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element int he list is :

10 20 30 40 50

the first element of list is : 10

the last element of list is : 50

5 10 20 30 40 50 60

the first element of list is : 5

the last element of list is : 60

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8. Remove all occurrences of an element and remove set of some specific from the list

C++ STL

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L)

{

    for(auto it=L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

    cout<<endl;

}

int main()

{

    list<int> list\_1;

    list\_1.assign({10,20,30,40,50});

    cout<<"the etered element int he list is : "<<endl;

    display(list\_1);

    list\_1.remove(50);

    cout<<"after removing 50 : "<<endl;

    display(list\_1);

    return 0;

}

Ouput:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element int he list is :

10 20 30 40 50

after removing 50 :

10 20 30 40

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9. Remove all consecutive duplicate elements from the list | C++ STL

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L)

{

    for(auto it=L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

    cout<<endl;

}

int main()

{

    list<int> list\_1;

    list\_1.assign({10,20,20,40,40,50,50,50});

    cout<<"the etered element int he list is : "<<endl;

    display(list\_1);

    list\_1.unique();

    cout<<"after removing duplicate numbers : "<<endl;

    display(list\_1);

    return 0;

}

Output:;

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element int he list is :

10 20 20 40 40 50 50 50

after removing duplicate numbers :

10 20 40 50

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10. Merge two lists C++ STL

Input:

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L)

{

    for(auto it=L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

    cout<<endl;

}

int main()

{

    list<int> list\_1;

    list<int> list\_2;

    list\_1.assign({10,20,30,40,50});

    cout<<"the etered element in the 1 list is : "<<endl;

    display(list\_1);

    list\_2.assign({60,70,80,90,100});

    cout<<"the etered element in the 2 list is : "<<endl;

    display(list\_2);

    list\_1.merge(list\_2);

    cout<<"after merging the two list : "<<endl;

    display(list\_1);

    return 0;

}

Ouput;

> cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element in the 1 list is :

10 20 30 40 50

the etered element in the 2 list is :

60 70 80 90 100

after merging the two list :

10 20 30 40 50 60 70 80 90 100

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11. Creating a list by assigning the all elements of another list C++ STL

#include<bits/stdc++.h>

using namespace std;

void display(list<int> L)

{

    for(auto it=L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

    cout<<endl;

}

int main()

{

    list<int> list\_1;

    list<int> list\_2;

    list\_1.assign({10,20,30,40,50});

    cout<<"the etered element in the 1 list is : "<<endl;

    display(list\_1);

    list\_2.assign(list\_1.begin(), list\_1.end());

    cout<<"\nthe size of the list is "<<list\_2.size()<<endl;

    cout<<"the element in the list are "<<endl;

    display(list\_2);

    return 0;

}

Output:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem03.cpp -o problem03 } ; if ($?) { .\problem03 }

the etered element in the 1 list is :

10 20 30 40 50

the size of the list is 5

the element in the list are

10 20 30 40 50

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13. Push characters in a list and print them separated by space in C++ STL

#include<bits/stdc++.h>

using namespace std;

void display(list<char> L)

{

    for(auto it=L.begin(); it!=L.end(); it++)

    {

        cout<<\*it<<" ";

    }

    cout<<endl;

}

int main()

{

    list<char> list\_1;

    char ch;

    cout<<"enter the charcters and to exit enter 0 : "<<endl;

    while(true)

    {

        cin>>ch;

        if(ch == '0')

        {

            break;

        }

        list\_1.push\_back(ch);

    }

    cout<<"\n the entered charcter is :"<<endl;

    display(list\_1);

    return 0;

}

Ouput:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem\_04.cpp -o problem\_04 } ; if ($?) { .\problem\_04 }

enter the charcters and to exit enter 0 :

t u s h a r m a l i y e @ 0

the entered charcter is :

t u s h a r m a l i y e @

PS C:\Users\tusha\Documents\coadind\assignement38>--------------

#include<bits/stdc++.h>

using namespace std;

void display(list<char> L)

{

    for(char ch : L)

    {

        cout<<ch<<" ";

    }

    cout<<endl;

}

int main()

{

    list<char> list\_1;

    char ch;

    cout<<"enter the charcters and to exit enter 0 : "<<endl;

    while(true)

    {

        cin>>ch;

        if(ch == '0')

        {

            break;

        }

        list\_1.push\_back(ch);

    }

    cout<<"\n the entered charcter is :"<<endl;

    display(list\_1);

    return 0;

}

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem\_04.cpp -o problem\_04 } ; if ($?) { .\problem\_04 }

enter the charcters and to exit enter 0 :

a b c d e f g h 0

the entered charcter is :

a b c d e f g h

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14. Access elements of a characters list using const\_iterator in C++ STL

#include<bits/stdc++.h>

using namespace std;

void display(list<char> L)

{

    list<char> :: const\_iterator it;

    for( it=L.begin(); it!=L.end(); it++)

    {

        //\*it='a'   this will create error

        cout<<\*it<<" "; // a b c d e f g

    }

    cout<<endl;

    list<char>:: iterator it1;

    for( it1=L.begin(); it1!=L.end(); it1++)

    {

        \*it1='a';

        cout<<\*it1<<" "; // a a a a a a a a

    }

    cout<<endl;

}

int main()

{

    list<char> list\_1;

    char ch;

    cout<<"enter the charcters and to exit enter 0 : "<<endl;

    while(true)

    {

        cin>>ch;

        if(ch == '0')

        {

            break;

        }

        list\_1.push\_back(ch);

    }

    cout<<"\n the entered charcter is :"<<endl;

    display(list\_1);

    return 0;

}

Output:

cd "c:\Users\tusha\Documents\coadind\assignement38\" ; if ($?) { g++ problem\_04.cpp -o problem\_04 } ; if ($?) { .\problem\_04 }

enter the charcters and to exit enter 0 :

a b c d e f g 0

the entered charcter is :

a b c d e f g

a a a a a a a

PS C:\Users\tusha\Documents\coadind\assignement38>