

作业 4

T3

```
//T3 时间复杂度O(theIndex)
template<class T>
void Chain<T>::set(int theIndex,T x)
{
    checkIndex(theIndex);
    chainNode<T>* currentNode=firstNode;
    for(int i=0;i<theIndex;i++)
        currentNode=currentNode->next;
    currentNode->element=x;
    return ;
}
```

T15

```
//T15 时间复杂度O(Chain<T>::size())
template<class T>
void Chain<T>::reverse()
{
    chainNode<T>* currentNode=firstNode;
    chainNode<T>* previousNode=NULL;
    chainNode<T>* nextNode=firstNode;
    lastNode=firstNode;
    while(currentNode!=NULL)
    {
        nextNode=currentNode->next;
        currentNode->next=previousNode;
        previousNode=currentNode;
        currentNode=nextNode;
    }
    firstNode=previousNode;
}
```

T3 和T15 测试代码

```
#include"chain.hpp"
int main()
{
    Chain<int> s(10);
    s.push_back(1);
    s.push_back(2);
    s.push_back(3);
    s.push_back(4);
    s.push_back(5);
    s.set(4,6);
    cout<<s<<endl;
```

```

    s.reverse();
    cout<<s;
    return 0;
}

```

输出

```

1 2 3 4 6
6 4 3 2 1
[Done] exited with code=0 in 0.53 seconds

```

T17

```

//T17 时间复杂度O(A.size()+B.size())
template<class T>
extendedChain<T>* meld(extendedChain<T> a,extendedChain<T>b)
{
    extendedChain<T>c;
    int i=0,j=0;
    while(i<a.size()&&j<b.size())
    {
        T val_a=a.get(i++);
        T val_b=b.get(j++);
        c.push_back(val_a);
        c.push_back(val_b);
    }
    //如果 a 到头了,就遍历b
    if(i==a.size())
    {
        while(j<b.size())
        {
            T val_b=b.get(j++);
            c.push_back(val_b);
        }
    }
    //如果 b 到头了,就遍历a
    else
    {
        while(i<a.size())
        {
            T val_a=a.get(i++);
            c.push_back(val_a);
        }
    }
    return c;
}

```

T17 测试代码 1

```
#include"extendedChain.hpp"
int main()
{
    extendedChain<int>a(10);
    extendedChain<int>b(10);
    a.push_back(1);a.push_back(2);a.push_back(3);a.push_back(4);
    cout<<a<<endl;
    b.push_back(5);b.push_back(6);b.push_back(7);b.push_back(8);b.push_b
ack(9);b.push_back(10);
    cout<<b<<endl;
    extendedChain<int>c=meld(a,b);
    cout<<c<<endl;
}
```

输出:

```
1 2 3 4
5 6 7 8 9 10
1 5 2 6 3 7 4 8 9 10

[Done] exited with code=0 in 0.497 seconds
```

T17 测试代码 2

```
#include"extendedChain.hpp"
int main()
{
    extendedChain<int>a(10);
    extendedChain<int>b(10);
    a.push_back(1);a.push_back(2);a.push_back(3);a.push_back(4);a.push_b
ack(9);a.push_back(10);
    cout<<a<<endl;
    b.push_back(5);b.push_back(6);b.push_back(7);b.push_back(8);
    cout<<b<<endl;
    extendedChain<int>c=meld(a,b);
    cout<<c<<endl;
}
```

输出:

```
1 2 3 4 9 10
5 6 7 8
1 5 2 6 3 7 4 8 9 10

[Done] exited with code=0 in 0.544 seconds
```