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Bubble sorting with Function templates

dexter04 (2)

 Jun 22, 2013 at 2:49am

hey guys i'm new to C++ i came across this bubblesort program earlier relating to class templates i was wondering how to make this into **simple function templates**

```
1 #include<iostream>
2 #include<iomanip.h>
3 #include<conio.h>
4 #include<stdio.h>
5 using namespace std;
6
7 template <class t>
8 class bubble
9 {
10 t a[25];
11 public:
12 void get(int);
13 void sort(int);
14 void display(int);
15 };
16
17 template <class t>
18 void bubble <t>::get(int n)
19 {
20 int i;
21 cout<<"Enter the array elements:\n";
22 for(i=0; i<n;i++)
23 cin>>a[i];
24 }
25
26 template <class t>
27 void bubble <t>::display(int n)
28 {
29 int i;
30 cout<<"\nThe sorted array is\n";
31 for(i=0;i<n;i++)
32 cout<<a[i]<<setw(10);
33 }
```

```
34
35 template <class t>
36 void bubble <t>::sort(int n)
37 {
38     int i,j;
39     t temp;
40     for(i=0;i<n;i++)
41     {
42         for(j=i+1;j<n;j++)
43         {
44             if(a[i]>a[j])
45             {
46                 temp=a[i];
47                 a[i]=a[j];
48                 a[j]=temp;
49             }
50         }
51     }
52 }
53
54 int main()
55 {
56     int n,ch;
57     while(1)
58     {
59         cout<<"\n\n---BUBBLE SORT TEMPLATES---\n";
60         cout<<"\nEnter your choice\n1.Integer\n2.Floating Point\n3.Character\n4.Exit\n\n";
61         cin>>ch;
62
63         switch(ch)
64         {
65             case 1:
66             {
67                 cout<<"\n### Integer Sortmenu ###\n\n";
68                 bubble<int> b1;
69                 cout<<"Enter the size of array:\n";
70                 cin>>n;
71                 b1.get(n);
72                 b1.sort(n);
73                 b1.display(n);
74                 break;
75             };
76             case 2:
77             {
78                 cout<<"\n### Floating Point SortMenu ###\n\n";
79                 bubble<float> b2;
80                 cout<<"Enter the size of array:\n";
81                 cin>>n;
82                 b2.get(n);
83                 b2.sort(n);
84                 b2.display(n);
85                 break;
86             };
```

```

87         case 3:
88         {
89             cout<<"\n### Character SortMenu ###\n\n";
90             bubble<char> b3;
91             cout<<"Enter the size of array:\n";
92             cin>>n;
93             b3.get(n);
94             b3.sort(n);
95             b3.display(n);
96             break;
97         };
98         case 4:
99         {
100             cout<<"<Program terminating>";
101             exit(0);
102         };
103         default:
104             cout<<"Invalid Choice try again!\n";
105             return 0;
106
107     }
108 }
109 getch();
110 }

```

Thanks
dexter

JLBorges (9305)

Jun 22, 2013 at 5:09am

Identical to your code for the member function sort().
Except that the array (pointer to first element) is an extra parameter:

```

1 // template <class t>
2 // void bubble <t>::sort(int n)
3 template < typename T > void bubble_sort( T a[], int n )
4 {
5     int i,j;
6     //t temp;
7     T temp ;
8     for(i=0; i<n; i++)
9     {
10         for(j=i+1; j<n; j++)
11         {
12             if(a[i]>a[j])
13             {
14                 temp=a[i];
15                 a[i]=a[j];
16                 a[j]=temp;
17             }
18         }
19     }
20 }

```

```

18     }
19     }
20 }

```

dexter04 (2)

Jun 22, 2013 at 11:24am

What would other functions be changed into then ?

JLBorges (9305)

Jun 22, 2013 at 4:32pm

Oh, come on!

```



1  #include <iostream>
2
3  template< typename T > void get( T a[], int n )
4  {
5      std::cout << "enter " << n << " array elements: " ;
6      for( int i = 0 ; i < n ; ++i ) std::cin >> a[i] ;
7  }
8
9  template< typename T > void sort( T a[], int n )
10 {
11     for( int i=0 ; i<n ; ++i )
12     {
13         for( int j=i+1 ; j<n ; ++j )
14         {
15             if( a[j] < a[i] )
16             {
17                 int temp = a[i] ;
18                 a[i] = a[j] ;
19                 a[j] = temp ;
20             }
21         }
22     }
23 }
24
25 template< typename T > void display( const T a[], int n )
26 {
27     std::cout << "the sorted array: " ;
28     for( int i = 0 ; i < n ; ++i ) std::cout << a[i] << ' ' ;
29     std::cout << '\n' ;
30 }
31
32 int main()
33 {
34     constexpr int N = 5 ;
35     int array[N] = {0} ;
36     get( array, N ) ;





```

```
37     sort( array, N ) ;  
38     display( array, N ) ;  
39 }
```

<http://ideone.com/7sV6aq>

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