

```
1  #define _CRTDBG_MAP_ALLOC
2  #include <stdlib.h>
3  #include <crtdbg.h>
4
5  #ifdef _DEBUG
6  #ifndef DBG_NEW
7  #define DBG_NEW new ( _NORMAL_BLOCK , __FILE__ , __LINE__ )
8  #define new DBG_NEW
9  #endif
10 #endif // _DEBUG
11 //-----
12 #include <iostream>
13 using namespace std;
14 #include "BigInt.h"
15 #include <string.h>
16 //-----
17
18 int main()
19 {
20     //create from C string
21     BigInt a = BigInt_create("0009999999999999999999");
22     BigInt_print(a);
23     cout << endl;
24
25     //creat from int
26     BigInt b = BigInt_create(9345);
27     BigInt_print(b);
28     cout << endl;
29
30     // compare
31     int i = BigInt_compare(a, b);
32     BigInt_print(a);
33     switch (i)
34     {
35     case 0: cout << " == ";
36         break;
37     case 1: cout << " > ";
38         break;
39     case -1: cout << " < ";
40         break;
41     default: cout << "???" ;
42     }
43     BigInt_print(b);
44     cout << endl;
45
46     // assign
47     BigInt_assign(b, a);
48     BigInt_print(b);
49     cout << endl << "After assigning b to a, compare = ";
50     cout << BigInt_compare(a, b) << endl;
51
52     // inc
53     BigInt_print(a);
```

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54     cout << " + 1 = ";
55     BigInt_inc(a);
56     BigInt_print(a);
57     cout << endl;
58
59     // add
60     BigInt c = BigInt_create(93652);
61     BigInt d = BigInt_add(a, c);
62     BigInt_print(a);
63     cout << " + ";
64     BigInt_print(c);
65     cout << " = ";
66     BigInt_print(d);
67     cout << endl;
68     BigInt_destroy(a);
69     BigInt_destroy(b);
70     BigInt_destroy(c);
71     BigInt_destroy(d);
72
73     cout << endl << "before fibo and sqrt functions Leaks: " <<          ↗
74     _CrtDumpMemoryLeaks() << endl;
75     //////////////////////////////////////// ↗
76     ////////////////////////////////////////
77
78     cout << endl << "testing fibo and sqrt : " << endl << endl;
79
80     //The n'th Fibonacci number n(1)=1,n(2)=1,n(3)=2,n(4)=3,n(5)=5,...
81     BigInt fibo_test = fibo(100);
82     cout << "fibo answer: ";
83     BigInt_print(fibo_test);
84     BigInt_destroy(fibo_test);
85     cout << endl;
86
87     //sqrt(x)
88     BigInt sqrt_test = BigInt_create(9);
89     BigInt ans = sqrt(sqrt_test);
90     cout << "sqrt answer: ";
91     BigInt_print(ans);
92     BigInt_destroy(sqrt_test);
93     BigInt_destroy(ans);
94
95     cout << endl << "after fibo and sqrt functions Leaks: " <<          ↗
96     _CrtDumpMemoryLeaks() << endl;
97
98     return 0;
99 }
```