

WEEK 11

IntArray.cpp

IntArray.cpp > IntArray(int, int)

```
1  #include <iostream>
2  using namespace std;
3
4  class IntArray {
5  private:
6      int* m_data;
7      int m_len;
8
9  public:
10     IntArray(int = 0, int = 0);
11     ~IntArray();
12     void print(void);
13     // Copy constructor
14     IntArray(const IntArray& copy);
15     // Set function
16     void set(int, int);
17
18     // Friend functions
19     friend void reverse(IntArray&);
20     friend void multiply(IntArray&, int);
21     friend void negative(IntArray&);
22 };
23
24 IntArray::IntArray(int size, int init) {
25     if (size <= 0) {
26         m_data = nullptr;
27         m_len = 0;
28     } else {
29         m_data = new int[size];
30         m_len = size;
31         for (int i = 0; i < m_len; ++i) {
32             *(m_data + i) = init;
33         }
34     }
35 }
36
37 IntArray::~IntArray() {
38     delete[] m_data;
39 }
40
41 void IntArray::print() {
42     for (int i = 0; i < m_len; ++i) {
43         cout << *(m_data + i) << " ";
44     }
45     cout << std::endl;
46 }
```

```

47
48   IntArray::IntArray(const IntArray& copy) {
49       m_len = copy.m_len;
50       m_data = new int[m_len];
51       for (int i = 0; i < m_len; ++i) {
52           |(m_data + i) = |(copy.m_data + i);
53       }
54   }
55
56   void IntArray::set(int index, int value) {
57       |(index >= 0 && index < m_len) {
58           |(m_data + index) = value;
59       }
60   }
61
62   void reverse(IntArray& arr) {
63       |(for (int i = 0; i < arr.m_len / 2; ++i) {
64           |(int temp = |(arr.m_data + i);
65           |(arr.m_data + i) = |(arr.m_data + arr.m_len - i - 1);
66           |(arr.m_data + arr.m_len - i - 1) = temp;
67       }
68   }
69
70   void multiply(IntArray& arr, int factor) {
71       |(for (int i = 0; i < arr.m_len; ++i) {
72           |(arr.m_data + i) *= factor;
73       }
74   }
75
76   void negative(IntArray& arr) {
77       |(for (int i = 0; i < arr.m_len; ++i) {
78           |(arr.m_data + i) *= -1;
79       }
80   }
81

```

```

82 int main() {
83     cout << "a1:";
84     IntArray a1{10,100};
85     a1.print();
86     cout << "a2:";
87     IntArray a2{a1};
88     a2.set(3,999);
89     a2.set(9,123);
90     a2.print();
91     cout << endl << "Exercice 2" << endl;
92
93     IntArray a5{5,0};
94
95     for(int idx = 0; idx < 5; ++idx)
96     |     a5.set(idx,100+idx*50);
97     cout<<"a5:      ";a5.print();
98     reverse(a5);
99     cout<<"reverse:      ";a5.print();
100    multiply(a5,3);
101    cout<<"multiply:      ";a5.print();
102    negative(a5);
103    cout<<"negative:      ";a5.print();
104    return 0;
105 }

```

Results

```
→ WEEK11 ./a.out
a1:100 100 100 100 100 100 100 100 100 100
a2:100 100 100 999 100 100 100 100 100 123

Exercice 2
a5:      100 150 200 250 300
reverse:      300 250 200 150 100
multiply:      900 750 600 450 300
negative:     -900 -750 -600 -450 -300
→ WEEK11 █
```