

Динамична памет.  
Конструктори и деструктори.  
Пример: Динамичен масив

Любомир Чорбаджиев  
Технологическо училище “Електронни системи”  
Технически университет, София  
lchorbadjiev@elsys-bg.org  
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```

1 #include <iostream>
2 using namespace std;
3 class Array {
4     int* data_;
5     unsigned int size_;
6 public:
7     Array(unsigned int size=0
8         : size_(size),
9         data_(new int[size]))
10    {}
11    ~Array(void) {
12        delete [] data_;
13    }
14    void set(unsigned int index, int val) {
15        if(index>=size_){//error
16            cout << "ERROR: □index□out□of□bounds..." << endl;
17            return;
18        }
19        data_[index]=val;
20    }
21    int get(unsigned int index) {
22        if(index>=size_){//error
23            cout << "ERROR: □index□out□of□bounds..." << endl;
24            return 0;
25        }
26        return data_[index];
27    }
28    void resize(unsigned int size) {
29        int* tmp=data_;
30        data_=new int[size];
31        for(int i=0;i<((size_>size)?size:size_);i++)
32            data_[i]=tmp[i];
33        size_=size;
34        delete [] tmp;
35    }
36    unsigned size() {
37        return size_;
38    }
39 };

```

```

40
41 int main() {
42     Array ar;
43     cout << "ar.size():" << ar.size() << endl;
44     cout << "ar.set(0,10) to call..." << endl;
45     ar.set(0,10);
46     cout << "ar.get(0) to call..." << endl;
47     ar.get(0);
48     cout << endl << endl;
49
50     ar.resize(1);
51     cout << "ar.resize() called..." << endl;
52     ar.set(0,10);
53     cout << "ar.set(0,10) called..." << endl;
54     cout << "ar.get(0):" << ar.get(0) << endl;
55     cout << endl << endl;
56
57     cout << "ar.set(1,20) to call..." << endl;
58     ar.set(1,20);
59     cout << "ar.get(1) to call..." << endl;
60     ar.get(1);
61     cout << endl << endl;
62
63     ar.resize(10);
64     for(int i=0;i<10;i++) {
65         ar.set(i,i*i);
66     }
67     for(int i=0;i<10;i++) {
68         cout << "ar.get(" << i << ")=" << ar.get(i) << endl;
69     }
70     return 0;
71 }

```

```
lubo@dobby:~/school/cpp/notes/code> g++ lecture05-array.cpp
lubo@dobby:~/school/cpp/notes/code> a.out
ar.size():0
ar.set(0,10) to call...
ERROR: index out of bounds...
ar.get(0) to call...
ERROR: index out of bounds...

ar.resize() called...
ar.set(0,10) called...
ar.get(0):10

ar.set(1,20) to call...
ERROR: index out of bounds...
ar.get(1) to call...
ERROR: index out of bounds...

ar.get(0)=0
ar.get(1)=1
ar.get(2)=4
ar.get(3)=9
ar.get(4)=16
ar.get(5)=25
ar.get(6)=36
ar.get(7)=49
ar.get(8)=64
ar.get(9)=81
```