```
make
g++ -std=c++11 -Wpedantic -Wall -Wextra -Werror -Weffc++ -Wzero-as-null-pointer-constant test_matrix.cpp -o test_matrix
mkharaev@andromeda-3 06:05:01 ~/hw/hw7
Array.h Makefile Matrix.h test_matrix* test_matrix.cpp
mkharaev@andromeda-3 06:05:04 ~/hw/hw7
Current Matrix: Rows (4) / Cols (5)

0 0 0 0

0 1 2 3
                              0 1 2 3
           0 0 0
Current Matrix: Rows (7) / Cols (3)

0.00 0.00 0.00

0.00 1.00 2.00

0.00 2.00 4.00
       0.00
                        3.00
4.00
5.00
                                         6.00
8.00
       0.00
                                         0.00
2.00
4.00
6.00
8.00
                       0.00
       0.00
                        2.00
       0.00
0.00
0.00
                        4.00
5.00
6.00
                                       10.00
       0.00
0.00
0.00
0.00
                                                                          0.00
4.00
8.00
12.00
16.00
20.00
24.00
28.00
0.00
                                                         0.00
3.00
6.00
9.00
12.00
15.00
18.00
21.00
0.00
                                                                                            0.00
5.00
10.00
15.00
                                                                                                                                                 0.00
8.00
16.00
24.00
32.00
40.00
                                                                                                                                                                  0.00
9.00
18.00
27.00
36.00
45.00
                       0.00
1.00
2.00
                                                                                                              0.00
6.00
12.00
                                                                                                                               0.00
7.00
14.00
                                       0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
2.00
4.00
6.00
8.00
10.00
12.00
                                                                                                                               21.00
28.00
35.00
       0.00
                        4.00
5.00
                                                                                            20.00
25.00
                                                                                                              24.00
                                                                                                                                                 48.00
56.00
0.00
                       7.00
                                                                                                                               49.00
0.00
7.00
       0.00
                                                                                             35.00
0.00
                                                                                                              42.00
                                                                                                                                                                  63.00
0.00
                                                                                                                                                 8.00
16.00
24.00
32.00
40.00
48.00
56.00
                                                                          4.00
8.00
12.00
16.00
20.00
24.00
                                                           3.00
6.00
9.00
                        1.00
                                                                                                                               14.00
21.00
28.00
35.00
                                                                                                                                                                  18.00
27.00
36.00
45.00
       0.00
                                                                                             10.00
15.00
                                                                                                              12.00
                         3.00
                                                         12.00
15.00
18.00
21.00
       0.00
                        4.00
                                                                                            20.00
25.00
                                                                                                               30.00
                        6.00
7.00
       0.00
                                                                                                              42.00
```

```
0.00 7.00 14.00 21.00 28.00 35.00 42.00 49.00 56.00 63.00 Index out of bounds
Done
Current Matrix: Rows (4) / Cols (5)

0 0 0 0 0

0 1 2 3

0 2 4 6

0 3 6 9
Current Matrix: Rows (7) / Cols (3)

0.00 0.00 0.00

0.00 1.00 2.00

0.00 2.00 4.00

0.00 3.00 6.00

0.00 4.00 8.00
                            0.00
1.00
2.00
3.00
4.00
5.00
                                                 10.00
         0.00
Copied matrix using '=' operator
0.00 0.00 0.00
0.00 1.00 2.00
                             2.00
         0.00
                                                   4.00
6.00
                              4.00
5.00
6.00
                                                 10.00
0.00
0.00
0.00
0.00
                                                                                           0.00
4.00
8.00
12.00
16.00
20.00
24.00
28.00
0.00
                                                                                                                 0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
                                                                                                                                      0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
                             0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
                                                                     0.00
3.00
6.00
9.00
12.00
15.00
18.00
21.00
0.00
3.00
6.00
9.00
12.00
15.00
15.00
                                                                                                                                                           0.00
7.00
14.00
21.00
28.00
35.00
42.00
49.00
0.00
7.00
14.00
                                                0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
0.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
                                                                                                                                                                                                       9.00
18.00
27.00
36.00
45.00
54.00
                                                                                                                                                                                 8.00
16.00
                                                                                                                                                                                  24.00
32.00
40.00
         0.00
          0.00
         0.00
                                                                                                                                                                                 48.00
56.00
0.00
                             0.00
1.00
2.00
                                                                                                                  0.00
5.00
10.00
                                                                                              4.00
                                                                                                                                      6.00
12.00
18.00
                                                                                                                                                                                 8.00
16.00
         0.00
                                                                                                                                                                                                       9.00
18.00
                                                                                                                                                           21.00
28.00
35.00
42.00
49.00
                             3.00
4.00
5.00
                                                                                           12.00
16.00
20.00
                                                                                                                                                                                 24.00
32.00
40.00
                                                                                                                 20.00
25.00
30.00
35.00
         0.00
                                                                                                                                      24.00
                                                                                                                                                                                                       36.00
45.00
                                                                                                                                       36.00
42.00
         0.00
                             6.00
                                                                                                                                                                                  48.00
56.00
                                                                                            28.00
                                                                                                                                                                                                        63.00
 Done
```

```
Current Matrix: Rows (4) / Cols (5)
  Copied matrix using '=' operator
  Current Matrix: Rows (7) / Cols (3)
                                         0.00
1.00
2.00
3.00
4.00
5.00
6.00
                                                                    0.00
2.00
4.00
6.00
8.00
              0.00
              0.00
0.00
0.00
0.00
                                                                10.00
  Copied matrix using '=' operator
0.00 0.00 0.00
0.00 1.00 2.00
0.00 2.00 4.00
0.00 3.00 6.00
0.00 4.00 8.00
0.00 5.00 10.00
0.00 6.00 12.00
   Starting...
0.00
                                                                                                                                                  0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
                                                                                                                                                                                                          0.00
7.00
14.00
21.00
28.00
35.00
42.00
49.00
0.00 0.00 0.00
0.00 1.00 2.00
0.00 2.00 4.00
0.00 3.00 6.00
0.00 4.00 8.00
0.00 6.00 12.00
0.00 7.00 14.00
0.00 3.00 6.00
0.00 4.00 8.00
0.00 1.00 2.00
0.00 1.00 2.00
0.00 3.00 6.00
0.00 3.00 6.00
0.00 4.00 8.00
0.00 5.00 10.00
0.00 5.00 10.00
0.00 6.00 12.00
0.00 6.00 12.00
0.00 7.00 14.00
Index out of bounds
Done
                                                                                            0.00
3.00
6.00
9.00
12.00
15.00
21.00
0.00
3.00
6.00
9.00
12.00
15.00
12.00
                                                                                                                       4.00
8.00
12.00
16.00
20.00
24.00
28.00
                                                                                                                                                                               0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
                                                                                                                                                                                                                                     8.00
16.00
24.00
32.00
40.00
                                                                                                                                                                                                                                                                 9.00
18.00
27.00
36.00
45.00
                                                                                                                                                                                                                                      48.00
56.00
                                                                                                                                                                                                                                                                 54.00
                                                                                                                                                                               42.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
                                                                                                                       0.00
4.00
8.00
12.00
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8.00
16.00
24.00
32.00
                                                                                                                                                      0.00
                                                                                                                                                                                                            0.00
                                                                                                                                                                                                                                                                    0.00
                                                                                                                                                                                                          7.00
14.00
21.00
28.00
35.00
42.00
                                                                                                                                                    10.00
15.00
20.00
                                                                                                                                                                                                                                                                 27.00
36.00
                                                                                                                        20.00
                                                                                                                                                                                                                                      40.00
48.00
56.00
                                                                                                                                                    25.00
30.00
                                                                                                                                                                                                                                                                 45.00
54.00
   nkharaev@andromeda-3 06:05:09 ~/hw/hw7
  nkharaeveandromeda-3 06:05:09 ~7nw/nw/

> valgrind test_matrix
==31875== Memcheck, a memory error detector
==31875== Copyright (C) 2002-2015, and GNU GPL'd, by Julian Seward et al.
==31875== Using Valgrind-3.11.0 and LibVEX; rerun with -h for copyright info
```

```
Current Matrix: Rows (7) / Cols (3)

0.00 0.00 0.00

0.00 1.00 2.00

0.00 2.00 4.00
             0.00
                                                2.00
3.00
4.00
                                                                            6.00
8.00
10.00
12.00
             0.00
0.00
0.00
0.00
0.00
0.00
                                              0.00
1.00
2.00
3.00
4.00
5.00
                                                                                0.00
2.00
4.00
                                                                            6.00
8.00
10.00
12.00
Starting...
0.00
0.00
                                                                                                                                                                                                                                                  0.00
7.00
14.00
21.00
28.00
35.00
42.00
49.00
7.00
14.00
21.00
28.00
35.00
42.00
                                                                                                                                                                                                                                                                                         0.00
                                                                                                                                                                                                                                                                                                                          0.00
                                              0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
                                                                                                                                                                                                                                                                                    8.00
16.00
24.00
32.00
40.00
48.00
56.00
                                                                                                                                                                                                                                                                                                                      9.00
18.00
27.00
                                                                           2.00
4.00
6.00
8.00
10.00
12.00
0.00
2.00
4.00
6.00
8.00
10.00
                                                                                                             3.00
6.00
9.00
12.00
15.00
18.00
21.00
0.00
3.00
6.00
9.00
                                                                                                                                              4.00
8.00
12.00
16.00
24.00
28.00
0.00
4.00
8.00
12.00
16.00
20.00
24.00
24.00
                                                                                                                                                                                5.00
10.00
15.00
20.00
25.00
30.00
35.00
0.00
5.00
10.00
15.00
20.00
25.00
30.00
                                                                                                                                                                                                                  6.00
12.00
18.00
24.00
30.00
36.00
42.00
0.00
6.00
12.00
18.00
24.00
30.00
36.00
42.00
             0.00
0.00
0.00
                                                                                                                                                                                                                                                                                                                       45.00
54.00
63.00
              0.00
0.00
0.00
                                              1.00
2.00
3.00
4.00
5.00
6.00
7.00
                                                                                                                                                                                                                                                                                    16.00
24.00
32.00
40.00
48.00
                                                                                                                                                                                                                                                                                                                      18.00
27.00
36.00
45.00
54.00
              0.00
                                                                                                            12.00
15.00
18.00
21.00
             0.00
                                                                            14.00
                                                                                                                                                                                  35.00
                                                                                                                                                                                                                                                     49.00
                                                                                                                                                                                                                                                                                      56.00
                                                                                                                                                                                                                                                                                                                        63.00
Index out of bounds
Index out of bounds
 Done
```

```
Copied matrix using '=' operator
Current Matrix: Rows (7) / Cols (3)
0.00 0.00 0.00
0.00 1.00 2.00
      0.00
                        5.00
                                      10.00
       0.00
Copied matrix using
                                         '=' operator
      0.00
0.00
0.00
                        1.00
                                        2.00
      0.00
                                      8.00
10.00
                        4.00
5.00
       0.00
                        6.00
                                                        0.00
3.00
6.00
9.00
      0.00
                                        0.00
2.00
4.00
                                                                                                                                            0.00
8.00
16.00
                                                                                         0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
0.00
                                                                                                                           7.00
14.00
21.00
                                                                                                          12.00
18.00
      0.00
                                                                        8.00
12.00
                                                                                                                                                            18.00
27.00
                        2.00
                                        6.00
                                                       12.00
15.00
18.00
21.00
0.00
      0.00
                                      10.00
12.00
                                                                                                          30.00
36.00
42.00
                                                                                                                                            40.00
48.00
56.00
                                                                                                                           35.00
                                                                                                                           42.00
49.00
                        7.00
                                                                        28.00
                                                                                                                                                            63.00
                                                                                         5.00
10.00
15.00
20.00
25.00
                        2.00
3.00
4.00
                                                        6.00
9.00
12.00
                                                                                                          12.00
18.00
24.00
                                                                                                                                            16.00
24.00
32.00
                                                                                                                          21.00
28.00
35.00
                                        6.00
8.00
                                                                        16.00
0.00 7.00
Index out of bounds
Index out of bounds
 =31875==
==31875== HEAP SUMMARY:
==31875== in use at
                        in use at exit: 72,704 bytes in 1 blocks
total heap usage: 202 allocs, 201 frees, 79,046 bytes allocated
 =31875== LEAK SUMMARY:
                         definitely lost: 0 bytes in 0 blocks
indirectly lost: 0 bytes in 0 blocks
possibly lost: 0 bytes in 0 blocks
=31875== possibly lost: 0 bytes in 0 blocks
=31875== still reachable: 72,704 bytes in 1 blocks
=31875== suppressed: 0 bytes in 0 blocks
=31875== Rerun with --leak-check-full to see details of leaked memory
=31875== For counts of detected and suppressed errors, rerun with: -v
==31875== ERROR SUMMARY: 0 errors from 0 contexts (suppressed: 0 from 0)
nkharaev@andromeda-3 06:05:21 ~/hw/hw7
```