קימפול והרצה עם gmon

```
eitan@DESKTOP-7FFDKIS:~/ariel/OpSys/EX_1/5$ make
g++ -pg -O1 -o max1 maxSubArray1.cpp
g++ -pg -O1 -o max2 maxSubArray2.cpp
g++ -pg -O1 -o max3 maxSubArray3.cpp
eitan@DESKTOP-7FFDKIS:~/ariel/OpSys/EX_1/5$ make profile_all
[ Profiling with N = 100 ]
rm -f gmon.out
./max1 42 100; gprof max1 gmon.out > gprof_max1_100.txt; rm -f gmon.out
Max1:2075
./max2 42 100; gprof max2 gmon.out > gprof_max2_100.txt; rm -f gmon.out
Max1:2075
./max3 42 100; gprof max3 gmon.out > gprof_max3_100.txt; rm -f gmon.out
Max1:2075
[ Profiling with N = 1000 ]
rm -f gmon.out
./max1 42 1000; gprof max1 gmon.out > gprof_max1_1000.txt; rm -f gmon.out
Max1:25530
./max2 42 1000; gprof max2 gmon.out > gprof_max2_1000.txt; rm -f gmon.out
Max1:25530
./max3 42 1000; gprof max3 gmon.out > gprof_max3_1000.txt; rm -f gmon.out
Max1:25530
[ Profiling with N = 10000 ]
rm -f gmon.out
./max1 42 10000; gprof max1 gmon.out > gprof_max1_10000.txt; rm -f gmon.out
Max1:247358
./max2 42 10000; gprof max2 gmon.out > gprof_max2_10000.txt; rm -f gmon.out
Max1:247358
./max3 42 10000; gprof max3 gmon.out > gprof_max3_10000.txt; rm -f gmon.out
Max1:247358
eitan@DESKTOP-7FFDKIS:~/ariel/OpSys/EX_1/5$
```

זמני ריצה בכל פונקציה:

אלגוריתם O(n)

N=100

```
  %   cumulative   self              self     total
 time   seconds   seconds    calls  Ts/call  Ts/call  name
  0.00      0.00     0.00        1     0.00     0.00  generateInput(int, int)
  0.00      0.00     0.00        1     0.00     0.00  maxSubarraySum(std::vector<int, std::allocator<int> >&)
  0.00      0.00     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```

N=1000

```
  %   cumulative   self              self     total
 time   seconds   seconds    calls  Ts/call  Ts/call  name
  0.00      0.00     0.00        1     0.00     0.00  generateInput(int, int)
  0.00      0.00     0.00        1     0.00     0.00  maxSubarraySum(std::vector<int, std::allocator<int> >&)
  0.00      0.00     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```

N=10000

```
  %   cumulative   self              self     total
 time   seconds   seconds    calls  Ts/call  Ts/call  name
  0.00      0.00     0.00        1     0.00     0.00  generateInput(int, int)
  0.00      0.00     0.00        1     0.00     0.00  maxSubarraySum(std::vector<int, std::allocator<int> >&)
  0.00      0.00     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```

אלגוריתם O(2n)

N=100

```
  %   cumulative   self              self     total
 time   seconds   seconds    calls  Ts/call  Ts/call  name
  0.00      0.00     0.00        1     0.00     0.00  generateInput(int, int)
  0.00      0.00     0.00        1     0.00     0.00  maxSubarraySum(std::vector<int, std::allocator<int> >&)
  0.00      0.00     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```

N=1000

```
  %   cumulative   self              self     total
 time   seconds   seconds    calls  Ts/call  Ts/call  name
  0.00      0.00     0.00        1     0.00     0.00  generateInput(int, int)
  0.00      0.00     0.00        1     0.00     0.00  maxSubarraySum(std::vector<int, std::allocator<int> >&)
  0.00      0.00     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```

N=10000

```
Each sample counts as 0.01 seconds.
  %   cumulative   self              self     total
 time   seconds   seconds    calls  ms/call  ms/call  name
100.00      0.07     0.07        1    70.00    70.00  maxSubarraySum(std::vector<int, std::allocator<int> >&)
  0.00      0.07     0.00        1     0.00     0.00  generateInput(int, int)
  0.00      0.07     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```

אלגוריתם O(3n)

N=100

```
  %   cumulative   self              self     total
 time   seconds   seconds    calls  Ts/call  Ts/call  name
  0.00      0.00     0.00        1     0.00     0.00  generateInput(int, int)
  0.00      0.00     0.00        1     0.00     0.00  maxSubarraySum(std::vector<int, std::allocator<int> > const&)
  0.00      0.00     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```

N=1000

```
Each sample counts as 0.01 seconds.
  %   cumulative   self              self     total
 time   seconds   seconds    calls  ms/call  ms/call  name
100.00      0.09     0.09        1    90.00    90.00  maxSubarraySum(std::vector<int, std::allocator<int> > const&)
  0.00      0.09     0.00        1     0.00     0.00  generateInput(int, int)
  0.00      0.09     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```

N=10000

```
Each sample counts as 0.01 seconds.
  %   cumulative   self              self     total
 time   seconds   seconds    calls   s/call   s/call  name
100.00    115.65   115.65        1   115.65   115.65  maxSubarraySum(std::vector<int, std::allocator<int> > const&)
  0.00    115.65     0.00        1     0.00     0.00  generateInput(int, int)
  0.00    115.65     0.00        1     0.00     0.00  std::vector<int, std::allocator<int> >::~vector()
```