Q1

```
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q1$ g++ -o divideByZero divideByZero.cpp
g++ -o stackOverFlow stackOverFlow.cpp
g++ -o undefinedMemory undefinedMemory.cpp
divideByZero.cpp: In function 'int main()':
divideByZero.cpp:4:14: warning: division by zero [-Wdiv-by-zero]
    4 |     int x = 5/ 0; // Division by zero
      |                 ~^~~
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q1$ g++ -o stackOverFlow stackOverFlow.cpp
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q1$ g++ -o undefinedMemory undefinedMemory.cpp
```

עם דגל g-

```
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q1$ g++ -o stackOverFlow stackOverFlow.cpp
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q1$ g++ -o undefinedMemory undefinedMemory.cpp
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q1$ g++ -g -o divideByZero divideByZero.cpp
g++ -g -o stackOverFlow stackOverFlow.cpp
g++ -g -o undefinedMemory undefinedMemory.cpp
divideByZero.cpp: In function 'int main()':
divideByZero.cpp:4:14: warning: division by zero [-Wdiv-by-zero]
    4 |     int x = 5/ 0; // Division by zero
      |                 ~^~~
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q1$
```
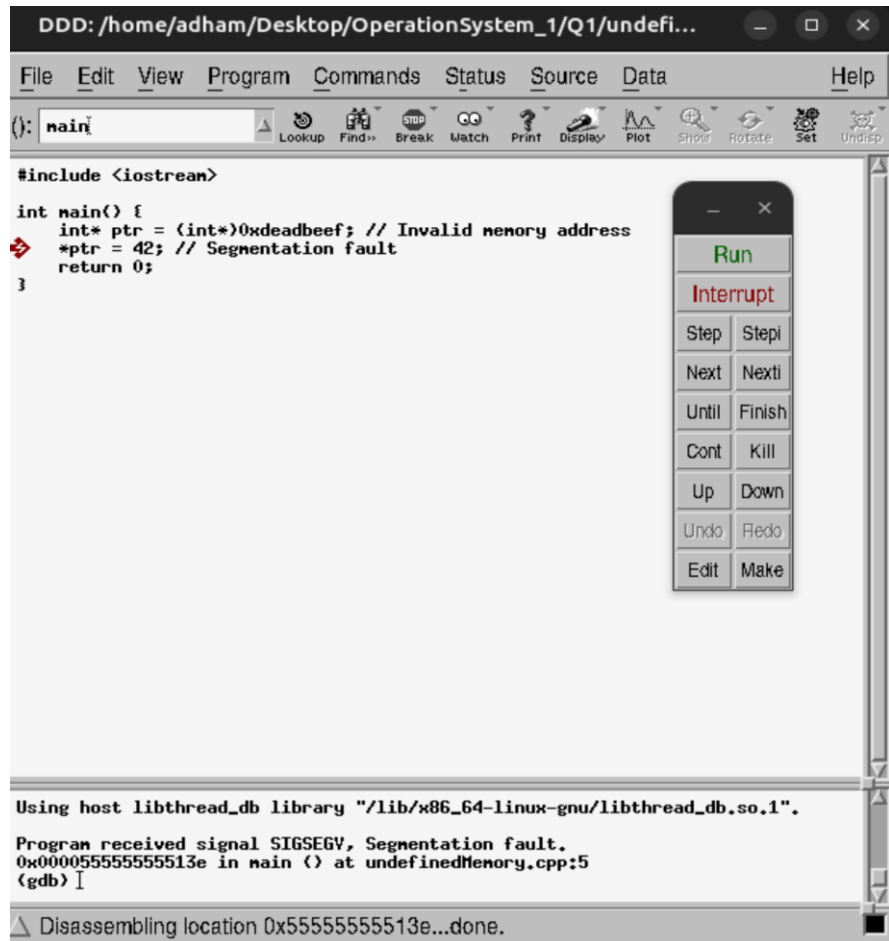
הרצנו ulimit -c unlimited כדי לאפשר יצירת קובצי core..

פתחנו את קובץ ה־core באמצעות הבינארי הנכון (undefinedMemory), וכך הצלחנו לראות את
המידע המלא (למשל: משתנים כמו ptr בתוך הדיבאגר)

פתחנו את קובץ ה־core בעזרת הדיבאגר הגרפי DDD באמצעות הפקודה undefinedMemory./ ddd :
core

```
adham@adham-VirtualBox:~/Desktop/OperationSystem_1$ cd Q2
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q2$ make
 gcc -g -Wall -o mandelbrot mandelbrot.c -lm
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q2$ ./mandelbrot -1.620 -0.001
 The number is NOT in the Mandelbrot set.
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q2$ ./mandelbrot -1.627 -0.001
 The number is in the Mandelbrot set.
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q2$ ./mandelbrot -1.629 -0.001 5
 The number is in the Mandelbrot set.
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q2$
```

```
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q3$ make run
 makefile:30: warning: overriding recipe for target 'clean'
 makefile:25: warning: ignoring old recipe for target 'clean'
 LD_LIBRARY_PATH=. ./main
 Enter real and imaginary parts: -1.621 -0.001
 The number is NOT in the Mandelbrot set.
 Enter real and imaginary parts: -1.627 -0.001
 The number is in the Mandelbrot set.
 Enter real and imaginary parts: 0 0
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q3$
```

```
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q4$ make exam
 Running test1.txt...
 Vertex          Distance from Source
 0                        0
 1                        1
 2                        3
 Running test2.txt...
 Invalid input: Negative arc weight detected.
 Running test3.txt...
 Vertex          Distance from Source
 0                        0
 1                        1
 2                        3
 3                        3
 Running test4.txt...
 Invalid number of rows and columnsmake: *** [makefile:16: exam] Error 1
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q4$ make gcov
 gcov main.c
 File 'main.c'
 Lines executed:100.00% of 45
 Creating 'main.c.gcov'

 Lines executed:100.00% of 45
```

```
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q5$ ./n 1 100
Generated array:
[58, 61, 52, -10, 68, 10, 61, 67, 24, -4, 37, 2, 65, 34, 38, 1, 15, 1, 47, 11, -14, 43, 42, 4, 57, 5, 37, -2, 42, 10, 4, -23, -3, 33, 44
, 42, 68, 31, -14, 17, 4, 48, -4, -6, 59, 12, 73, -1, -10, 45, -12, 1, 66, 55, 31, 48, 37, 45, 71, 56, -20, 0, 59, 2, 11, -20, 21, 4, -1
2, 32, -1, 70, 57, 20, -11, 42, 9, 39, 18, 25, 62, -17, 51, 53, 63, 59, -22, 26, 29, 74, 7, 35, 51, 43, 14, -13, 1, 61, 69, 14]
Max Subarray Sum using Algorithm 3 is: 2684
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q5$ ./n2 1 100
Generated array:
[58, 61, 52, -10, 68, 10, 61, 67, 24, -4, 37, 2, 65, 34, 38, 1, 15, 1, 47, 11, -14, 43, 42, 4, 57, 5, 37, -2, 42, 10, 4, -23, -3, 33, 44
, 42, 68, 31, -14, 17, 4, 48, -4, -6, 59, 12, 73, -1, -10, 45, -12, 1, 66, 55, 31, 48, 37, 45, 71, 56, -20, 0, 59, 2, 11, -20, 21, 4, -1
2, 32, -1, 70, 57, 20, -11, 42, 9, 39, 18, 25, 62, -17, 51, 53, 63, 59, -22, 26, 29, 74, 7, 35, 51, 43, 14, -13, 1, 61, 69, 14]
Max Subarray Sum using Algorithm 2 is: 2684
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q5$
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q5$ ./n3 1 100
Generated array: 58 61 52 -10 68 10 61 67 24 -4 37 2 65 34 38 1 15 1 47 11 -14 43 42 4 57 5 37 -2 42 10 4 -23 -3 33 44 42 68 31 -14 17 4
 48 -4 -6 59 12 73 -1 -10 45 -12 1 66 55 31 48 37 45 71 56 -20 0 59 2 11 -20 21 4 -12 32 -1 70 57 20 -11 42 9 39 18 25 62 -17 51 53 63 5
9 -22 26 29 74 7 35 51 43 14 -13 1 61 69 14
Max Subarray sum using Algorithm 1 is: 2684
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q5$ ./n3 1 1000
Generated array: 58 61 52 -10 68 10 61 67 24 -4 37 2 65 34 38 1 15 1 47 11 -14 43 42 4 57 5 37 -2 42 10 4 -23 -3 33 44 42 68 31 -14 17 4
 48 -4 -6 59 12 73 -1 -10 45 -12 1 66 55 31 48 37 45 71 56 -20 0 59 2 11 -20 21 4 -12 32 -1 70 57 20 -11 42 9 39 18 25 62 -17 51 53 63 5
9 -22 26 29 74 7 35 51 43 14 -13 1 61 69 14 70 45 9 53 42 -24 72 -23 -8 67 27 31 -24 55 61 16 40 64 19 -6 15 4 6 -8 72 46 56 50 -16 2 42
 31 72 28 61 40 -19 58 -6 -1 3 46 7 4 -22 -6 45 43 -17 -10 15 24 71 -2 -7 20 21 26 -4 30 54 63 39 3 16 25 68 -25 9 39 -1 -11 62 31 18 66
 2 40 34 11 7 26 12 3 50 -18 49 -4 33 70 4 12 10 68 -7 3 18 -14 3 4 51 -21 18 38 -12 13 -19 15 -21 -7 3 63 44 -8 -8 71 -1 18 45 58 65 74
 47 0 19 65 -20 14 29 61 44 57 17 39 72 -18 30 -21 23 -14 -3 3 74 18 21 43 15 -3 -14 -15 -20 -24 36 5 53 -20 -5 11 19 1 -3 40 -17 -9 57
 33 -1 12 37 -1 -25 11 27 74 54 25 43 46 48 6 56 5 8 69 35 38 74 56 74 71 34 48 -12 43 65 70 1 41 59 15 65 59 51 17 11 -18 20 31 54 -7 62
 -13 23 47 34 -16 11 -15 17 62 -19 -24 -12 47 -4 30 -6 74 -4 -21 14 -14 15 42 -20 3 2 25 59 33 -5 -1 -3 44 71 56 5 59 67 47 47 25 0 60 -
3 74 15 17 73 -12 73 65 -1 65 -16 56 -6 11 7 30 69 -21 54 44 48 51 25 30 35 17 54 59 68 -20 -4 42 -21 -12 36 29 1 34 19 -23 -23 -19 59 -
4 17 43 3 64 47 -17 33 73 11 -17 28 23 -22 8 8 23 65 29 42 21 43 4 -25 21 63 72 24 65 -22 8 38 72 28 67 61 0 27 71 50 63 32 4 11 35 -11
 -4 35 -21 3 2 25 23 31 -23 69 72 74 18 14 -23 3 -22 -25 56 22 13 34 26 10 9 14 67 -10 2 -21 4 24 39 60 4 18 10 52 -25 13 46 24 64 42 63
 67 70 18 19 4 65 57 15 16 44 1 7 36 17 35 -8 -2 36 56 -16 65 0 71 42 52 9 65 1 -1 32 -11 43 -20 33 -13 61 -25 21 1 69 -9 27 53 4 21 65 2
 2 45 26 55 6 68 32 2 -13 61 -11 30 -13 65 -13 54 -15 44 64 49 30 16 -5 8 62 63 13 41 45 59 31 -8 -19 35 24 12 -20 34 -8 -7 20 58 48 33 4
 8 12 64 58 -18 53 32 -11 46 4 -25 34 -7 13 0 63 49 8 32 56 68 33 45 74 -8 14 44 38 -3 69 48 22 6 37 57 65 67 66 32 -10 -4 32 49 66 22 26
 6 -4 12 15 29 5 73 0 56 -9 -9 -23 6 14 71 -21 13 55 -7 -4 45 37 -13 54 52 60 11 -21 51 58 -18 34 32 19 74 -14 2 25 11 35 -7 -20 38 24 1
 9 -14 -20 9 66 50 30 -11 64 43 68 -7 -20 57 -3 57 -8 5 68 49 1 68 61 28 18 49 -11 -12 54 52 37 50 63 -6 -15 7 69 -8 21 10 12 66 28 18 48
 3 0 66 -15 -7 -8 11 38 30 65 33 5 -21 46 36 8 60 64 48 -21 26 -20 25 43 -22 60 -19 70 14 24 -5 42 1 38 52 71 56 40 35 11 30 45 -7 -14 1
 7 7 71 54 -4 45 59 47 2 9 15 58 47 73 5 38 22 25 5 48 -11 34 -3 22 -1 57 10 7 -21 29 18 73 61 15 53 34 37 37 58 16 23 -2 -1 47 -3 29 10
 -4 32 40 22 46 51 44 -7 -24 -22 28 8 -18 34 3 -19 72 -5 59 -17 9 73 66 51 73 -10 27 46 64 34 -19 -15 -9 -1 -16 14 -25 53 -16 28 56 -11 1
 3 64 1 42 22 -2 62 6 7 -3 56 50 25 54 65 29 25 6 -12 32 69 56 56 -22 -5 8 57 56 62 -10 71 0 -21 -3 67 26 72 7 9 56 -19 -10 32 -17 70 74
 37 72 58 51 29 52 -16 62 7 57 -4 41 38 35 57 -14 60 61 60 5 65 58 -11 51 -9 -5 67 0 3 14 0 65 11 35 -7 18 12 3 57 -4 -15 30 63 0 -10 45
 12 28 -17 -3 58 25 32 72 2 1 44 46 26 24 -15 3 14 73 63 -15 68 52 65 51 74 27 6 62 52 74 32 41 27 -8 16 10 43 73 59 70 51 -20 41 3 29 3
 -17 68 53 72 30 47 49 20 -25 0 72 58 -13 2 57 -4
Max Subarray sum using Algorithm 1 is: 25299
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q5$
```

```
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q6$
 ./signal_sender
Enter receiver PID: 12194
Enter message (0-255): 51
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q6$
 ./signal_sender
Enter receiver PID: 12194
Enter message (0-255): 200
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q6$
 ./signal_sender
Enter receiver PID: 12194
Enter message (0-255): 2222
Invalid message. Must be a number between 0 and 255.
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q6$
```

```
adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q6$ ./sign
al_receiver
My PID is 12194
Received 51
Received 200
```

```
Q7 > ≡ phonebook.txt
  1   saleh sawaed,054-1234567
  2   Nezer Zaidenberg,054-5531415
  3   adham hamoudy,058-7654321
  4
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

```
● adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q7$ ./add2PB "saleh sawaed,054-1234567"
● adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q7$ ./add2PB "Nezer Zaidenberg,054-5531415"
● adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q7$ ./add2PB "adham hamoudy,058-7654321"
● adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q7$ ./findPhone "adham"
  058-7654321
● adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q7$ ./findPhone "saleh"
  054-1234567
○ adham@adham-VirtualBox:~/Desktop/OperationSystem_1/Q7$ █
```