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Ασχολήθηκα σήμερα 2/5 με την άσκηση

1)a)
The sum from 0 to 1000 is 500500

c)

```
(gdb) run
Starting program: /home/ugrads/class13/csd3219/x86asm
The sum from 0 to 1000 is 500500
[Inferior 1 (process 17661) exited normally]
```

d)
Η main έχει 4 εντολές

```
(gdb) x/4i *main
   0x80483fb <main>:    push   %ebp
   0x80483fc <main+1>:  mov    %esp,%ebx
   0x80483fe <main+3>:  mov    0x804969c,%ebx
   0x8048404 <L1>:      add    %ebx,0x80496a0
```

```
(gdb) x/128b *main
0x80483fb <main>:       0x55    0x89    0xe5    0x8b    0x1d    0x9c    0x96    0
x04
0x8048403 <main+8>:     0x08    0x01    0x1d    0xa0    0x96    0x04    0x08    0
x4b
0x804840b <L1+7>:       0x83    0xfb    0x00    0x7e    0x07    0xb8    0x04    0
x84
0x8048413 <L1+15>:      0x04    0x08    0xff    0xe0    0xff    0x35    0xa0    0
x96
0x804841b <L2+4>:       0x04    0x08    0xff    0x35    0x9c    0x96    0x04    0
x08
0x8048423 <L2+12>:      0x68    0xa4    0x96    0x04    0x08    0xe8    0xa3    0
xfe
0x804842b <L2+20>:      0xff    0xff    0x58    0x58    0x58    0xb8    0x00    0
x00
0x8048433 <L2+28>:      0x00    0x00    0xc9    0xc3    0x66    0x90    0x66    0
x90
0x804843b <L2+36>:      0x66    0x90    0x66    0x90    0x90    0x55    0x57    0
x31
0x8048443 <__libc_csu_init+3>:  0xff    0x56    0x53    0xe8    0xe5    0xfe    0
xff     0xff
0x804844b <__libc_csu_init+11>: 0x81    0xc3    0x31    0x12    0x00    0x00    0
x83     0xec
0x8048453 <__libc_csu_init+19>: 0x1c    0x8b    0x6c    0x24    0x30    0x8d    -
--Type <return> to continue, or q <return> to quit---
```

```
(gdb) ni
The program is not being run.
```

```
(gdb) b *main+64
Breakpoint 1 at 0x804843b
(gdb) run
Starting program: /home/ugrads/class13/csd3219/x86asm
The sum from 0 to 1000 is 500500
[Inferior 1 (process 18845) exited normally]
```

e)

```
(gdb) p (int)S
$1 = 0
(gdb) p (int)&S
$2 = 134518432
(gdb) p (int *)&S
$3 = (int *) 0x80496a0
(gdb) p (char *)&Msg
$4 = 0x80496a4 "The sum from 0 to %d is %d\n"
(gdb) set *(int *)&S =99
Cannot access memory at address 0x80496a0
(gdb) run ni
Starting program: /home/ugrads/class13/csd3219/x86asm ni
The sum from 0 to 1000 is 500500
[Inferior 1 (process 19463) exited normally]
(gdb) ni
The program is not being run.
(gdb) run ni
Starting program: /home/ugrads/class13/csd3219/x86asm ni
The sum from 0 to 1000 is 500500
[Inferior 1 (process 19548) exited normally]
(gdb) run ni
Starting program: /home/ugrads/class13/csd3219/x86asm ni
The sum from 0 to 1000 is 500500
[Inferior 1 (process 19551) exited normally]
```

2)

α)

```
csd3219@styx:~$ gcc -Wall -pedantic -ansi -o sum sum.c
csd3219@styx:~$ ./sum
The sum from 0 to 1000 is 500500
```

b)10 εντολές

```
(gdb) run
Starting program: /home/ugrads/class13/csd3219/sum
The sum from 0 to 1000 is 500500
[Inferior 1 (process 20226) exited normally]
```

c)

```
(gdb) l main
5
6       int n = N;
7       int Sum = 0;
8
9       int main (void)
10      {
11
12        while (n >= 0) { Sum += n; n--;}
13
14        printf("The sum from 0 to %d is %d\n", N, Sum);
(gdb) x/3i *main
   0x8048300 <main>:    lea    0x4(%esp),%ecx
   0x8048304 <main+4>:  and    $0xfffffff0,%esp
   0x8048307 <main+7>:  pushl  -0x4(%ecx)
```

```
(gdb) x/96b  *main
0x8048300 <main>:       0x8d    0x4c    0x24    0x04    0x83    0xe4    0xf0    0
xff
0x8048308 <main+8>:     0x71    0xfc    0x55    0x89    0xe5    0x51    0x83    0
xec
0x8048310 <main+16>:    0x04    0xa1    0xfc    0x96    0x04    0x08    0x8b    0
x15
0x8048318 <main+24>:    0x04    0x97    0x04    0x08    0x85    0xc0    0x78    0
x1a
0x8048320 <main+32>:    0x01    0xc2    0x83    0xe8    0x01    0x83    0xf8    0
xff
0x8048328 <main+40>:    0x75    0xf6    0x89    0x15    0x04    0x97    0x04    0
x08
0x8048330 <main+48>:    0xc7    0x05    0xfc    0x96    0x04    0x08    0xff    0
xff
0x8048338 <main+56>:    0xff    0xff    0x83    0xec    0x04    0x52    0x68    0
xe8
0x8048340 <main+64>:    0x03    0x00    0x00    0x68    0xe0    0x84    0x04    0
x08
0x8048348 <main+72>:    0xe8    0x83    0xff    0xff    0xff    0x8b    0x4d    0
xfc
0x8048350 <main+80>:    0x83    0xc4    0x10    0x31    0xc0    0xc9    0x8d    0
x61
0x8048358 <main+88>:    0xfc    0xc3    0x31    0xed    0x5e    0x89    0xe1    -
--Type <return> to continue, or q <return> to quit---
```

```
(gdb) b 96
No line 96 in the current file.
Make breakpoint pending on future shared library load? (y or [n]) y

Breakpoint 2 (96) pending.
(gdb) run
Starting program: /home/ugrads/class13/csd3219/sum
The sum from 0 to 1000 is 500500
[Inferior 1 (process 21579) exited normally]
```

e)

```
(gdb) p Sum
$1 = 0
(gdb) p &Sum
$2 = (int *) 0x8049704 <Sum>
(gdb) p n
$3 = 1000
(gdb) p &n
$4 = (int *) 0x80496fc <n>
(gdb) set Sum = 98
Cannot access memory at address 0x8049704
(gdb) set *(int *)96=99
Cannot access memory at address 0x60
(gdb) set *(int *)??=99
A syntax error in expression, near `??=99'.
(gdb) run n
Starting program: /home/ugrads/class13/csd3219/sum n
The sum from 0 to 1000 is 500500
[Inferior 1 (process 22203) exited normally]
(gdb) run n
Starting program: /home/ugrads/class13/csd3219/sum n
The sum from 0 to 1000 is 500500
[Inferior 1 (process 22205) exited normally]
(gdb) n
The program is not being run.
(gdb) n
The program is not being run.
(gdb) run n
Starting program: /home/ugrads/class13/csd3219/sum n
The sum from 0 to 1000 is 500500
[Inferior 1 (process 22230) exited normally]
```

f)

```
(gdb) x/3i *main
   0x8048300 <main>:    lea    0x4(%esp),%ecx
   0x8048304 <main+4>:  and    $0xfffffff0,%esp
   0x8048307 <main+7>:  pushl  -0x4(%ecx)
(gdb) x/2i 64
   0x40:        Cannot access memory at address 0x40
(gdb) x/2i 48
   0x30:        Cannot access memory at address 0x30
(gdb) x/32b 40
0x28:   Cannot access memory at address 0x28
(gdb) set *(char *)( 40 + 32) =100
Cannot access memory at address 0x48
(gdb) x/2i 40
   0x28:        Cannot access memory at address 0x28
(gdb) d
Delete all breakpoints? (y or n) y
(gdb) c
The program is not being run.
```

3) a)

```
csd3219@styx:~$ gcc -Wall -pedantic -ansi -fasm -o x86sum x86sum.c
csd3219@styx:~$ ./x86sum
The sum from 0 to 1000 is 500500
```

b)11 εντολές x86 assembly

c)