

- * Author : Adib Osmany
- * Pledge : I pledge my honor that I have abided by the Stevens Honor System.

```
ubuntu@ubuntu: ~/shared/CS 382/Lab3 (Dot Product)
Register group: general
x0      0x410110      4260112
x1      0x410128      4260136
x2      0x410140      4260160
x3      0x0           0
x4      0x0           0

lab3.s
5  .text
6  .global _start
7  _start:
8      LDR X0, =vec1
9      LDR X1, =vec2
10     LDR X2, =dot
11

remote Thread 1.3455 In: _start      L12    PC: 0x4000bc
(gdb) b 11
Breakpoint 1 at 0x4000bc: file lab3.s, line 12.
(gdb) c
Continuing.

Breakpoint 1, _start () at lab3.s:12
=> 0x00000000004000bc <_start+12>:      03 00 40 f9      ldr      x3, [x0]
(gdb)
```

The first command I did was creating a break point at line 11 since that is after my first implementation of code. I then ran the continue command to have the program run until the break point. I then checked to see if X0, X1, and X2 have values, which they do.

```

Register group: general
x3      0xa      10
x4      0x1      1
x5      0xa      10
x6      0x0      0
x7      0x0      0

      8      LDR X0, =vec1
      9      LDR X1, =vec2
     10      LDR X2, =dot
     11
     12      LDR X3, [X0]
     13      LDR X4, [X1]
     14      MUL X5, X3, X4

remote Thread 1.3471 In: _start
(gdb) b 15
Breakpoint 1 at 0x4000c8: file lab3.s, line 16.
(gdb) c
Continuing.

Breakpoint 1, _start () at lab3.s:16
=> 0x00000000004000c8 <_start+24>:      06 04 4
(gdb)

```

The first command I did was creating a break point at line 15 since that is after my second implementation of code. I then ran the continue command to have the program run until the break point. I then checked to see if X3, X4, and X5 have the correct values, which they do.

```

Register group: general
x6      0x14      20
x7      0x1       1
x8      0x14      20
x9      0x0       0
x10     0x0       0

12      LDR X3, [X0]
13      LDR X4, [X1]
14      MUL X5, X3, X4
15
16      LDR X6, [X0, 8]
17      LDR X7, [X1]
18      MUL X8, X6, X7

remote Thread 1.3791 In: _start
(gdb) b 19
Breakpoint 1 at 0x4000d4: file lab3.s,
(gdb) c
Continuing.

```

The first command I did was creating a break point at line 19 since that is after my next implementation of code. I then ran the continue command to have the program run until the break point. I then checked to see if X6, X7, and X8 have the correct values, which they dont. X7 has the wrong value and this is because i forgot to add the ", 8" after "[X1"

```

27 20:33
ubuntu@ubuntu: ~/shared/CS 38
--Register group: general--
x6          0x14          20
x7          0x2           2
x8          0x28         40
x9          0x0           0
x10         0x0           0
--lab3.s--
12          LDR X3, [X0]
13          LDR X4, [X1]
14          MUL X5, X3, X4
15
16          LDR X6, [X0, 8]
17          LDR X7, [X1, 8]
18          MUL X8, X6, X7
remote Thread 1.3495 In: _start
gdb) b 19
breakpoint 1 at 0x4000d4: file lab3.s,
gdb) c
continuing.

breakpoint 1, _start () at lab3.s:20
> 0x0000000000004000d4 <_start+36>:
gdb)

```

The first command I did was creating a break point at line 19 since that is after my next implementation of code. I then ran the continue command to have the program run until the break point. I then checked to see if X6, X7, and X8 have the correct values, which they do.

```
ubuntu@ubuntu: ~/shared/CS 3

Register group: general
x9      0x1e      30
x10     0x3       3
x11     0x5a     90
x12     0x0       0
x13     0x0       0

16      LDR X6, [X0, 8]
17      LDR X7, [X1, 8]
18      MUL X8, X6, X7
19
20      LDR X9, [X0, 16]
21      LDR X10, [X1, 16]
22      MUL X11, X9, X10

remote Thread 1.3806 In: start
(gdb) b 23
Breakpoint 1 at 0x4000e0: file lab3.s,
(gdb) c
Continuing.
```

The first command I did was creating a break point at line 23 since that is after my next implementation of code. I then ran the continue command to have the program run until the break point. I then checked to see if X9, X10, and X11 have the correct values, which they do.

```
ubuntu@ubuntu: ~/shared/CS 3
Register group: general
x9          0x1e      30
x10         0x3       3
x11         0x5a      90
x12         0x32      50
x13         0x8c     140

21      LDR X10, [X1, 16]
22      MUL X11, X9, X10
23
24      ADD X12, X5, X8
25      ADD X13, X12, X11
26      STR X13, [X2]
27

remote Thread 1.3620 In: start
Breakpoint 1 at 0x4000ec: file lab3.s,
(gdb) c
Continuing.
```

The first command I did was creating a break point at line 27 since that is after my next implementation of code. I then ran the continue command to have the program run until the break point. I then checked to see if X12 and X13 have the correct values, which they do.

```
ubuntu@ubuntu: ~/shared/CS 382/Lab3 (Dot Product)

--Register group: general--
x0      0x410110      4260112
x1      0x410128      4260136
x2      0x410140      4260160
x3      0xa          10
x4      0x1          1

27
28      /* Exit Program */
B+> 29      MOV X0, 0 /* status <- 0 */
30      MOV X8, 93 /* exit() is system call #93 */
31      SVC 0 /* invoke system call */
32
33      .data

emote Thread 1.3440 In: _start          L29    PC: 0x4000ec
continuing.

breakpoint 1, _start () at lab3.s:29
> 0x0000000000004000ec <_start+60>:      00 00 80 d2      mov      x0, #0x0
// #0
gdb) x/1dg &dot
x410140:      140
```

The first command I did was creating a break point at line 27 since that ends all of my implementations of the code. I then ran the continue command to have the program run until the break point. I then ran the command “x/1dg &dot” to check to see if dot was the right value that we wanted, which it was. This ends my program since I now know that my code implements dot product correctly.