

Student: Omar Alsabbagh

## Lab 2

Part A:

Terminal Output:

```
-----  
Starting program c:\Users\omer\Desktop\EEC 170 Projects\P2\partA.s  
  
15  
2761  
90472448  
90472463  
-2  
-1  
Exited with error code 0  
Stop program execution!  
-----
```

Registers after the execution of the program

```
x00 (zero): 0x00000000
x01 (ra)   : 0x0000008C
x02 (sp)   : 0x7FFFFFF0
x03 (gp)   : 0x10000000
x04 (tp)   : 0x00000000
x05 (t0)   : 0xFFFFFFFF
x06 (t1)   : 0x0000000F
x07 (t2)   : 0x00000AC9
x08 (s0)   : 0x00000000
x09 (s1)   : 0x00000000
x10 (a0)   : 0x00000004
x11 (a1)   : 0x10000000
x12 (a2)   : 0x00000000
x13 (a3)   : 0x00000000
x14 (a4)   : 0x00000000
x15 (a5)   : 0x00000000
x16 (a6)   : 0x00000000
x17 (a7)   : 0x00000000
x18 (s2)   : 0x00000000
x19 (s3)   : 0x00000000
x20 (s4)   : 0x00000000
x21 (s5)   : 0x00000000
x22 (s6)   : 0x00000000
x23 (s7)   : 0x00000000
x24 (s8)   : 0x00000000
x25 (s9)   : 0x00000000
x26 (s10)  : 0x00000000
x27 (s11)  : 0x00000000
x28 (t3)   : 0x05648000
x29 (t4)   : 0x0564800F
x30 (t5)   : 0xFFFFFFFF
x31 (t6)   : 0xFFFFFFFF
```

**R-type instruction:**

add x7, x7, x6 (line 5 in my code)

hex representation: 0x006383B3

0000000	00110	00111	000	00111	0110011
func7 (25-31)	rs2 (20-24)	rs1 (15-19)	func3 (12-14)	rd (7-11)	Opcode (0-6)

**I-type instruction:**

addi x7 x7 -2 (line 4 in my code)

hex representation: 0xFFE38393

11111111110	00111	000	00111	0010011
immediate (20-31)	rs1 (15-19)	func3 (12-14)	rd (7-11)	Opcode (0-6)

**S-type instruction:**

sw x30 0(x2) (line 13 in my code)

hex representation: 0x01E12023

0000000	11110	00010	010	00000	0100011
Immediate[11:5] (25-31)	rs2 (20-24)	rs1 (15-19)	func3 (12-14)	Immediate[4:0] (7-11)	Opcode (0-6)

## Part B:

terminal output

```
-----  
Starting program c:\Users\omerk\Desktop\EEC 170 Projects\P2\partB.s
```

```
Ciphertext: a0,Pmu,QQ0,=C<
```

```
Plaintext: UC Davis EEC 170
```

```
Exited with error code 0
```

```
Stop program execution!  
-----
```

Registers after execution of the program

```
x00 (zero): 0x00000000
x01 (ra)   : 0x00000078
x02 (sp)   : 0x7FFFFFF0
x03 (gp)   : 0x10000000
x04 (tp)   : 0x00000000
x05 (t0)   : 0x00000010
x06 (t1)   : 0x00000000
x07 (t2)   : 0x1000002B
x08 (s0)   : 0x0000000C
x09 (s1)   : 0x7FFFFFFD
x10 (a0)   : 0x00000004
x11 (a1)   : 0x10000019
x12 (a2)   : 0x7FFFFFFD
x13 (a3)   : 0x00000000
x14 (a4)   : 0x00000000
x15 (a5)   : 0x00000000
x16 (a6)   : 0x00000000
x17 (a7)   : 0x00000000
x18 (s2)   : 0x1000001B
x19 (s3)   : 0x00000074
x20 (s4)   : 0x00000000
x21 (s5)   : 0x00000000
x22 (s6)   : 0x00000000
x23 (s7)   : 0x00000000
x24 (s8)   : 0x00000000
x25 (s9)   : 0x00000000
x26 (s10)  : 0x00000000
x27 (s11)  : 0x00000000
x28 (t3)   : 0x00000030
x29 (t4)   : 0x7FFFFFFE
x30 (t5)   : 0x00000080
x31 (t6)   : 0x0000000C
```

memory for Ptext  
starts from 0x7FFFFFFD

0x7FFFFFFEC	1	7	0	0x00
0x7FFFFFFE8	E	E	C	
0x7FFFFFFE4	v	i	s	
0x7FFFFFFE0	C		D	a
0x7FFFFFFDC	0x00	0x00	0x00	U