Michael Abed <mgabed@bu.edu> **EC 327 HW 1** **January 31, 2012**

*Problem 1: (a-b)*c where a is at 1, b is at 2, and c is at 3. Store in 30*

Address	Instr.	Parameters
31	mov	R5, 0x1
32	mov	R1, [R5]
33	inc	R5
34	mov	R2, [R5]
35	inc	R5
36	mov	R3, [R5]
37	cmp	R3, R4
38	je	zero
39	sub	R1, R2
40	cmp	R1, R4
41	je	zero
42	mov	R4, R1
43	mov	R1, 0x0
44 loop:	add	R1, R4
45	inc	R0
46	cmp	R0, R3
47	jne	loop
48	jmp	done
49 zero:	mov	R1, 0x0
50 done:	mov	R2, 0x1E
51	mov	[R2], R1

Instruction count: 21

In hex:
9141C0451005C0851005C0C580C44031604280444031A1019040504410008003302C20329040909E
B081

Problem 2: first 10 fibonacci numbers in memory 200-209

Address	Instr.	Parameters
31	mov	R5, 0x32
32	add	R5, R5
33	add	R5, R5
34	mov	R0, 0x1
35	mov	R1, 0x1
36	mov	R3, 0xA
37 loop:	mov	[R5], R0
38	mov	R2, R1
39	add	R1, R0
40	mov	R0, R2
41	inc	R4
42	inc	R5
43	cmp	R4, R3
44	jne	loop

Instruction count: 14

In hex:
9172514551459001904190CAB140A0815040A0021004100581033025

Problem 3: copy 101-110 to 61-70 in reverse order. Add 61, 63, and 70. Store in 30

Address	Instr.	Parameters
31	mov	R0, 0x32
32	mov	R1, 0x3C
33	add	R0, R0
34	mov	R2, 0xA
35	mov	R4, 0x3C
36	mov	0x1
37	add	R1, R2
38 loop:	inc	R0
39	mov	R5, [R0]
40	mov	[R1], R5
41	sub	R1, R3
42	cmp	R1, R4
43	jne	loop
44	mov	R0, 0x3F
45	mov	R2, [R0]
46	add	R5, R2
47	mov	R1, 0x7
48	add	R0, R1
49	mov	R2, [R0]
50	add	R5, R2
51	mov	R0, 0x1E
52	mov	[R0], R5

Instruction count: 22

In hex:
9032907C5000908A913C90C150421000C140B04560438044302690 3FC080514290475001C0805142901EB005

Problem 4: n^m where n is at 1, m is at 2. Store result in 30

Address	Instr.	Parameters
31	mov	R4, 0x1
32	mov	R1, 0x2
33	mov	R1, [R1]
34	mov	R4, [R4]
35	mov	R5, R4
36	inc	R2
37	cmp	R1, R0
38	je	zero
39	cmp	R1, R2
40	jne	outer
41	mov	R0, R4
42	jmp	done
43 zero:	mov	R0, 0x1
44	jmp	done
45 outer:	mov	R0, 0x0
46 inner:	add	R0, R4
47	inc	R3
48	cmp	R3, R5
49	jne	inner
50	mov	R4, R0
51	mov	R3, 0x0
52	inc	R2
53	cmp	R2, R1
54	jne	outer
55 done:	mov	R1, 0x1E
56	mov	[R1], R0

Instruction count: 26

In hex:
91019042C041C104A14410028040402B8042302DA00420379001203790005004100380C5302EA10
090C010028081302D905EB040

Total instruction count: 83