CS 271 Computer Architecture and Assembly Language

Self-Check for Lecture#13

Solutions

Here's a complete nonsense program, with totally fake addresses shown in the leftmost column. The idea is to trace the execution, showing every change in the indicated registers and memory.

All numeric values should be shown as 2-digit hex. (Well ... ESP has a 3-digit hex once in a while.)

The first two instructions have been traced for you.

```
.data
```

80 84 88	x y z	DWORD DWORD DWORD	10 7 ?	; 2-digit hex is 0A ; 2-digit hex is 07							
				EIP	EBP	ESP	[ESP]	EDI	[EDI]	EAX	EBX
.code											
main	PROC	; start		10	35	A0	0	0	0	0	0
10	push	x		15		9C	0A				
15	push	y		1A		98	07				
1A	push	OFFSET z		1F		94	88				
1F	call	whatzit		40		90	24				
24	mov	eax,z		29						1E	
29	exit										
main	ENDP										
whatzit	PROC			EIP	EBP	ESP	[ESP]	EDI	[EDI]	EAX	EBX
40	push	ebp		45		8C	35				
45	mov	ebp,esp		4A	8C						
4A	mov	edi,[ebp+8]		4F				88			
4F	mov	eax,[ebp+16]		54						0A	
54	mov	ebx,eax		59							0A
59	sub	ebx,[ebp+12]		5E							03
5E	mul	ebx		63						1E	
63	mov	[edi],eax		68					1E		
68	pop	ebp		6D	35	90					
6D	ret	12		24		A0					
whatzit	ENDP										
END	main			EIP	EBP	ESP	[ESP]	EDI	[EDI]	EAX	EBX