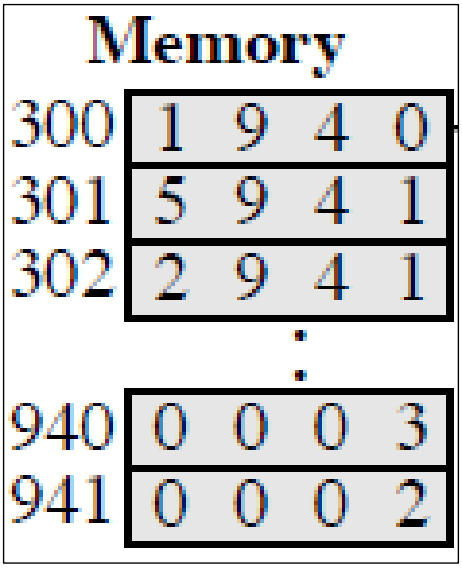
Quiz 1

In the Hypothetical Machine the contents of memory was as shown. And PC contents is 300. Show the contents of memory and PC, AC, IR after Execute three instructions (three fetch cycle and there execute cycle)..



Answer Question 1..

1'.

*Fetch/

AC: 0000 IR: 1940 PC: 300

940: 0003 941: 0002

*Execute/

AC: 0003 IR: 1940 PC: 300

940: 0003 941: 0002

2'.

*Fetch /

AC: 0003 IR: 5941 PC: 301

940: 0003 941: 0002

*Execute /

AC: 0005 IR: 5941 PC: 301

940: 0003 941: 0002

3'.

*Fetch /

AC: 0005 IR: 2941 PC: 302

940: 0003 941: 0002

*Execute /

Ac: 0000 IR: 2941 PC: 302

940: 0003 941: 0005

Show the contents of PC , AC and IR and memory after the Execute of each instruction of the following program on the Hypothetical Machine:

300 LOAD 550

301 ADD 551

302 STORE 600

.**Where** the contents of memory at 550 is 3 and at 551 is 4

Answer Question 2..

- 1'.

*Fetch /

AC: 0000 IR: 1550 PC: 300

550: 0003 551: 0004 600: 0000

*Execute /

AC: 0003 IR: 1550 PC: 300

550: 0003 551: 0004 600: 0000

- 2'.

- *Fetch /

AC: 0003 IR: 5551 PC: 301

550: 0003 551: 0004 600: 0000

*Execute /

AC: 0007 IR: 5551 PC: 301

550: 0003 551: 0004 600: 0000

- 3'.

- *Fetch /

AC: 0007 IR: 2600 PC: 302

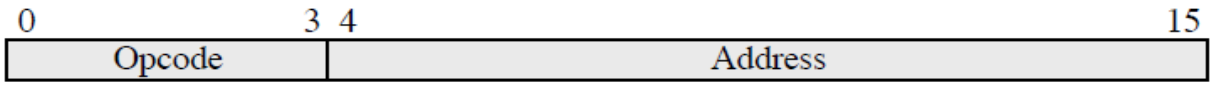
550: 0003 551: 0004 600: 0000

*Execute /

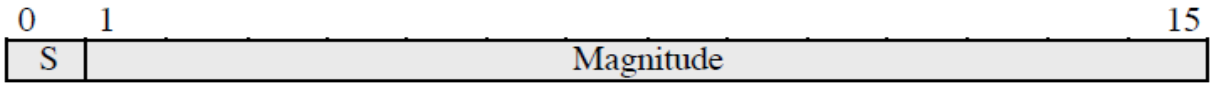
AC: 0000 IR: 2600 PC: 302

550: 0003 551: 0004 600: 0007

..**The** following figure provide the main characteristics of Hypothetical Machine**



(a) Instruction format



(b) Integer format

Program Counter (PC) = Address of instruction
Instruction Register (IR) = Instruction being executed
Accumulator (AC) = Temporary storage

(c) Internal CPU registers

0001 = Load AC from Memory
0010 = Store AC to Memory
0101 = Add to AC from Memory

(d) Partial list of opcodes

The hypothetical machine also has two I/O instructions:

0011 = load AC from I/O

0111 =store AC to I/O

In these case, the 12-bi address identifies a particular I/O device.
Show the program Execute for the following program:

1. Load AC from device 5.
2. Add contents of memory location 940.
3. Store AC to device 6.

****Assume** that the next value retrieved from device 5 is 3 and that location 940 contains a value of 2.

-AnswER..

.Memory.

	300	3005
	301	5940
	302	7006

*After executing the three instructions..

device 5 : 0003

940 : 2

device 6 : 0005

My best wishes../Mohammed Sherif Abdallah.