

Operation code	Meaning
<i>Input/output operations:</i>	
final int READ = 10;	Read a word from the keyboard into a specific location in memory.
final int WRITE = 11;	Write a word from a specific location in memory to the screen.
<i>Load/store operations:</i>	
final int LOAD = 20;	Load a word from a specific location in memory into the accumulator.
final int STORE = 21;	Store a word from the accumulator into a specific location in memory.
<i>Arithmetic operations:</i>	
final int ADD = 30;	Add a word from a specific location in memory to the word in the accumulator (leave the result in the accumulator).
final int SUBTRACT = 31;	Subtract a word from a specific location in memory from the word in the accumulator (leave the result in the accumulator).
final int DIVIDE = 32;	Divide a word from a specific location in memory into the word in the accumulator (leave result in the accumulator).
final int MULTIPLY = 33;	Multiply a word from a specific location in memory by the word in the accumulator (leave the result in the accumulator).

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<i>Transfer-of-control operations:</i>	
final int BRANCH = 40;	Branch to a specific location in memory.
final int BRANCHNEG = 41;	Branch to a specific location in memory if the accumulator is negative.
final int BRANCHZERO = 42;	Branch to a specific location in memory if the accumulator is zero.
final int HALT = 43;	Halt. The program has completed its task.

- a) Use a sentinel-controlled loop to read 10 positive numbers. Compute and display their sum.

00	1001	Leo el valor A
01	0000	Variable A
02	2003	Carga el valor en la dirección 03
03	0010	Valor 10
04	3101	Resto el valor en 1
05	4209	Manda al final si es 0
06	2001	Carga el valor leído en A
07	3002	Sumar el valor a la suma acumulada
08	4000	Vuelve al inicio del bucle
09	4300	FIN

- b) Use a counter-controlled loop to read seven numbers, some positive and some negative.

00	1001	Lee el valor A
01	0001	Valor A
02	2003	Carga el valor de la dirección 03
03	0007	Inicia el contador en 7
04	3101	Resta 1
05	4209	Salta al final si es 0
06	2001	Carga el valor leído A
07	4000	Vuelve al inicio del bucle
08	4300	FIN

- c) **Read a series of numbers, and determine and display the largest number. The first number read indicates how many numbers should be processed.**

00	1001	Tamaño de la serie
01	0005	Tamaño de la serie
02	2001	Carga el valor de la serie
03	3001	Almacena el valor en el contador
04	1001	Lee el primer número
05	2002	Carga el primer número
06	3003	Guarda el primer número
07	3101	Resta 1 al contador
08	4210	Salta al final si es 0
09	1001	Lee el siguiente número
10	2003	Carga el valor del actual mayor
11	3201	Compara el primer número y el siguiente
12	4107	Si es mayor, se salta a la dirección para guardarlo
13	4007	Vuelve al inicio del bucle
14	3003	Guarda el número como el mayor
15	4007	Vuelve al inicio del bucle
16	4300	FIN