CPU Dojo 2

In this dojo we're going to take a pre-built application and add some additional opcodes to execute the application. Our CPU will now require 256 items of RAM and we are going to reserve the addresses 128-255 to represent ASCII text.

Your task is to execute the supplied application and tell me the phrase that will be written out in the address locations 128-255.

As well as more RAM we are now going to have 3 more registers x, y and flags. Flags in a real CPU would be represented by 1 byte with each bit representing a different flag. The only flag we care about at the moment is equal.

Registers:

- a
- x
- y
- program counter
- flags (we're just going to be using the equal bit flag)

Memory size: 256 items in length of non floating point number types only!

Application:

```
4, 128, 1, 0x77, 8, 5, 1, 0x68, 8, 5, 1, 0x6F, 8, 5, 1, 0x20, 8, 5, 1,
0x6c, 8, 5, 1, 0x65, 8, 5, 1, 0x74, 8, 5, 1, 0x20, 8, 5, 1, 0x74, 8,
5, 1, 0x68, 8, 5, 1, 0x65, 8, 5, 1, 0x20, 8, 5, 1, 0x64, 8, 5, 1,
0x6F, 8, 5, 1, 0x67, 8, 5, 1, 0x73, 8, 5, 1, 0x20, 8, 5, 1, 0x6F, 8,
5, 1, 0x75, 8, 5, 1, 0x74, 8, 5, 1, 0x20, 8, 5, 10, 3, 1, 0x77, 8, 5,
1, 0x68, 8, 5, 1, 0x6F, 8, 5, 1, 0x20, 8, 5, 9, 6, 0, 7, -20, 0
```

If you don't want to type this in you can download it from here:
http://bit.ly/1L0HaTn

Operations:
There are 7 new operations to implement. which are listed on the new page. OpCodes 0 - 3 are the same as the last dojo.

OpCode	Length	Name	Description
0	1	BRK	Stops the program
1	2	LDA	Load the value in the next memory address into register A
2	2	ADC	Add the value in the next memory address to the value in register A
3	2	STA	Store the value of register A into the memory location specified by the value in the next memory address
4	2	LDX	Load the value in the next memory address into register X
5	1	INX	Increment the value in register X by one
6	2	CMY	Compare the value in register Y to the value in the next memory address and store the result in the equal flag
7	2	BNE	Branch if not equal. This operation will add the value in the next memory address to the program counter if the equal flag is not set
8	1	STA_X	Store the value in the A register in the memory location pointed to by the X register. (I'm cheating here - ask me why)
9	1	DEY	Decrement the value in the Y register by one
10	2	LDY	Load the value in the next memory address into register Y