<u>Two instruction types: A and C</u>

<u>A-instruction</u> <u>C-instruction</u>
@value   dest=comp;jump
                comp;jump
                dest=comp

Screen properties
256 rows x 512 cols
pixel r, c is bit c%16 at Memory[16384+r*32+c/16]

Predefined constants
SCREEN   16384 0x4000-0x5FFF
KBD   24576 0x6000
R0-R15   0-15
SP   0
LCL   1
ARG   2
THIS   3
THAT   4
newline   128
backspace   129
left arrow   130
up arrow   131
right arrow   132
down arrow   133
home   134
end   135
page up   136
page down   137
insert   138
delete   139
esc   140
f1-f12   141-152

<u>C-instruction fields:</u>
jump field (out is result of comp)
JGT   out > 0
JEQ   out = 0
JGE   out >= 0
JLT   out < 0
JNE   out != 0
JLE   out <= 0
JMP   Unconditional

dest field
M   Memory[A]
D   D register
MD   Memory[A] and D register
A   A register
AM   A register and Memory[A]
AD   A register and D register
AMD   A register, Memory[A], and D register

comp field
0   D-A
1   A-D
-1   D&A
D   D|A
A   M
!D   !M
!A   -M
-D   M+1
-A   M-1
D+1   D+M
A+1   D-M
D-1   M-D
A-1   D&M
D+A   D|M

C-instructions with jumps should not refer to M since A register is used in conflicting ways in that case
Also: Any C-instruction that changes A must not include a jump.