Homework 7

`8.1`

How to accessed the stack is its defining characteristic.

That is,it is last in first out.

`8.7`

```
1
2  POP ST R2,Save2     ;are needed by pop
3  ST  R0, Save0
4  LD  R1, BASE        ;BASE is -x3fff
5  ADD R2, R6, R1
6  BRz fail_exit       ;if stack is empty
7  ADD R0, R4, #0
8  ADD R1, R3, #0
9  ADD R5, R6, R3
10 ADD R5, R5, #-1
11 ADD R6, R6, R3
12
13 pop_loop LDR R2,R5,#0
14 STR R2, R5, #0
15 R2, R0, #0
16 ADD R0, R0, #1
17 ADD R5, R5, #-1
18 ADD R1, R1, #-1
19 BRp pop_loop        ;continue write
20 BRnzp success_exit
21
22 PUSH ST R2, Save2   ;save register
23 ST  R1, Save1
24 ST  R0, Save0
25 LD  R1,MAX          ;MAX is -x3FFB
26 ADD R2,R6,R1
27 BRz fail_exit
28 ADD R0, R4, #0
29 ADD R1, R3, #0
30 ADD R5, R6, #-1
31 NOT R2, R3
32 ADD R2, R2, #1
33 ADD R6, R6, R2
34
35 push_loop LDR R2,R0,#0
36 STR R2, R5, #0
37 ADD R0, R0, #1
38 ADD R5, R5, #-1
39 ADD R1,R1,#-1
40 BRp push_loop
41
42 success_exit LD R0,Save0
43 LD  R1, Save1
```

```
LD  R2, Save2
AND R5,R5,#0
RET

fail_exit   LD  R0, Save0
LD  R1, Save1
LD  R2, Save2
AND R5, R5, #0
RET

BASE    .FILL   xC001
MAX     .FILL   xC005
Save0   .FILL   x0000
Save1   .FILL   x0000
Save2   .FILL   x0000
```

`8.8`

(a) A F;

(b) After PUSH J and PUSH K;

(c) A F M.

`8.12`

x4000	x0041
x4001	xA243
x4002	xA243
x4003	xBBBB
x4004	x3100
x4005	x3100
x4006	x0000

x3050	x4000

xA243	x0042
xA244	x4000
xA245	xBBBB
xA246	x4100
xA247	x4100
xA248	x4000
xA249	x0000

x4100	x0043
x4101	xBBBB
x4102	xA243
x4103	xA243
x4104	xBBBB
x4105	x0000
x4106	

xBBBB	x0044
xBBBC	x3100
xBBBD	xA243
xBBBE	x4100
xBBBF	x3100
xBBC0	x4000
xBBC1	x0000

x3100	x0045
x3101	x0000
x3102	x4000
x3103	xBBBB
x3104	x4000
x3105	x0000
x3106	

`8.14`

(a) JSR X

(B) LDR R1,R3,#1

(c) LDR R2,R4,#1

(d) ADD R1,R1,R2

(e) ADD R0,R0,R1

(f) STR R0,R5,#1

(g) BRn EXIT

(h) BRn LABEL

(i) ADD R5,R4,R1