# Worksheet 5 - Programming with Stack

**Exercise 1:**

```
        .ORIG       x3000
        LD      R1, ADDR_A
        LD      R2, ADDR_B
LOOP
        ;push the item pointed by R1
        LDR     R0, R1, #0
        JSR     PUSH
        ADD     R1, R1, #1  ;increment starting ptr
        ;compare starting ptr and ending ptr
        ADD     R3, R1, #0
        NOT     R3, R3
        ADD     R3, R3, #1
        ADD     R3, R3, R2
        BRzp    LOOP
LOOP_POP
        ;after pushing all items, pop and print them
        JSR     POP
        ADD     R5, R5, #0
        BRp     EXIT
        OUT
        BRnzp   LOOP_POP
EXIT
        HALT


;IN:R0, OUT:R5 (0-success, 1-fail/
overflow) ;R3: STACK_END R6: STACK_TOP
;
PUSH

;OUT: R0, OUT R5 (0-success, 1-fail/
underflow) ;R3: STACK_START R6: STACK_TOP
;
POP
```