EE306 - Microprocessors

Laboratory Exercise 3
Subroutines

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1 Part III - Sigma Sum

In this experiment we wrote an assembly program that finds the mean of given set of numbers, length of the number sequence is defined as N. Listing 1 below calculates the result of the following expression $\sum_{i=0}^{N} i$

Listing 1: Assembly Code for Sigma sum & calculating average

```
.include "address_map_arm.s"
.text
.global _start

_start:
        LDR R0, N // load the data word into R0
        MOV R1, #0 // temp register
        BL FINDSUM
        MOV R0, R1 // move result from R1 to R0
        B END
FINDSUM:
        ADD R1, R1, R0
        SUBS R0, R0, #1 // count down
        BXEQ LR // branch if 0
        B FINDSUM
END: B END
N: .word 0x9
.end
```

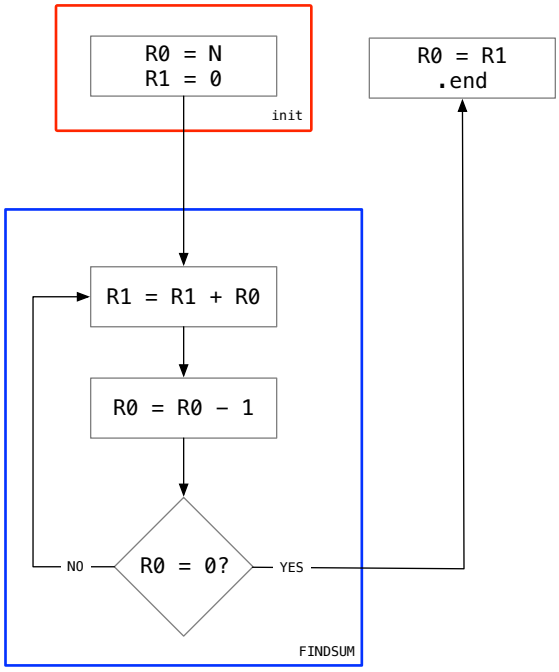

Figure 1: Flowchart of the Listing 1

2 Part IV - Bubble Sort

Bubble sort explanation

Listing 2: Assembly code for bubble sort algorithm

```
.global _start
_start:
```