

Example of a MULT Subroutine

```

MULT
AND R2,R2,#0
ADD R1,R1,#0
BRz MULTDONE
MULTLOOP
ADD R2,R2,R0
ADD R1,R1,#-1
BRnp MULTLOOP
MULTDONE
ADD R0,R2,#0
RET
    
```

What is the call interface for this subroutine?

Inputs: R0, R1
Output: R0 ← R0 × R1
Caller-saved: R1, R2, R7
Callee-saved: R3, R4, R5, R6

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To Multiply: Pop Twice, Multiply, Push Product

```

STACKMULT
LDR R1,R6,#0 ; pop 9 into R1
ADD R6,R6,#1 ; remove space
    
```

		⋮
		x3FFD
		x3FFF
		x3FFE
		x3FFF
		x4000

Is the "9" still in memory?

~~R6~~ → #9
R6 → #8

Probably, but it's NOT on the stack.

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To Multiply: Pop Twice, Multiply, Push Product

```

STACKMULT
LDR R1,R6,#0 ; pop 9 into R1
ADD R6,R6,#1 ; remove space
LDR R0,R6,#0 ; pop 8 into R0
ADD R6,R6,#1 ; remove space
    
```

		⋮
		x3FFD
		x3FFF
		x3FFE
		x3FFF
		x4000

~~R6~~ → #9
R6 → #8

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To Multiply: Pop Twice, Multiply, Push Product

```

STACKMULT
LDR R1,R6,#0 ; pop 9 into R1
ADD R6,R6,#1 ; remove space
LDR R0,R6,#0 ; pop 8 into R0
ADD R6,R6,#1 ; remove space
JSR MULT ; R0 is 72
    
```

		⋮
		x3FFD
		x3FFF
		x3FFE
		x3FFF
		x4000

R6 → #9
R6 → #8

We're ready to call MULT!

Note that the stack is empty.

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