

26 January 2017

PART I:

The screenshot shows the Visual Studio Code environment with the file "untitled.S - [Unsaved] - VisUAL". The main editor displays ARM assembly code:

```

1      MOV     r0, #16       ;Move value 16 into register R0
2      MOV     r1, r0        ;Move the contents of R0
3      MVN     r2, r1        ;R2 = NOT(R1) = -17
4      MOV     r0, r0        ;A NOP (no operation) instruction
5      MOV     r3, #4         ;MOV 4 into r3 to test AND
6      ORR     r4, r0, r3    ;R4 = R0 AND R3: 10000 AND
7      MVN     r5, #0        ;R5 = 0xFFFFFFFF
8      MOV     r6, #0        ;R6 = 0x00000000
9      AND     r7, r4, r5    ;r7 = r4
10     AND     r8, r4, r6    ;r8 = 0x00000000
11     EOR     r9, r4, r5    ;Same effect as NOT R4
12     BIC     r10, r5, r4   ;Clear out the 5th & 3rd bits
13     END
14

```

The status bar indicates "Emulation Running". To the right, the Cortex-M simulator window shows the state of registers R0 through LR:

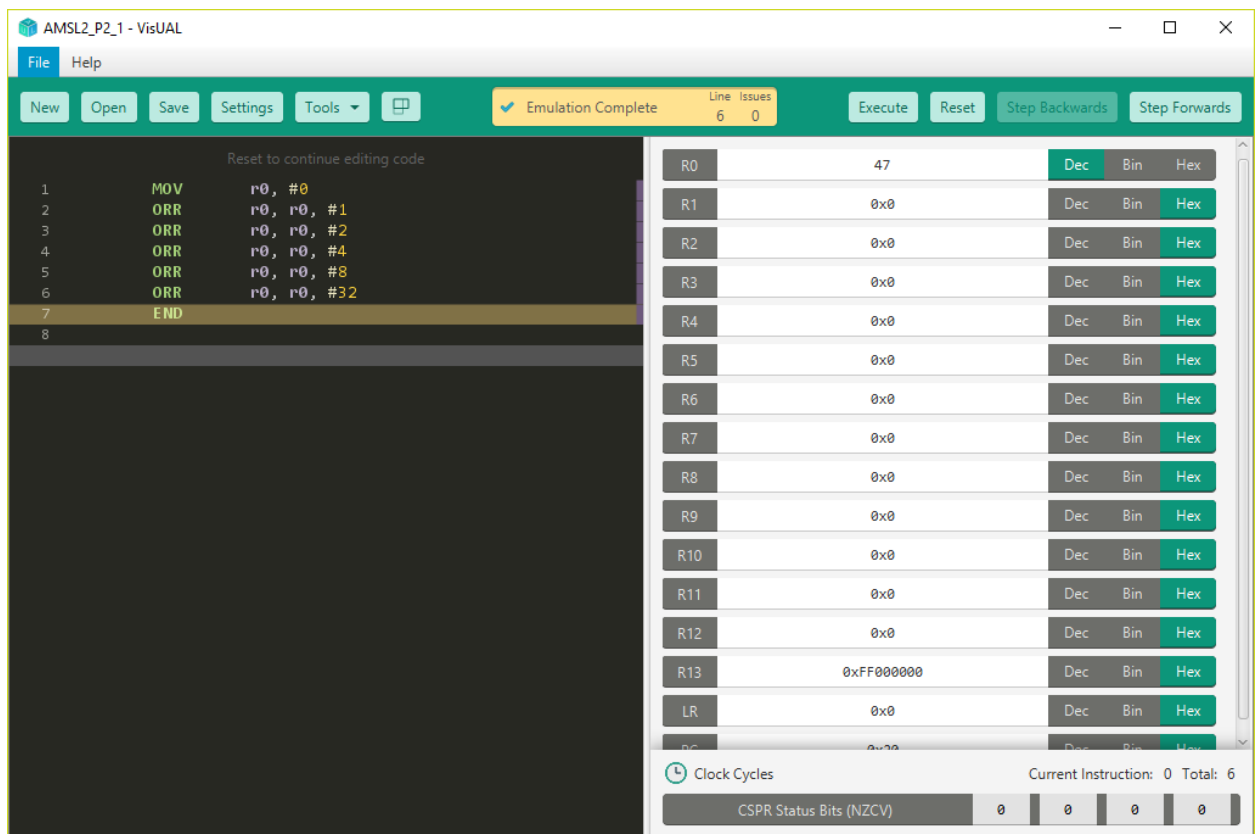
Register	Value	Dec	Bin	Hex
R0	0b10000			
R1	0b10000			
R2	0b11111111111111111111111111111111			
R3	0b100			
R4	0b10100			
R5	0b11111111111111111111111111111111			
R6	0b0			
R7	0b10100			
R8	0b0			
R9	0b11111111111111111111111111111111			
R10	0b11111111111111111111111111111111			
R11	0x0			
R12	0x0			
R13	0xFF000000			
LR	0x0			

At the bottom of the simulator, it shows "Clock Cycles: Current Instruction: 1 Total: 12" and "CSPSR Status Bits (NZCV)" with values 0, 0, 0, 0.

PART II:

1)

```
MOV      r0, #0
ORR      r0, r0, #1
ORR      r0, r0, #2
ORR      r0, r0, #4
ORR      r0, r0, #8
ORR      r0, r0, #32
END
```



2)

```
MVN      r0, #0
EOR      r0, r0, #1
EOR      r0, r0, #2
EOR      r0, r0, #4
EOR      r0, r0, #8
EOR      r0, r0, #16
EOR      r0, r0, #32
EOR      r0, r0, #64
EOR      r0, r0, #128
END
```

