

# CS251, Spring 2022

## Assignment 1: Question 2

Consider the following ARM program (where PC starts at 0):

```
000 ADD X0, X31, X31 ; Initialize X0 as 0
004 ADDI X1, X31, #64 ; Initialize X1 as 64
008 LDUR X2, [X1, #0] ; Load into X2 the value at X1
012 ADDI X2, X2, #1 ; Add 1 (-1 becomes 0)
016 CBZ X2, #7 ; Exit loop if value is 0
020 ADDI X1, X1, #8 ; Move to next value (8 spots in memory)
024 LDUR X2, [X1, #0] ; Load into X2 the value at X1
028 CBNZ X2, #2 ; Skip Increment if value is non zero
032 ADDI X0, X0, #1 ; Increment counter
036 ADDI X1, X1, #8 ; Move to next value (8 spots in memory)
040 B #-8 ; Loop to start
044 STUR X0, [X31, #56] ; Store counter
048
052
```