Lab 6 Exercise 1

Your task is to develop an assembly language implementation of a Linear Congruential Generator (LCG) producing a sequence of 8-bit pseudo-random numbers. Then, use OpenPICIDE to debug and simulate your program.

The pseudorandom number generator should be based on the Linear Congruential Generator, described by the following recurrence relation:

\[ R_{n+1} = a \times R_n + c \pmod{m} \]

where \( R_n \) is the generated sequence of pseudorandom values, \( a \) is the multiplier, \( c \) is the increment, and \( m \) is the modulus. \( R_0 \) is the initial seed value.

Please assume the following default values of parameters in your program.

\( m = 2^8, a=0x11, c=0x9D, R_0=0xD7 \). Additionally, assume that \( * \) represents an unsigned multiplication.