Computer Architectures
Lab 3

1. Write a program in ARM assembly language, compile and debug it. The program executes the following tasks:
    - it initializes registers r0-r7 with immediate values
    - it compares every couple of consecutive registers (i.e., r0 with r1, r2 with r3, etc.)
        1. if the two registers are different, it computes their mean and stores it in r8-r11 (one register per every comparison). For example, if r0 ≠ r1, r8 = (r0 + r1)/2
        2. if the two registers are equal, it computes their product and stores it in r8-r11 (one register per every comparison). For example, if r0 = r1, r8 = r0*r1

2. Write a program in ARM assembly language, compile and debug it. The program executes the following tasks:
    - it initializes registers r0-r2 with immediate values
    - it sorts registers; at the end r0 will contain the smallest value and r2 the biggest one
    - it checks if the two biggest elements are multipliers of the smallest one. If so, it stores in r4 how many times r1 contains r0, and it stores in r5 how many times r2 contains r0.

3. Write a program in ARM assembly language, compile and debug it. The program executes the following tasks:
    - it defines a literal pool with 8 constants
    - it analyses the sequence, checking if it is an increasing, decreasing or not monotonic sequence.
        1. if the sequence is an increasing one, the program computes the mean value
        2. if the sequence is a decreasing one, the program computes the largest absolute difference between two consecutive numbers
        3. if the sequence is not monotonic, the program finds the minimum and maximum values.