Lab 1 - Solutions:

In this Lab, you will write ARM assembly program, and test it using browser-based ARM simulator.

Here is the link for the simulator: https://cpulator.01xz.net/

Step-1: Choose "ARMv7" from Architecture menu

Step-2: Choose "ARMv7 DE1-SoC" from System menu

You will be directed to this link: https://cpulator.01xz.net/?sys=arm-de1soc

1. **Part 1:** Getting Started with ARM Assembly Language Programming

    1.1. Write an ARM assembly language program that initializes a register with a value of 10 and stores it in memory at address 0x20000000.

```
MOV R0, #0x20000000

MOV R1, #10

STR R1, [R0]
```

    1.2. Write an ARM assembly language program that reads the value stored in memory at address 0x20000000 and stores it in a register.

```
MOV R0, #0x20000000

LDR R1, [R0]
```

    1.3. Write an ARM assembly language program that adds two values, 5 and 10, and stores the result in a register.

```
MOV R1, #5

MOV R2, #10

ADD R3, R1, R2
```