Embedded Systems Lab

Experiment 9: AP Series in ARM

Date: 29th March 2022

Platform: ARMSim 2.1

Objective: Write ARM assembly code to generate an AP consisting of 6 terms. The first term is to be stored in register R1, the common difference in register R2, and the AP itself is to be stored in registers R3 to R8.

Algorithm:

1. Store the first term and the common difference in registers R1 and R2 respectively using the MOV instruction
2. Copy the first term to register R3 using MOV instruction
3. Generate the rest of the terms of the AP by using the ADD instruction

Code:

```
@ Arm assembly code to generate an AP with first term 18 and common
difference 10

MOV R1, #18  @ First term 18 is stored in reg R1
MOV R2, #10  @ Common difference 10 is stored in reg R2

@ Generating six terms using first term and c.d.
@ The first term is stored in register R3, second in R4, ... , sixth in R8

MOV R3, R1
ADD R4, R3, R2
ADD R5, R4, R2
ADD R6, R5, R2
ADD R7, R6, R2
ADD R8, R7, R2
```

anuragbaundwal-1901038-embedded-systems-lab-exp9.txt - Notepad

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```
@ Arm assembly code to generate an AP with first term 18 and common difference 10

MOV R1, #18     @ First term 18 is stored in reg R1
MOV R2, #10     @ Common difference 10 is stored in reg R2

@ Generating six terms using first term and c.d.
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MOV R3, R1
ADD R4, R3, R2
ADD R5, R4, R2
ADD R6, R5, R2
ADD R7, R6, R2
ADD R8, R7, R2
```
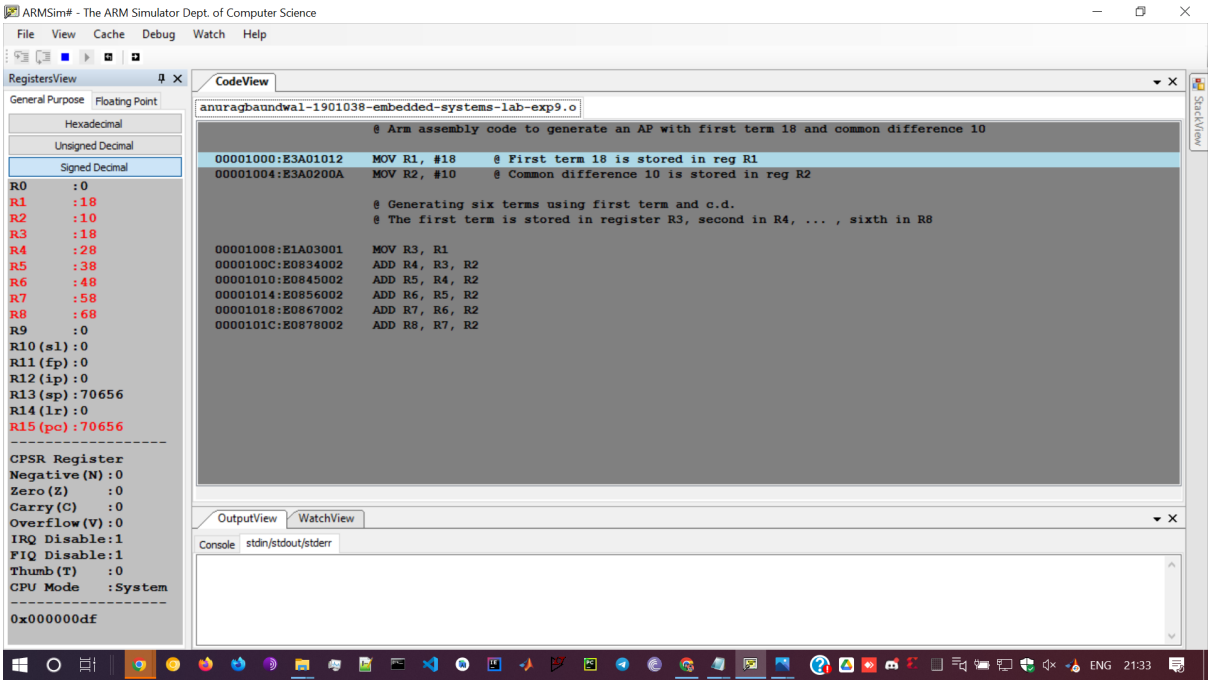

Ln 5, Col 1 | 100% | Windows (CRLF) | UTF-8

Output:



Result and Conclusions:

It is observed that registers R3 to R8 contain the terms 18, 28, 38, 48, 58, and 68 of the AP. Hence, the code is working as expected and the experiment was performed successfully.

Experiment Performed By;
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