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15] 1) Write an assembly program that adds the content of Registers R4, R5, and R6 to register R7 then subtract the content of R10 from R7. Once calculation is done all values of aforementioned registers must be saved in memory starting at memory address 0x0200. Use these register values: R4 = 4, R5 = 3, R6 = 10, R10 = 15. The overall program structure should be as follows:

```
Setup    ......    ;clear all registers    ......
;Setup Register Values
         ......
Addition  ......    ;Add the content of registers
    ......    ;R4,R5,R6 into R7
         ......
Subtraction ......    ;subtract content of R10 from R7
    ......
Store    ......    ;Store the content of all Register used
    ......    ;into memory including results in the    ......
;Order R4, R5, R6, R10, R7.
    ......
    ......
Mainloop  jmp Mainloop  ;Infinite Loop
```
[3] 1.a) complete the above assembly program.

[12] 1.b) Answer the Following Questions:

[2] Record the values of Register prior to program execution ○ R4 0x0004, R5 0x0020, R6 0x0089, R10 0x0000, R7 0x0002, SR 0x0000, NZVC 0 0 0 0

- [2] Record the values (words) of memory locations starting at location 0x0200

  0000   0002   0004   0006   0008

- [2] Record the values of Registers **after** program execution ○

- R4 0x0004, R5 0x0003, R6 0x000A, R10 0x000F, R7 0x0002, SR 0x0001, NZVC 0 0 0 1

- [2] Record the values (words) of memory locations starting at location 0x0200 ○

  ```
   0004 0003 000A 000F 0002
  ```

- [2] Why do we need an infinite loop at the end of the program?

  So we can read the program values at the end of execution and so that it doesn't

  end the program.

  [2] Does the MSP430 Microcontroller support real-time clock? Please explain!

  ○ There is, but it must be implemented externally using the built in timers as it is
     not a built-in feature.