HOMEWORK 5

CMPE 102, Assembly Language Programming, Çokgör

Total points towards grade: 5/100

Homework is submitted electronically on the Canvas. E-mail submissions will not be accepted. Assembly programming part must be submitted in text format.

Add comments to your code to explain your work. Work that is not commented will not earn full credit.

Use Keil uVision to test your assembly program.

Assignment:

1) Write the ARM assembly instructions to translate the following C program into an assembly program where r1 is data read from the memory address 0xE000E010. (2.5 points)

```
int r0 = 0;

    for (int i = 0; i < 32; i++)
    {
      r0 = r0 | (r1 << i);
    }
```

2) Write an assembly program that adds two fractions where the numerators and denominators of the fractions are stored in R1, R2, R3 and R4 respectively, i.e. R1/R2, R3/R4. You do not need to simplify the fraction after adding. The result should be returned in R5 and R6, where R5 hold the numerator and R6 holds the denominator. If one of the denominators is zero, the processor should generate a divide-by-zero exception. The exception should call a `HardFault_Handler` where -1 is returned in R0. (2.5 points)