1. Write an algorithm to implement the subtraction operation for two positive integers in assembly language.

   1. Let the numbers be A, B and the operation be A-B
   2. Convert A into binary
   3. Convert B into binary
   4. Compute 2’s complement of B
      i. Invert the bits in B using B xor 1111111
      ii. Add 1 to B
   5. Add A and the 2’s complement of B.

2. Implement your algorithm in the assembly language describe in the machine language handout. Test your implementation using the SimpleSim simulator.

```assembly
; Program name : Subtraction using add only
;Programmer : Joe B
;Last Modified : Sep 16 2003

load R1,1 ;1 added for computing 2's complement
load R2,FFh ;mask for flipping the bits
load R3,first_number;
load R4, second_number;
xor R5, R4, R2 ; flip the 0's and 1's in the second number
addi R5, R5, R1 ; add 1 to the flipped bits to get the 2's complement
addi R5, R5, R3 ; add the numbers to obtain A - B
halt

first_number:  db 8 ;A in A-B
second_number:  db 5 ;B in A-B
```