Computer Organization and Structure

Please write the following four programs in MIPS assembly language.

1. **Find out all prime numbers**
   Your task is to find all prime numbers which small is than input n. (n>1)

   Your output should look like this. The filename is **FindPrime.s**.

   ---- **FindPrime** ----
   Input
   6
   Output
   2
   3
   5

2. **Tower of Hanoi (35%)**
   Your task is to complete a recursive implementation of the Tower of Hanoi problem in order to get familiar with assembly programming. We will give you an integer n (1 ≤ n ≤ 5) which means Tower of Hanoi with n disks. Your job is to move all disks from A to C and print out the moving process.

   Your output should look like this. The filename is **Hanoi.s**.

   ---- Tower of Hanoi ----
   Input :
   n = 3

   Output :
   move a -> c
   move a -> b
   move c -> b
   move a -> c
   move b -> a
   move b -> c
   move a -> c

3. **GCD**
   Your task is to find the greatest common divisor of x and y. (two positive integers x, y > 1) Output gcd(x, y)

   Your output should look like this. The filename is **GCD.s**.

---- GCD ----

Input:

x=4

y=2

Output

GCD(x,y)=2

4. **Binary Search (Optional)**

   Your task is use binary Search to find the number whether in the input sequence (where n < 8). If the value can be find, print "Find it.". If the value not in the sequence,print "The value is not in this sequence.".

   Your output should look like this. The filename is **Binary_Search.s**.

   ---- Binary Search ----

   Case 1:

   Input:

   Sequence: 1 2 3 4 5 6 7

   Find: 4

   Output

   Find it

   Case 2:

   Input:

   Sequence: 2 3 4 5 6 7 8

   Find: 1

   Output

   The value is not in this sequence.