Lab 1

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Program Design

- PseudoCode
  - The while not equal do became a loop
    - This loop had a break condition of s1 = s2
  - The if statement stayed the same
    - A branch le was used for comparison
    - The if the branch le was true, b = b-a
    - if the branch le was false, a = a-b
  - Print statement stayed the same
    - set 1 register

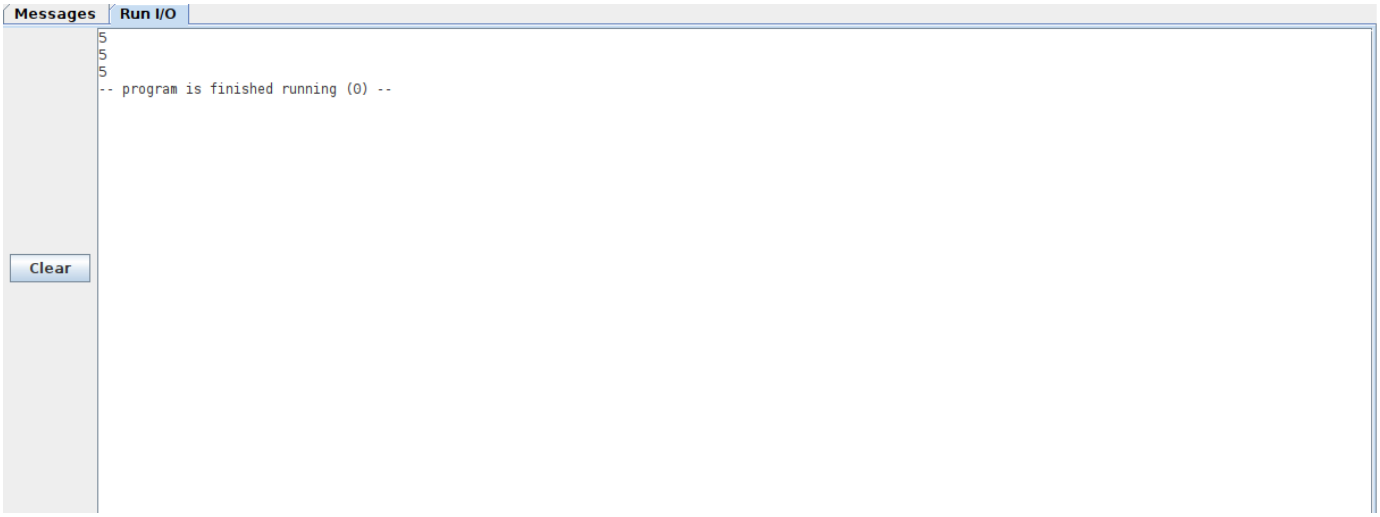
```
# psuedocode

#Loop
  # Break Condition
  #if (a = b) goto Print

  #Loop Body
  #if a <= b goto Else
  #a = a - b
  #goto Endif
#Else:
  #b = b - a
#Endif:
  #goto Loop
#Print
  #print a

# end psudocode
```

Program Code

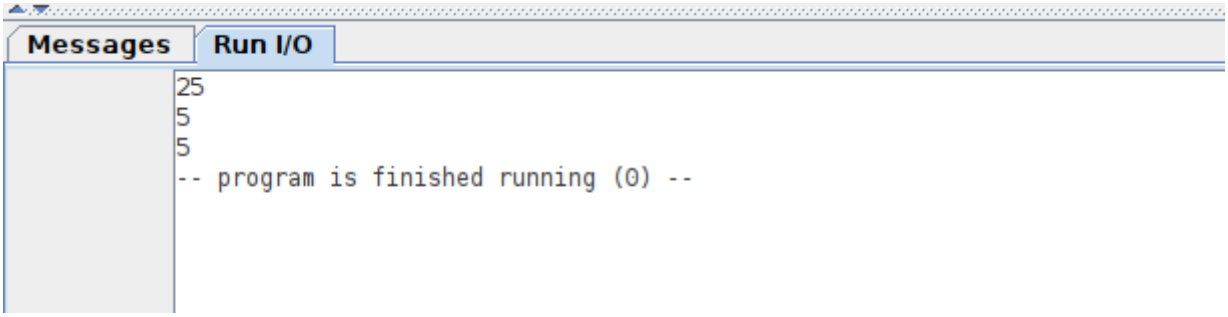
```
# TODO
# Add you code here
# compute GCD(a, b) and print it
Loop: # runs while s1 != s2
  # Break Condition
  beq s1, s2, Print # Compare s1 and s2, if equal, goto the print statement

  ble s1, s2, Else # IF s1 <= s2, go to the else condition (b = b-a)

  # Previous statement must not have been true, therefore
  sub s1, s1, s2 # a = a-b

  #While True, EndIf
  beq x0, x0, Endif

Else:
  # Branched
  sub s2, s2, s1 # b = b-a

Endif:
  # Loop again
  beq x0, x0, Loop

Print:
  # Print the result
  li a7, 1 # service 1 is a print integer
  addi a0, s1, 0 # set s1 into a0 by placing the result of s1 + 0 in a0
  ecall # execute the print statement
```

Execution Test Runs

Edgecase, Same Number



Case of 25 and 5



Edgecase 1

```
360
7
1
-- program is finished running (0) --
```