

Question 1

Using a simple if statement write a simple pseudocode to describe the Euclidean algorithm.

Answer

The Euclidean algorithm is a way to find the greatest common divisor of two positive integers, a and b. I will demonstrate how to solve for the GCD

Find the GCD (54,888) using pseudocode

Begin

Input Integer: 54 and 888;

a =888, b=54;

output the GCD, g of a and b

if

a & b, exchange as ("a/b")

Begin

print Num

the remainder is declared as $r = \%d$

elseif

Begin

print Num

$r > 0$ then r is to replace the value of "b" and then the value of "a" is represented as "b" then perform the first if statement;

else if

Begin

print Num

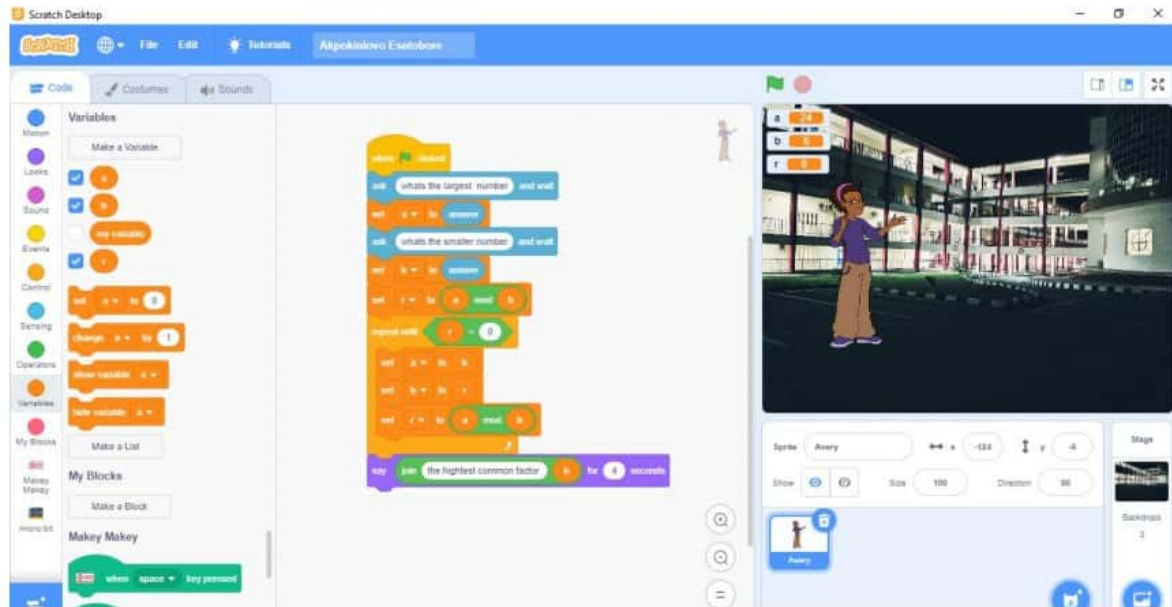
$r = 0$ the operation stops and retrieves the value of "r" as the highest common factor

End

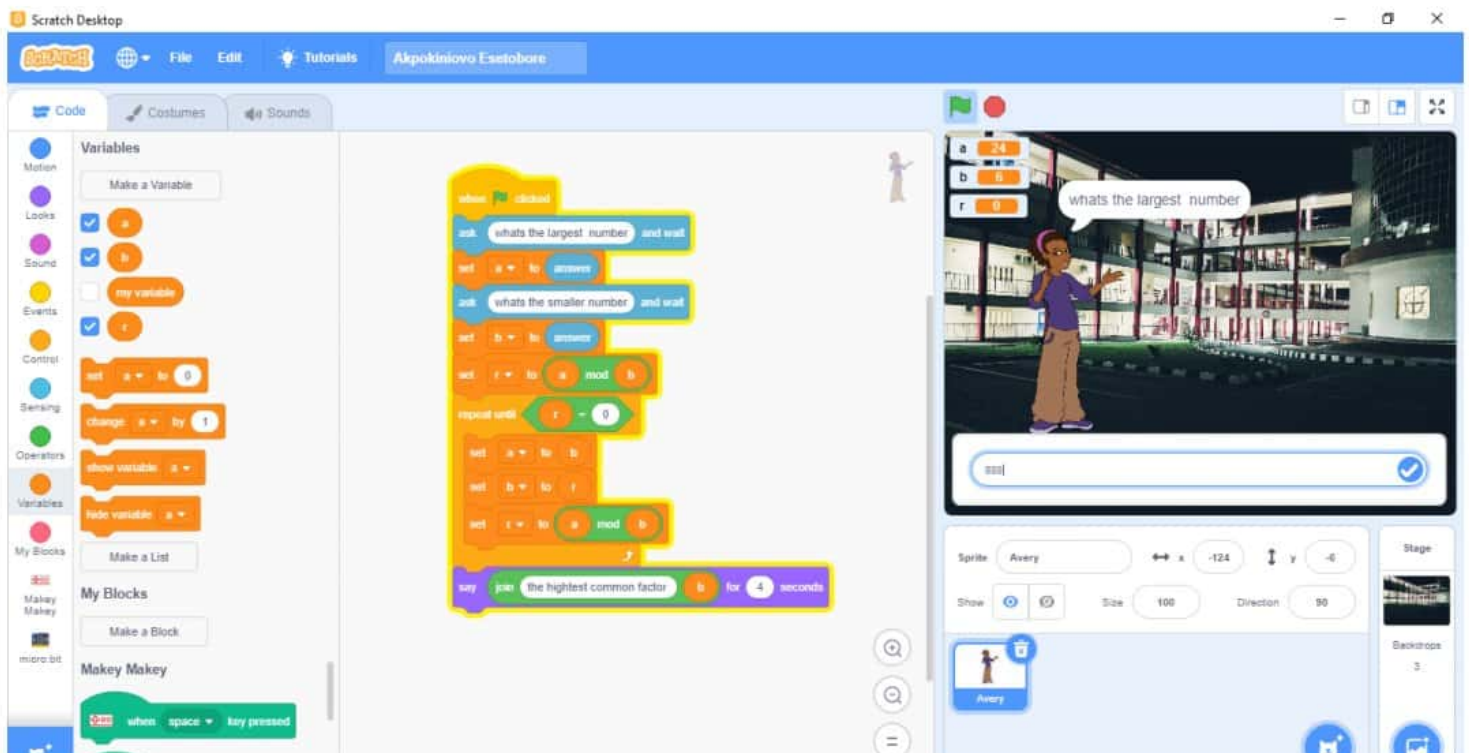
Question 2

Implement your pseudocode from 1 using scratch programming environment.

First picture showing the code



Step by step representation of the code



Scratch Desktop

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Code Costumes Sounds

Variables

Make a Variable

Variables

- my variable

My Blocks

Make a List

My Blocks

Make a Block

Makey Makey

when space key pressed

```

when clicked
ask: whats the largest number and wait
set a to answer
ask: whats the smaller number and wait
set b to answer
repeat until i = 0
  set i to a mod b
  set a to b
  set b to i
  set i to a mod b
say: the highest common factor is b for 4 seconds
  
```

0 1000
b 0
r 0

whats the smaller number?

54

Sprite Avery x: -124 y: -6

Show Size 100 Direction 90

Stage Backdrops 3

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say: the highest common factor is b for 4 seconds
  
```

a 24
b 6
r 0

the highest common factor 6

Sprite Avery x: -124 y: -6

Show Size 100 Direction 90

Stage Backdrops 3