OMO TEC
ON MY OWN TECHNOLOGY

SESSION - 8
PRIME NUMBER

Learning Outcomes:

- **Remember**: The students will list different types of blocks being learnt in the session .
- **Understand**: - They will focus on understanding the FOR Loop
- **Apply**: - They will apply FOR loop to check if a number is Prime or not

  - Will use a combination of IF-ELSE and FOR loop to execute programs .

  - Apply the use of BREAK statement
- **Analyze**: They will check their understanding by developing a code.
- **Create**: They will create the code in EduBlocks

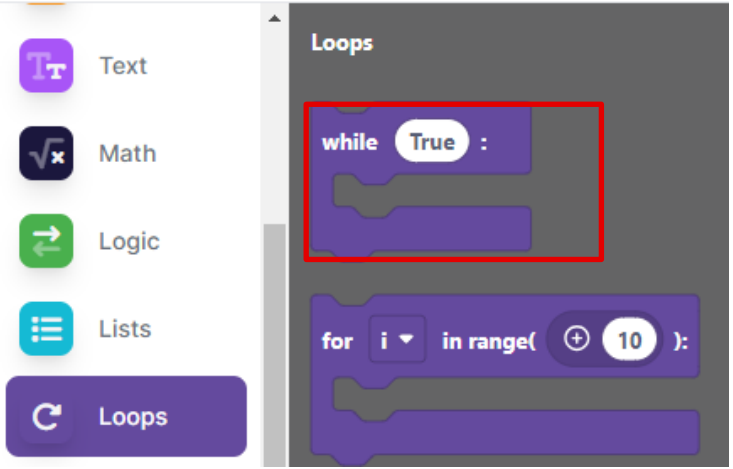
Apply & Create

ACTIVITY DESCRIPTION

- A 'for loop' is used for iterating over a sequence (that is either a list, a tuple, a dictionary, a set, or a string).
- In this activity we are going to use for loop and else for loop also
- **Example:-**

```
for i in range(2, num):
  if num % i == 0:
    print("It is not a prime Number")
    break
 else:
   print("It is a prime Number")
```

Program Step 1:-

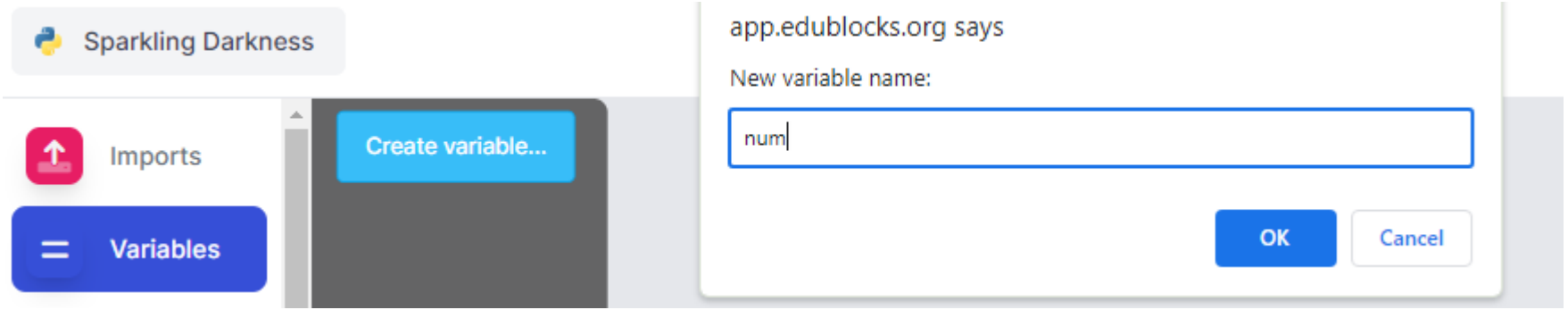


Get a While loop to make the code run repeatedly

Code Output

```
1  #Start code here
2  while True:
3      pass
4
```

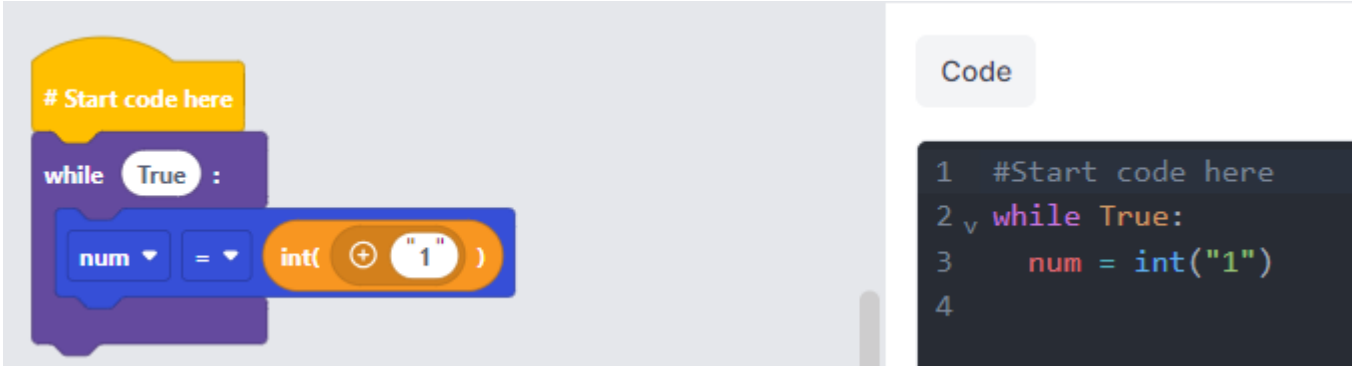
Program Step 2:-



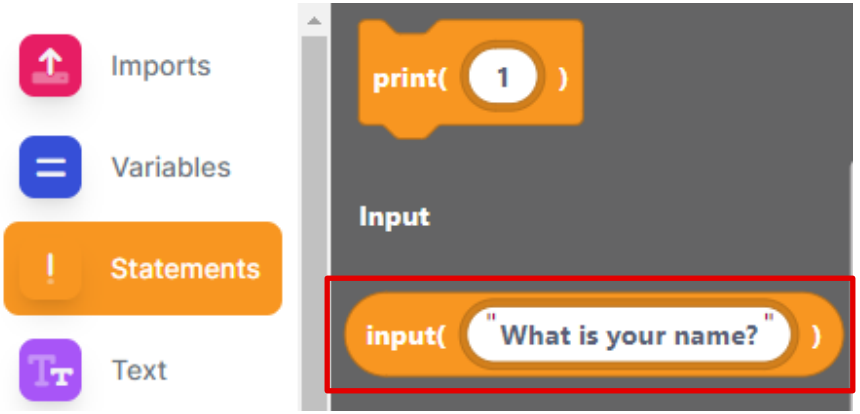
Create a variable with name 'num' to store input from the user

Program Step 3:-

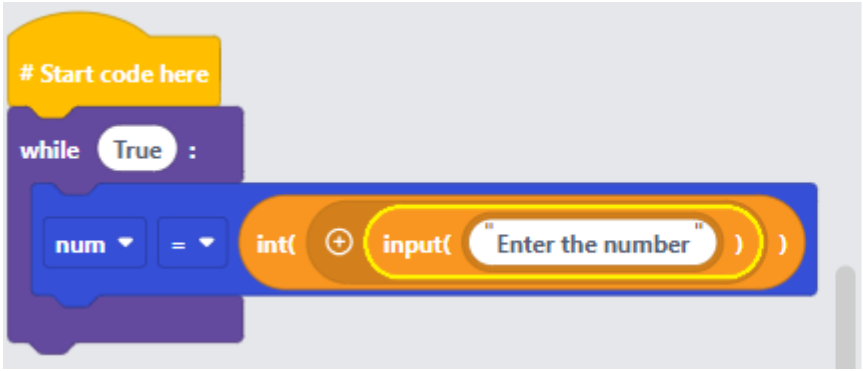
Add an int block to convert the input given by user into an integer



Program Step 4:-



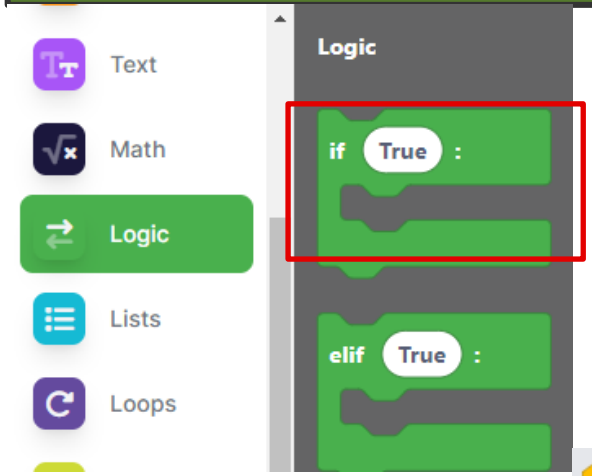
Add an input block to the int block to get input from user



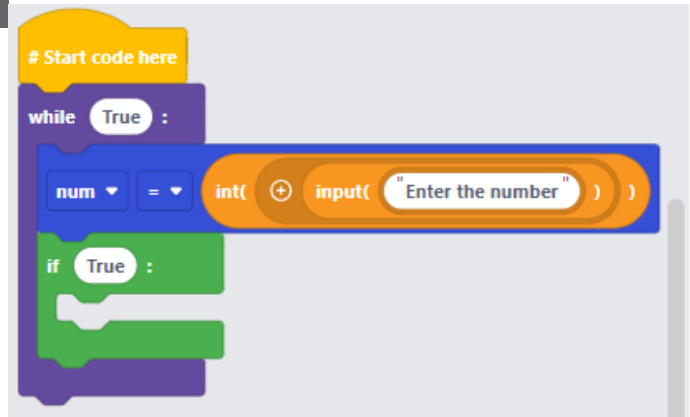
Code

```
1  #Start code here
2  while True:
3      num = int(input("Enter the number"))
4
```

Program Step 5:-



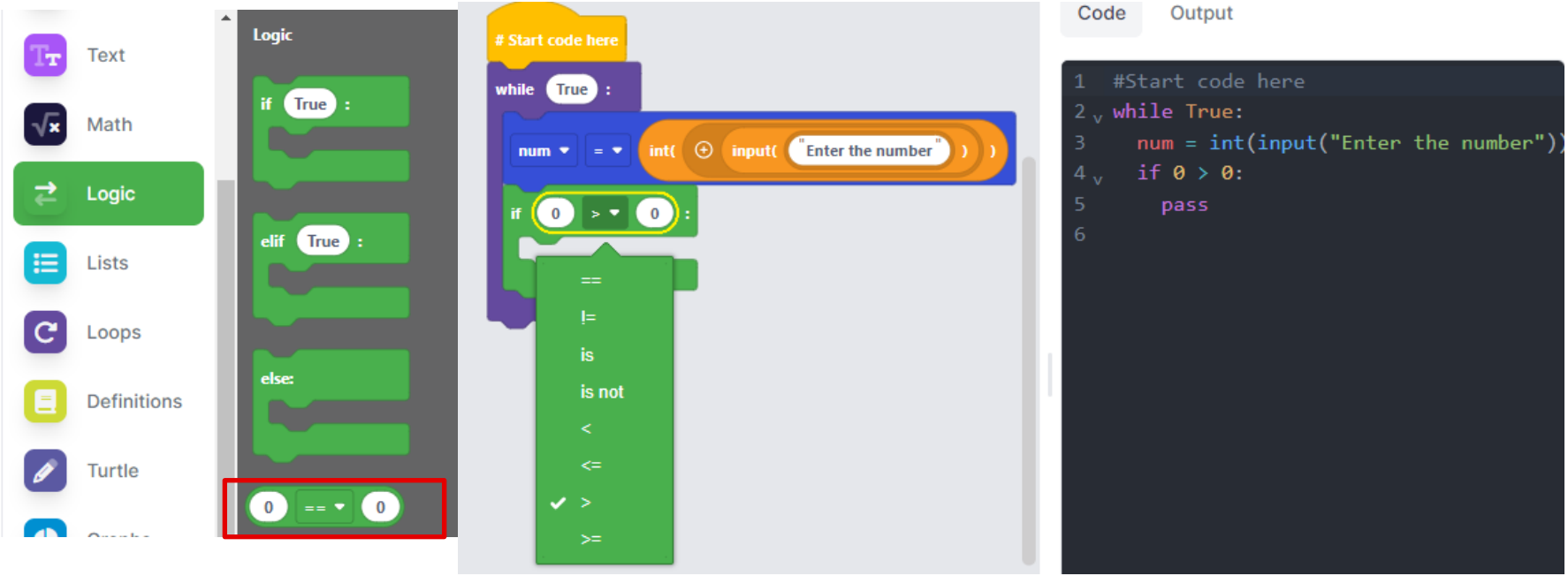
Add an if condition from the logic



Code Output

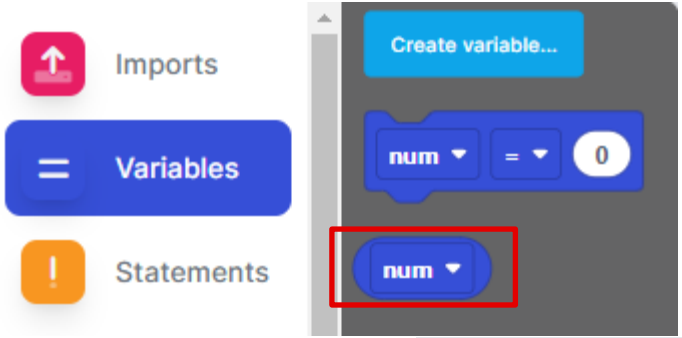
```
1  #Start code here
2  while True:
3      num = int(input("Enter the number"))
4      if True:
5          pass
6
```

Program Step 6:-

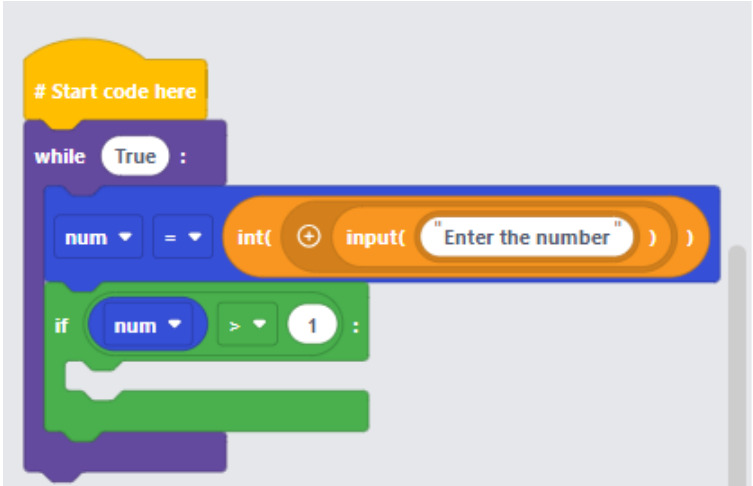


Add a comparison block and change it to greater than block to check if the input given by the user is greater than 1

Program Step 7:-



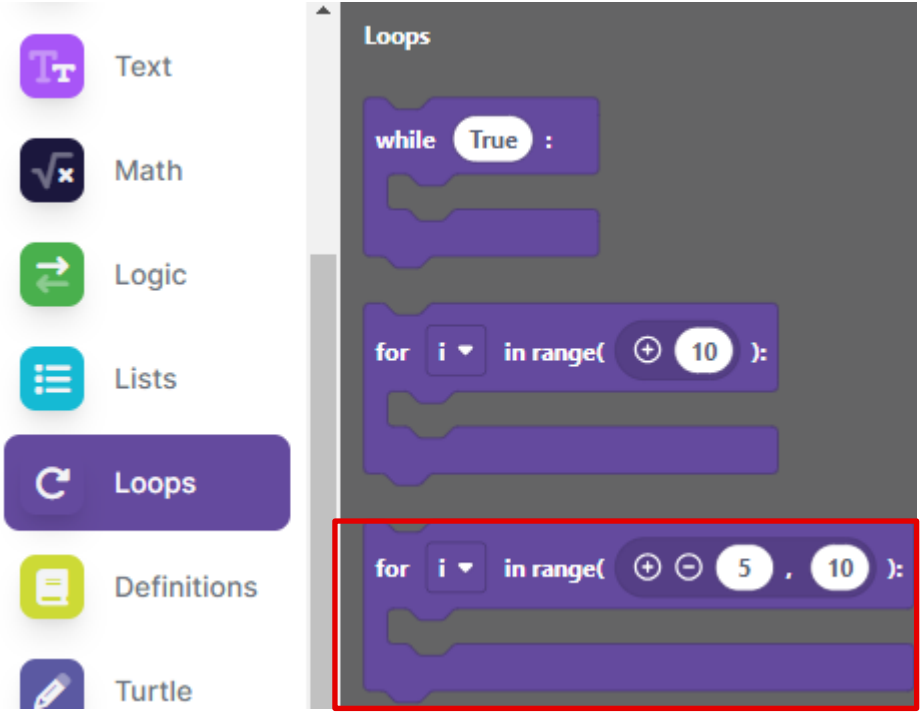
Get the num variable block and connect it to the left side of comparison block and write 1 on the right side



Code Output

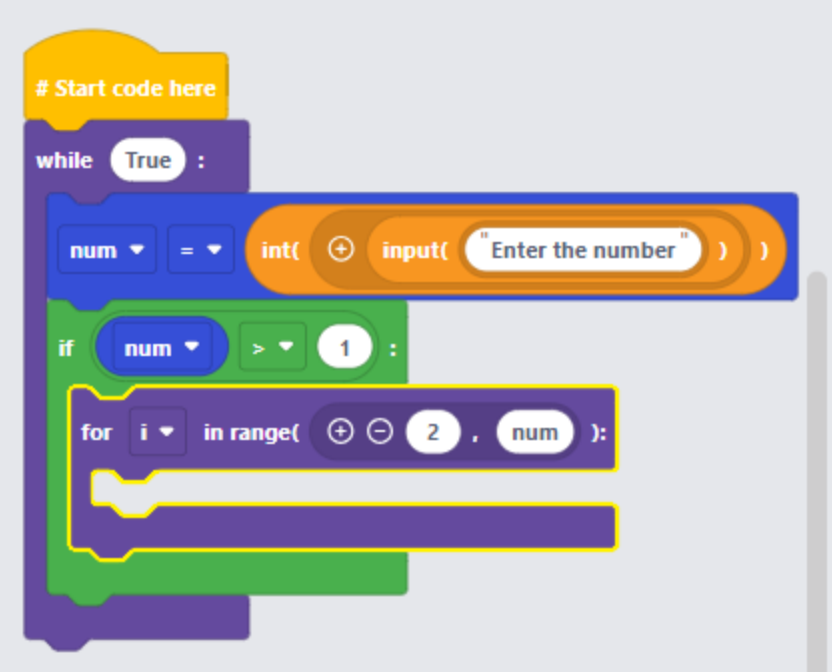
```
1  #Start code here
2  while True:
3      num = int(input("Enter the number"))
4      if num > 1:
5          pass
6
```

Program Step 8:-



Get a for loop connect it inside the if condition and set the range to 2, num, so that it will check ever number between 2 to number given by user

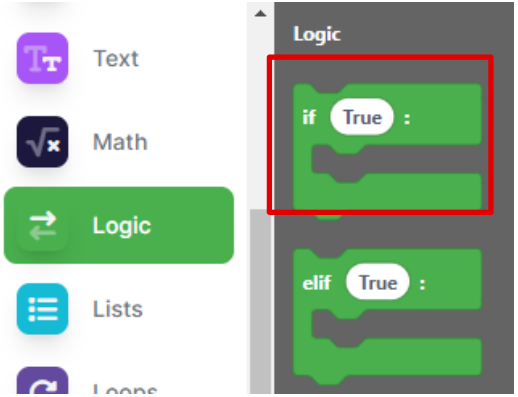
Program Step 9:-

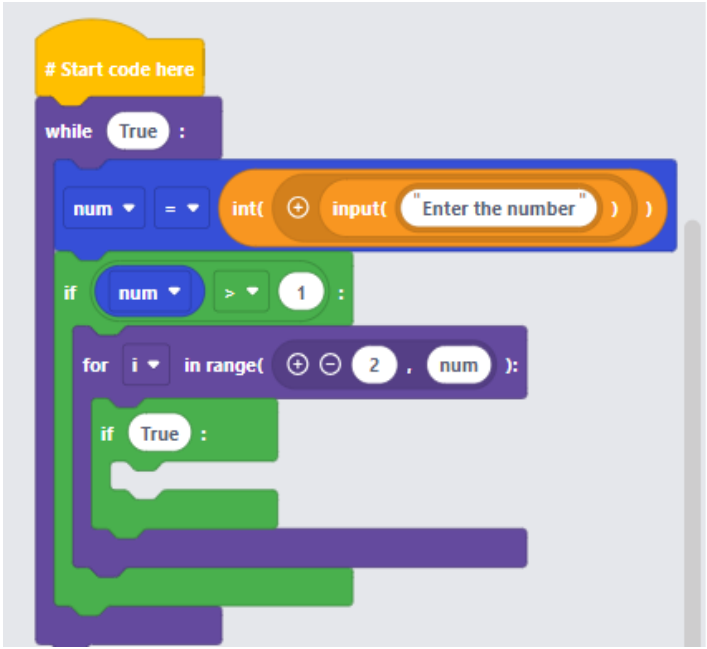


Code Output

```
1  #Start code here
2  while True:
3      num = int(input("Enter the number"))
4      if num > 1:
5          for i in range(2, num):
6              pass
7
```

Program Step 10:-



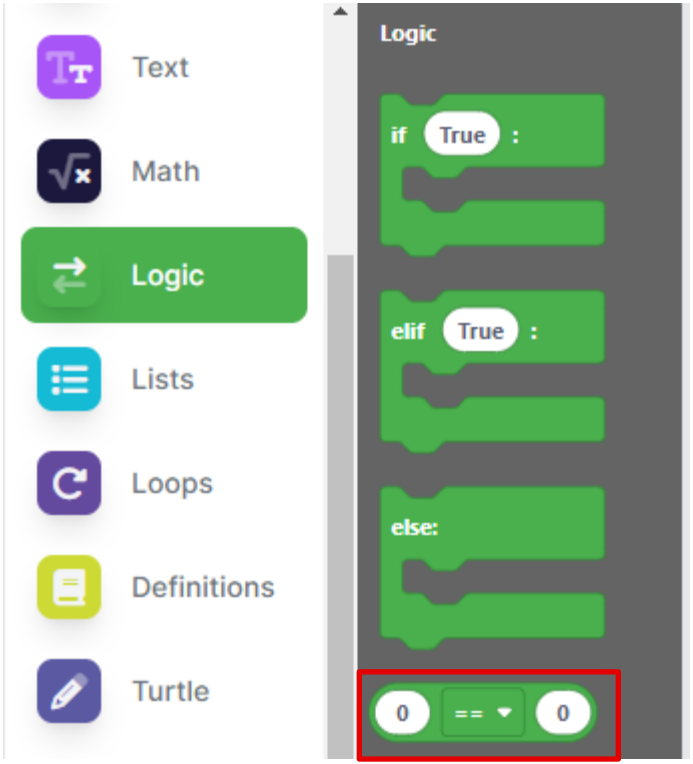


Code Output

```
1  #Start code here
2  while True:
3    num = int(input("Enter the number"
4    if num > 1:
5      for i in range(2, num):
6        if True:
7          pass
8
```

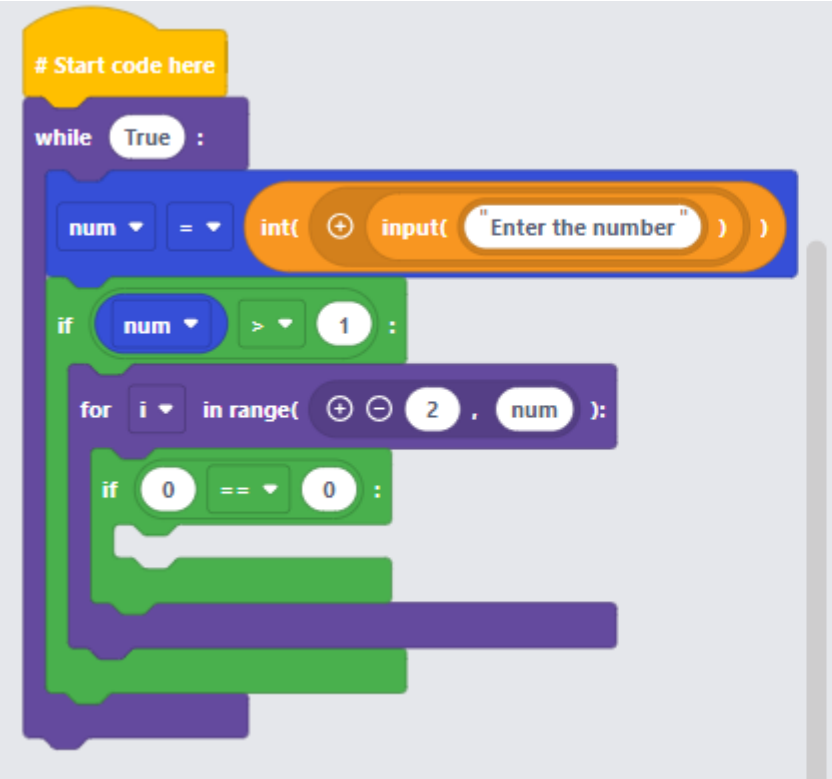
Add an if condition inside for loop

Program Step 11:-



Add a comparison block to the if condition

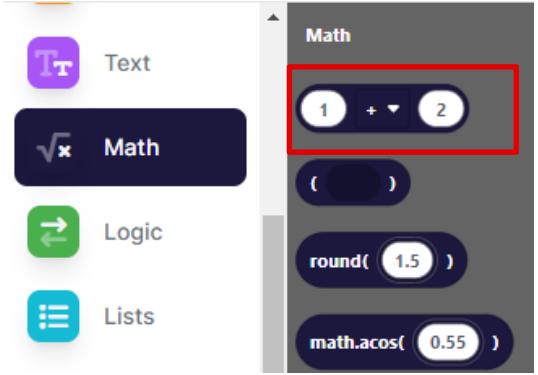
Program Step 12:-

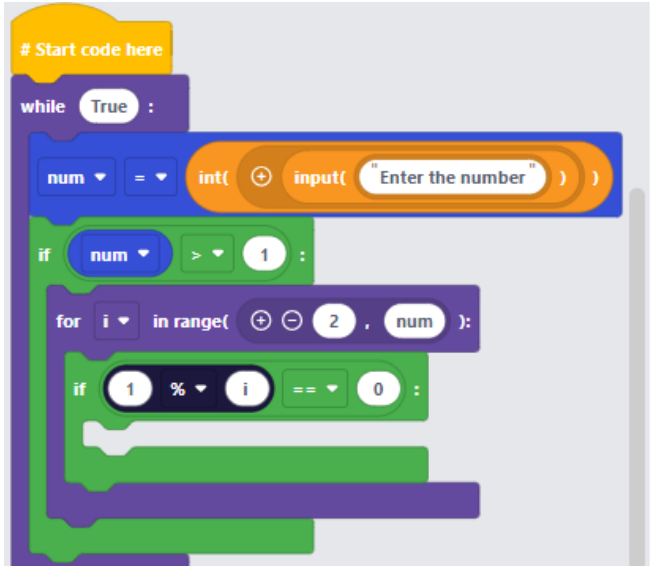


Code Output

```
1  #Start code here
2  while True:
3      num = int(input("Enter the number"))
4      if num > 1:
5          for i in range(2, num):
6              if 0 == 0:
7                  pass
8
```

Program Step 13:-



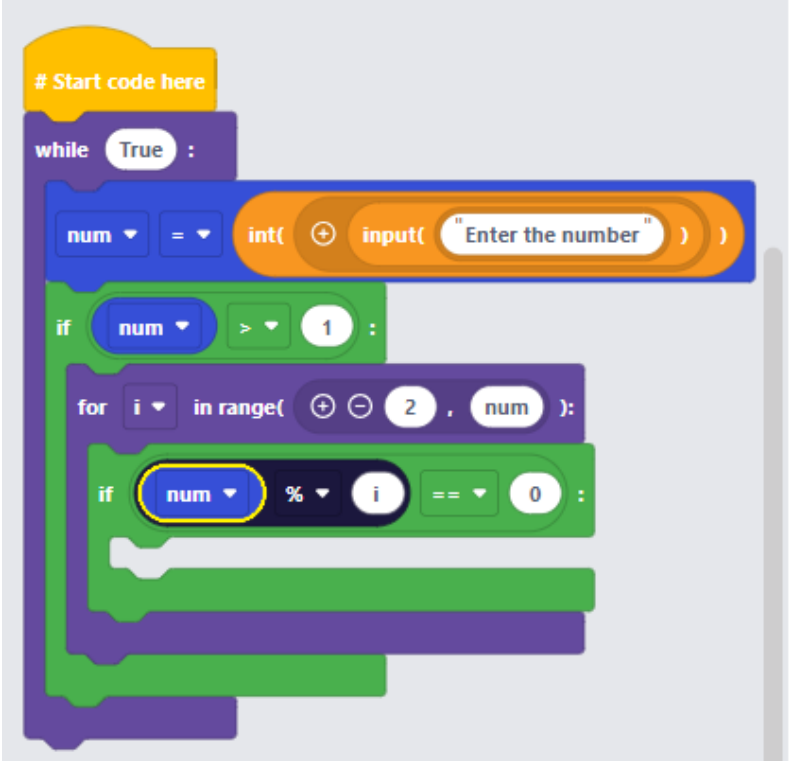


Code Output

```
#Start code here
while True:
  num = int(input("Enter the number"
  if num > 1:
    for i in range(2, num):
      if 1 % i == 0:
        pass
```

Get the addition block from math drawer and change it to modulus

Program Step 14:-

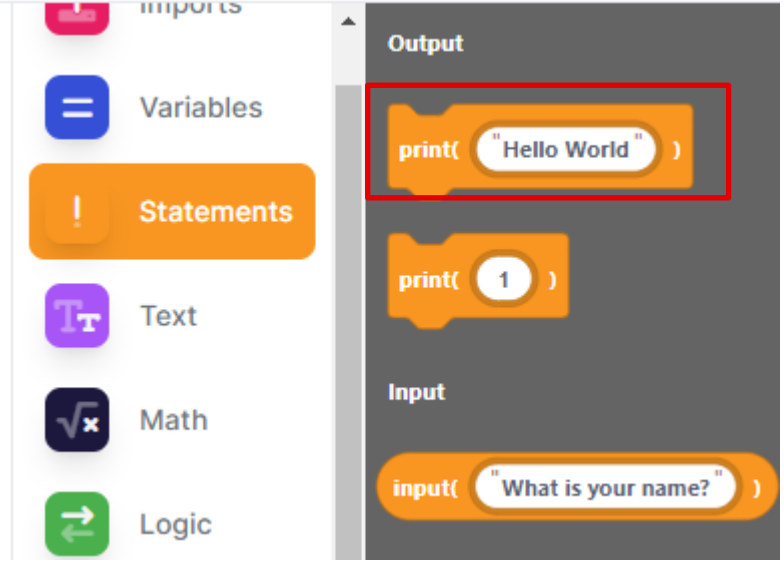


Code | Output

```
1  #Start code here
2  while True:
3      num = int(input("Enter the number"))
4      if num > 1:
5          for i in range(2, num):
6              if num % i == 0:
7                  pass
8
```

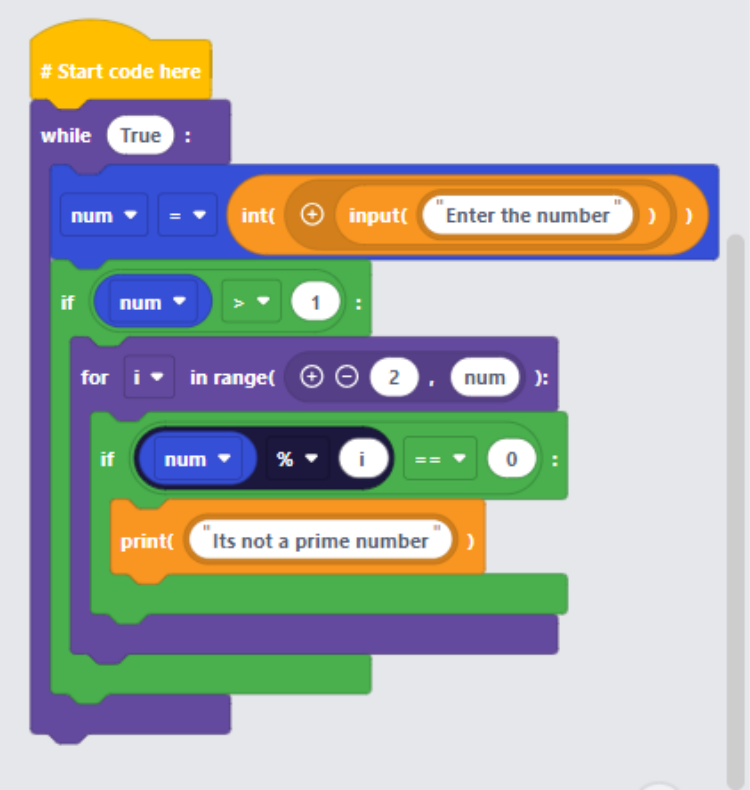
Get the num variable block and connect it to the left side of modulus and write I on the right side, this will give us the remainder, if the remainder is equal to 0, it is not a prime number

Program Step 15:-



Add a print "Hello World" block inside if condition, so that if the number given by user is divisible by any smaller number, then it will print "it is not a prime number"

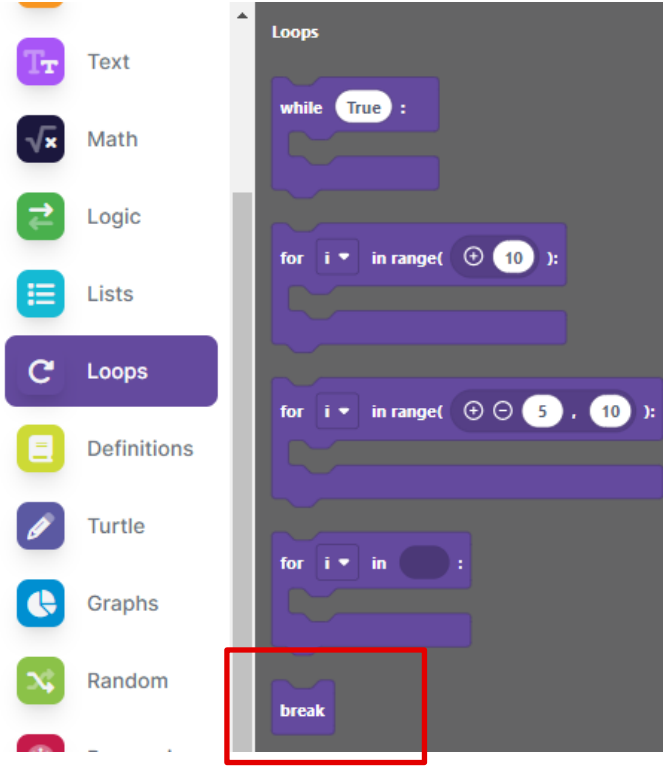
Program Step 16:-



Code Output

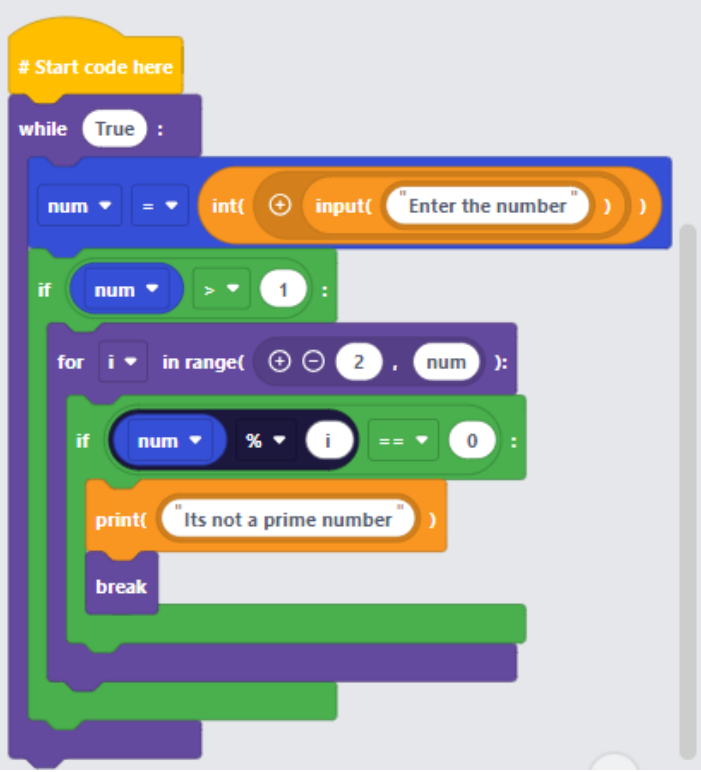
```
1  #Start code here
2  while True:
3      num = int(input("Enter the number"))
4      if num > 1:
5          for i in range(2, num):
6              if num % i == 0:
7                  print("Its not a prime number"
8
```

Program Step 17:-



Add a break block below print, so if the number is divisible, after printing it will break the loop

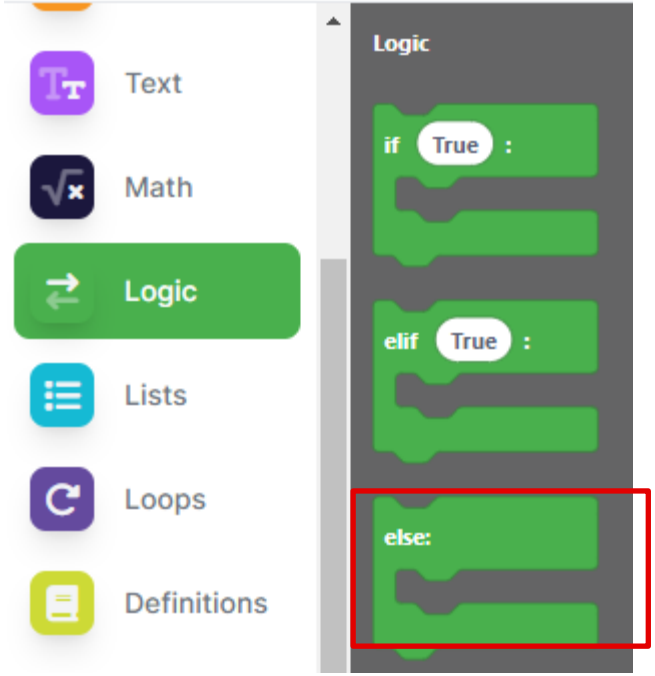
Program Step 18:-



Code | Output

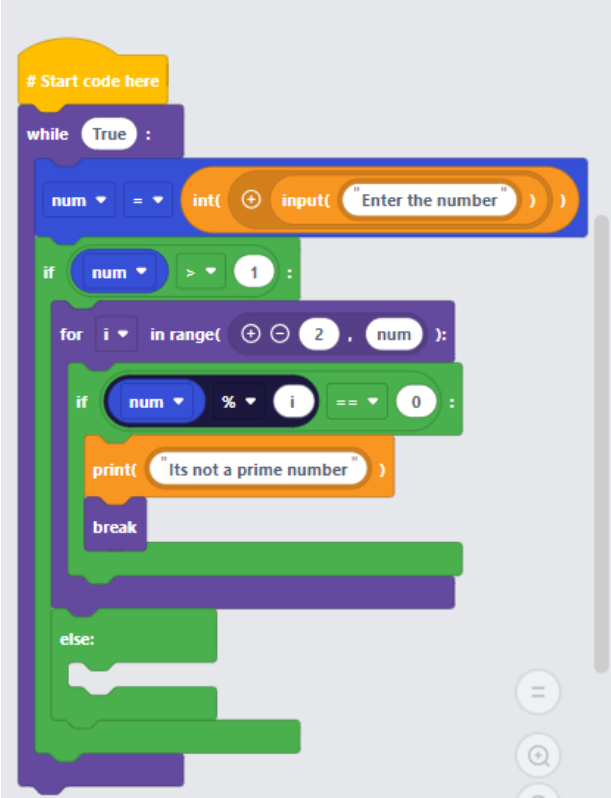
```
#Start code here
while True:
    num = int(input("Enter the number"))
    if num > 1:
        for i in range(2, num):
            if num % i == 0:
                print("Its not a prime number"
                break

```

Program Step 19:-



Connect an else block beneath for loop, if the number is not divisible by any number, then it should print it is a prime number

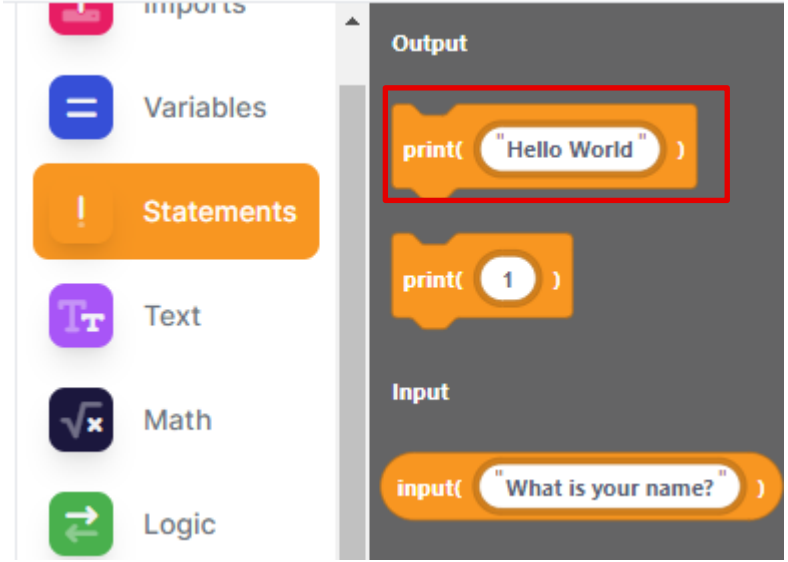
Program Step 20:-



Code Output

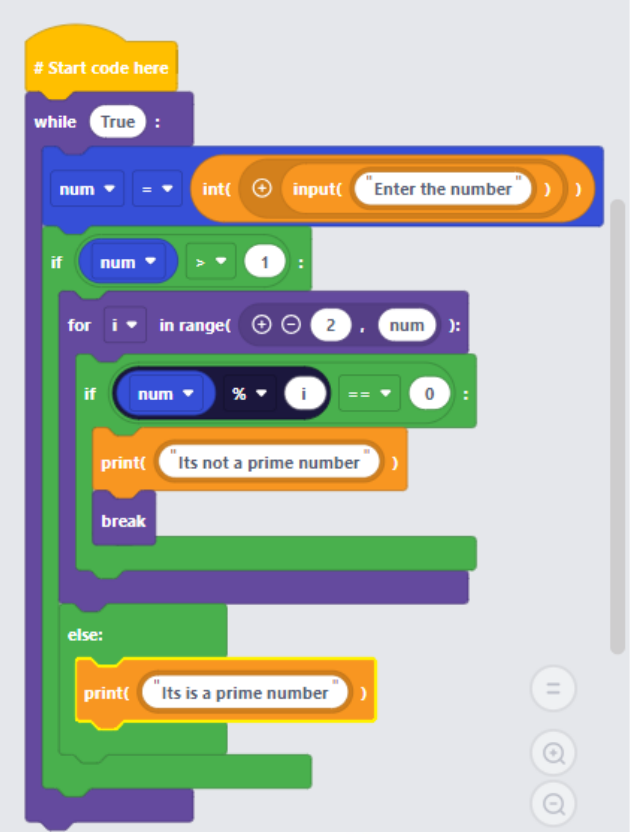
```
1  #Start code here
2  while True:
3    num = int(input("Enter the number")
4    if num > 1:
5      for i in range(2, num):
6        if num % i == 0:
7          print("Its not a prime number
8          break
9      else:
10       pass
11
```

Program Step 21:-



Add a print "Hello World" block inside else condition, so that if the number given by user is not divisible by any smaller number, then it will print "it is a prime number"

Program Step 22:-

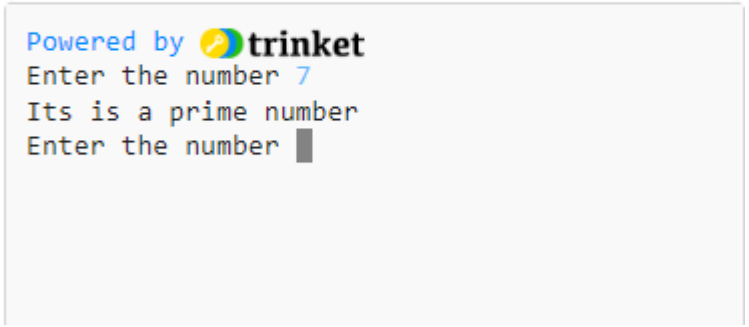


Code | Output

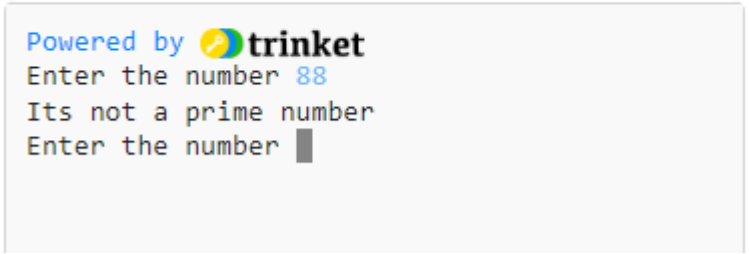
```
1  #Start code here
2  while True:
3      num = int(input("Enter the number"))
4      if num > 1:
5          for i in range(2, num):
6              if num % i == 0:
7                  print("Its not a prime number")
8                  break
9          else:
10             print("Its is a prime number")
11
```

Output

Code Output



Code Output



ACTIVITY SHEETS

Question 1:
What does a for loop do?

A. Iterates through a range/sequence
B. Repeats the code for forever
C. Repeats the code for limited time
D. check the condition

Question 2:
What is the difference between while loop and for loop?

A. While loop can run forever
B. For loop can run forever
C. while loop can iterates through a list
D. For loop can compare two values

Question 3:

Which of the following statements is correct?

A. for x in range x= 20:
B. for x in range (0,20):
C. for x in range (0,20)
D. for x in range(“0,20”):

Question 4:

What is the output of the following code?

```
for x in range(0,1):
    print (x)
```

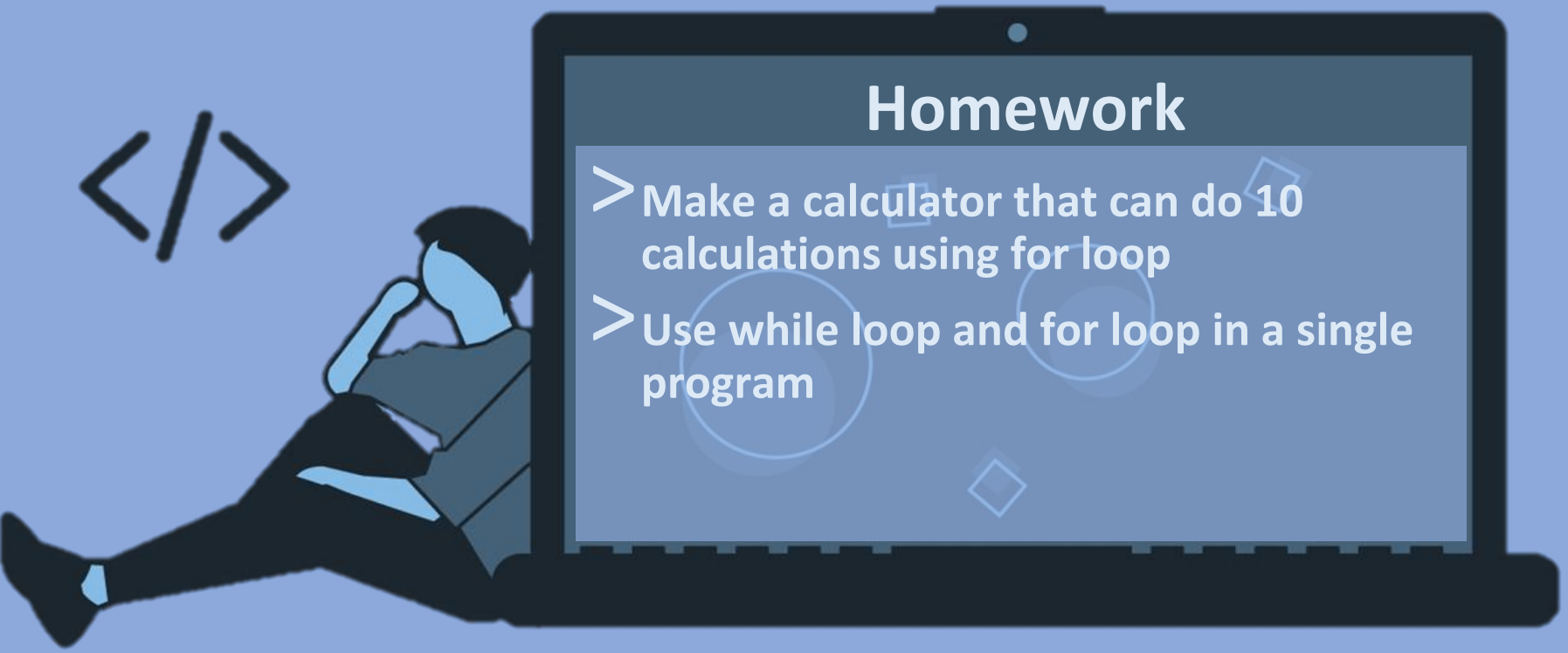
A. 0,1
B. 0
C. 1
D. 0 1

Question 5:

What is the meaning of range(0,20) in code-

```
for x in range(0,20):
```

A. Iteration range of for loop
B. index
C. range for it condition
D. variable


Homework
Make a calculator that can do 10 calculations using for loop
Use while loop and for loop in a single program