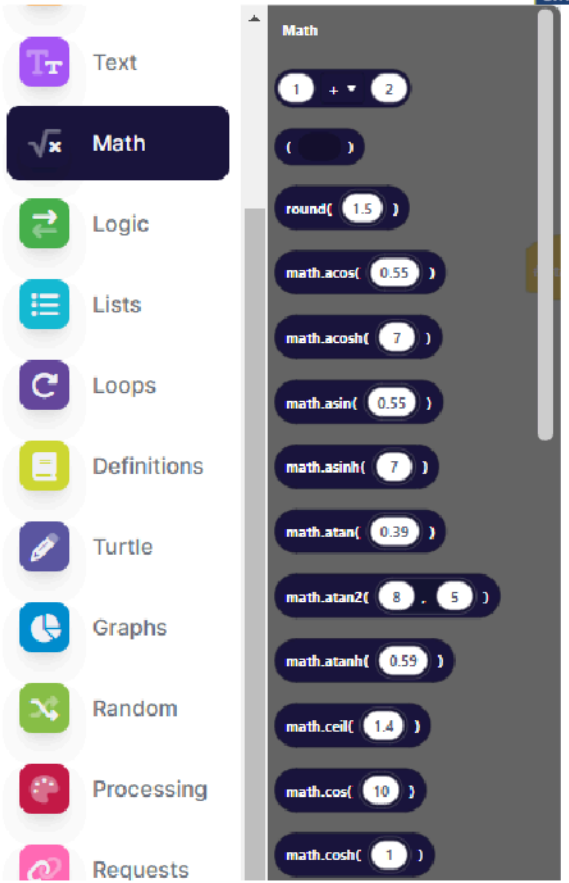
SESSION - 7
TIMER

Learning Outcomes:

- **Remember**: The students will recall about previous concepts - libraries .
- **Understand**: They will focus on understanding more about Math Library , Floor Division
- **Apply**: They will learn to apply the Math and Time Library to build code for Digital Timer.
- **Analyze**: They will check their understanding by developing a code .
- **Create**: They will create the code in EduBlocks

Remember & Understanding

- To access math library import math from the Imports .
- Then access all the blocks of the math functions

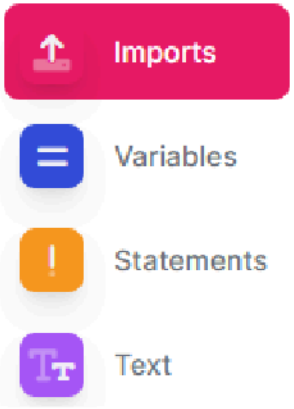


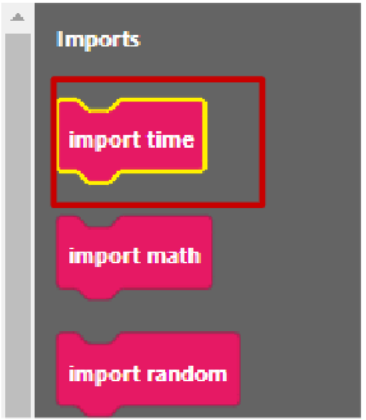
Apply & Create

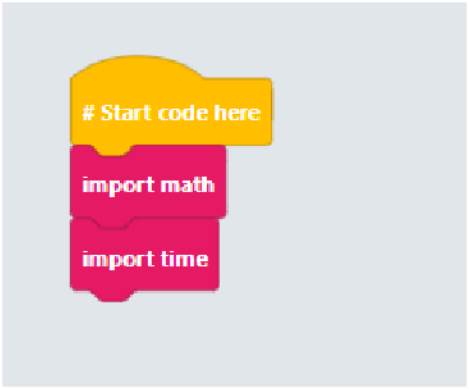
TASK 01:-

</> WRITE A PROGRAM TO PRINT HOURS, MINUTES AND SECONDS

Program Step 1:-





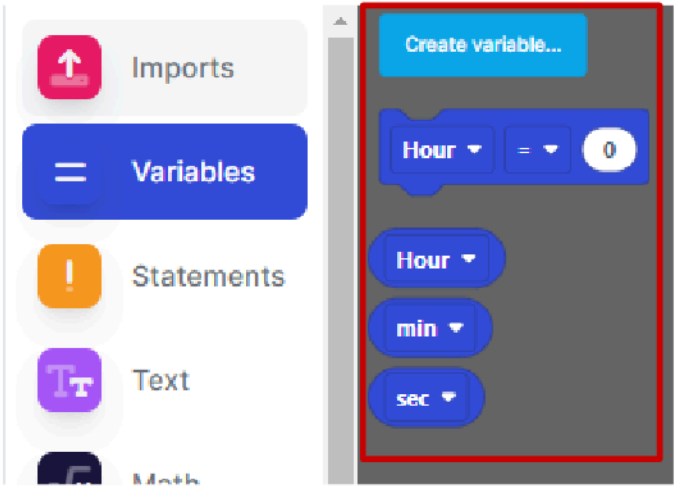


Code

```
1  #Start code here
2  import math
3  import time
4
```

- import Time and Math.

Program Step 2:-

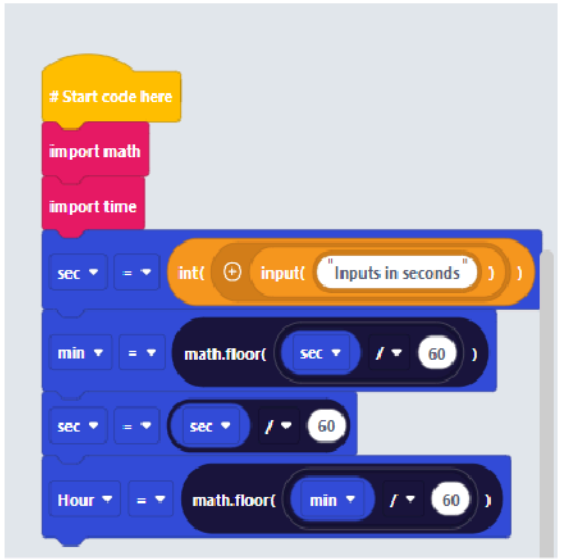


Code

```
1  #Start code here
2  import math
3  import time
4  sec = 0
5  min2 = 0
6  sec = 0
7  Hour = 0
8
```

- Create the variable of sec, min and Hour.

Program Step 3:-



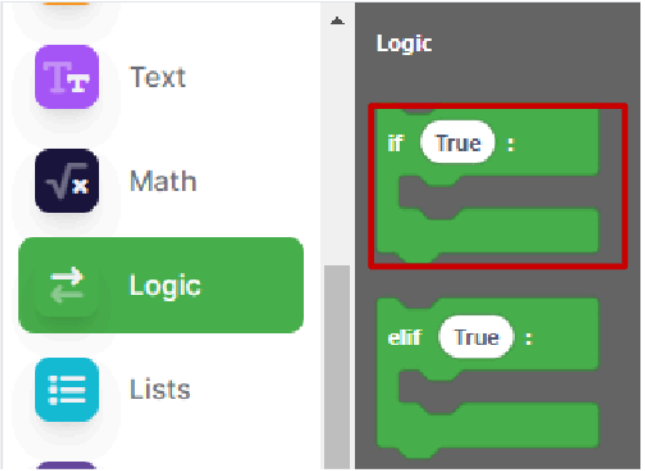
Code

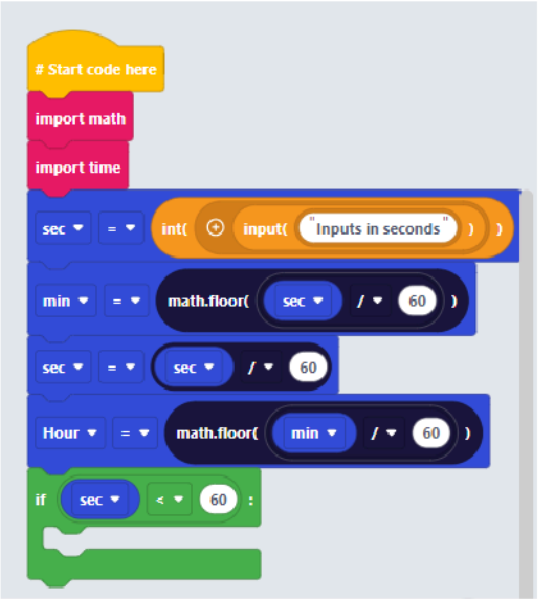
```
#Start code here
import math
import time
sec = int(input("Inputs in seconds"))
min2 = math.floor(sec / 60)
sec = sec / 60
Hour = math.floor(min2 / 60)

```

using the math.floor block from the math library

Program Step 4:-





Code

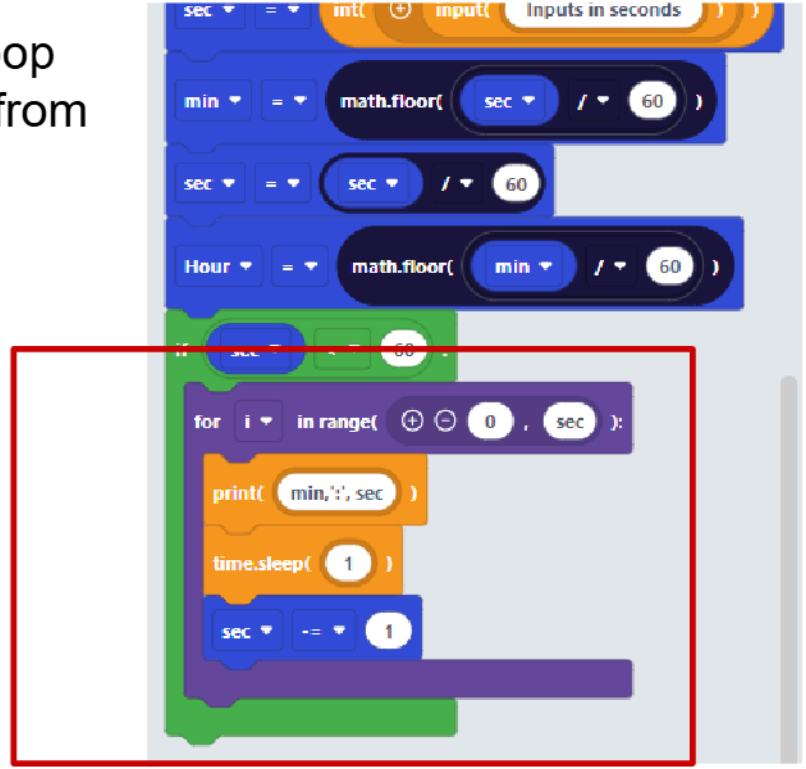
```
#Start code here
import math
import time
sec = int(input("Inputs in seconds"))
min2 = math.floor(sec / 60)
sec = sec / 60
Hour = math.floor(min2 / 60)
if sec < 60:
  pass

```

- take the if statement from the condition with condition where sec lesser than 60

Program Step 4:-

- use the for loop in the range from 0 to sec

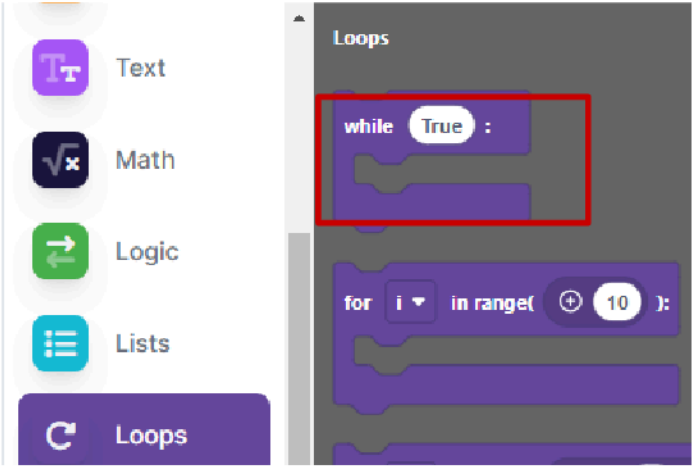


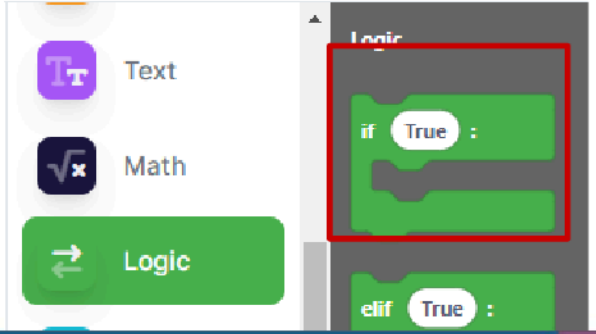
Code

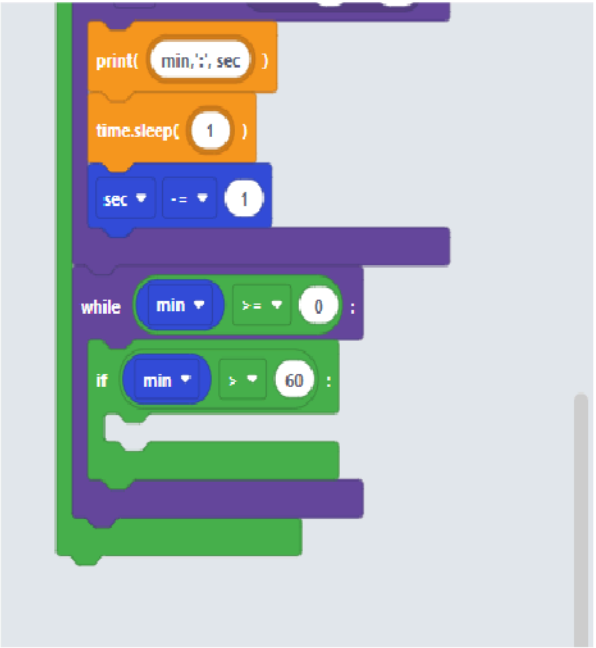
```
#Start code here
import math
import time
sec = int(input("Inputs in seconds"))
min2 = math.floor(sec / 60)
sec = sec / 60
Hour = math.floor(min2 / 60)
if sec < 60:
    for i in range(0, sec):
        print(min,':', sec)
        time.sleep(1)
        sec -= 1

```

Program Step 5:-





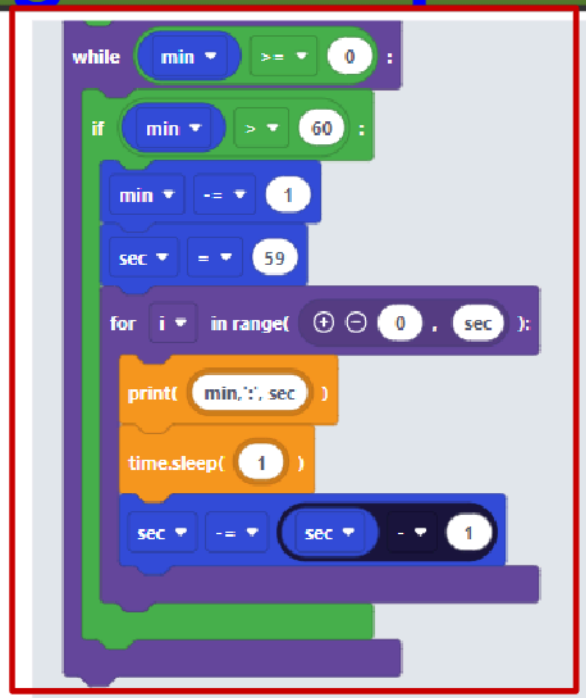



```
#Start code here
import math
import time
sec = int(input("Inputs in seconds"))
min2 = math.floor(sec / 60)
sec = sec / 60
Hour = math.floor(min2 / 60)
if sec < 60:
  for i in range(0, sec):
    print(min,':', sec)
    time.sleep(1)
    sec -= 1
  while min2 >= 0:
    if min2 > 60:
      pass

```

Program Step 6:-

- Repeat the for loop loop as above used in if conditions.

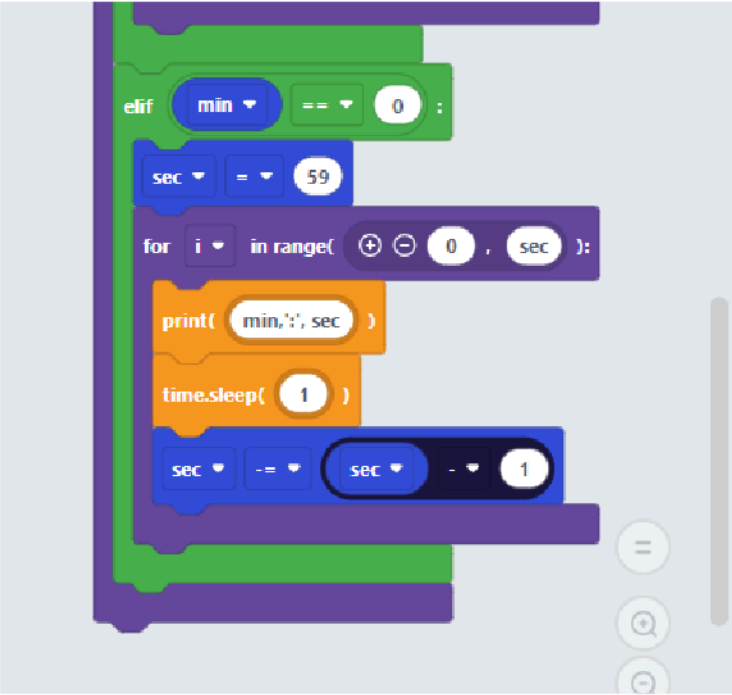


Code

```
#Start code here
import math
import time
sec = int(input("Inputs in seco
min2 = math.floor(sec / 60)
sec = sec / 60
Hour = math.floor(min2 / 60)
if sec < 60:
  for i in range(0, sec):
    print(min,':', sec)
    time.sleep(1)
    sec -= 1
while min2 >= 0:
  if min2 > 60:
    min2 -= 1
    sec = 59
    for i in range(0, sec):
      print(min,':', sec)
      time.sleep(1)
      sec -= sec - 1
```

Program Step 7:-

- Repeat the same condition using the elif block




```
10        print(min,':', sec)
11        time.sleep(1)
12        sec -= 1
13  while min2 >= 0:
14    if min2 > 60:
15        min2 -= 1
16        sec = 59
17        for i in range(0, sec):
18          print(min,':', sec)
19          time.sleep(1)
20          sec -= sec - 1
21    elif min2 == 0:
22        sec = 59
23        for i in range(0, sec):
24          print(min,':', sec)
25          time.sleep(1)
26          sec -= sec - 1
27
```

Syntax

```
#Start code here
import math
import time
sec = int(input("Input in seconds"))
min2 = math.floor(sec / 60)
sec = sec % 60
Hour = math.floor(min2 / 60)
if sec < 60:
  for i in range(0, sec):
    print(min,':' ,sec)
    time.sleep(1)
    sec = sec - 1
min2 -= 1
while min2 >= 0:
  if min2 > 60:
    min2 -= 1
    sec = 59
    for i in range(0, sec):
      print(min,':' ,sec)
      time.sleep(1)
      sec = sec - 1
  elif min2 == 0:
```

```
      sec = sec - 1
  elif min2 == 0:
    sec = 59
    for i in range(0, sec):
      print(min,':' ,sec)
      time.sleep(1)
      sec = sec - 1
  min2 -= 0
print("Time is up")

```

Output

```
Powered by trinket
Input in seconds 10
<built-in function min> : 10
<built-in function min> : 9
<built-in function min> : 8
<built-in function min> : 7
<built-in function min> : 6
<built-in function min> : 5
<built-in function min> : 4
<built-in function min> : 3
<built-in function min> : 2
<built-in function min> : 1
Time is up
```

ACTIVITY SHEETS

Question 1:
Which of the following statements assigns the value 100 to the variable x in Python:

A. Let x=100
B. X<<100
C. x=100
D. X=!100

Question 2:

Which of the following are valid Python variable names:

A. return
B. ver.1.3
C. route466
D. 4square

Question 3: Look at the following code: What type of data is stored in the variable age?
age = 23

A. int
B. float
C. double
D. name

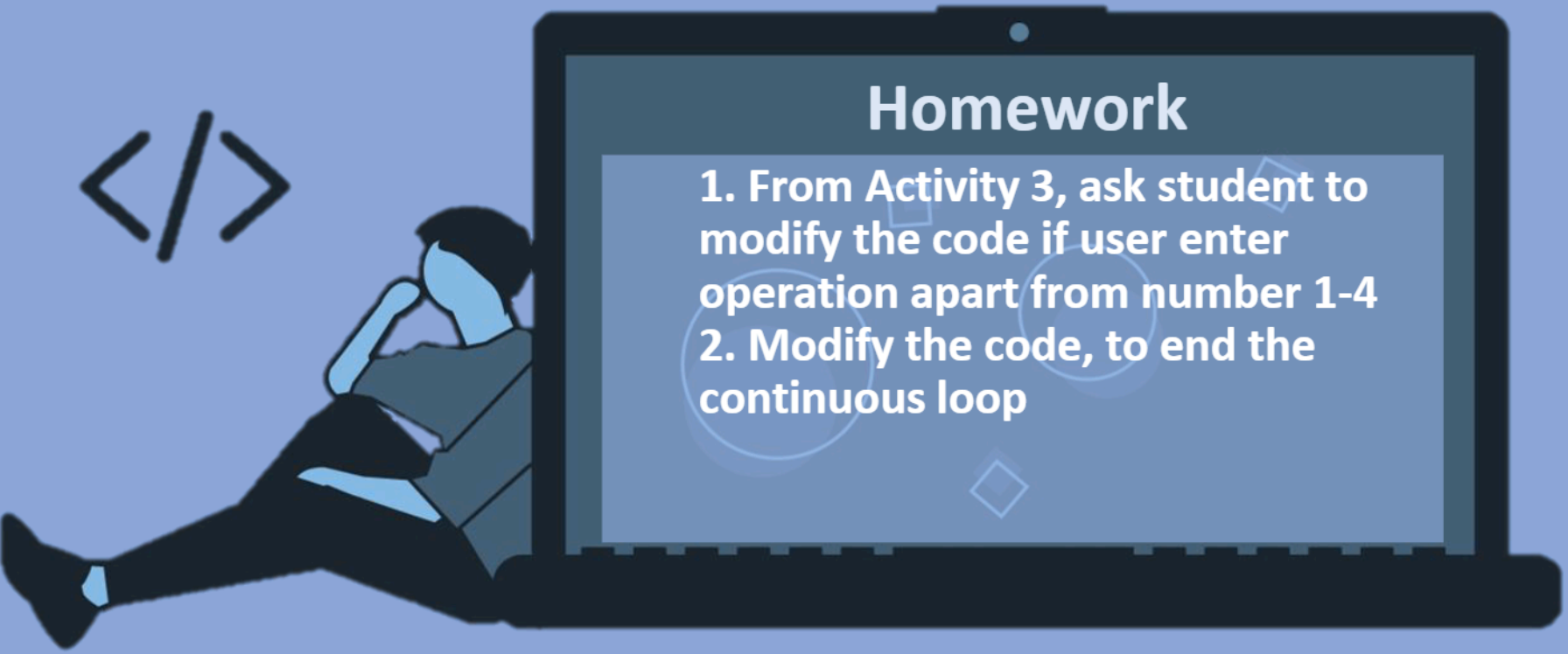
Question 4:

If I want to store my height in a variable, which of the following would be a good variable name in best practice?

A. inch
B. Height
C. adxxcc
D. number

Question 5: Look at the following code:
age = "23"
age = int(age) What does the int() function do to the data in my variable?

A. Does nothing
B. Changes the string to float
C. Changes the number to string
D. Changes the string to integer


Homework
1. From Activity 3, ask student to modify the code if user enter operation apart from number 1-4
2. Modify the code, to end the continuous loop