



SESSION - 7

TIMER

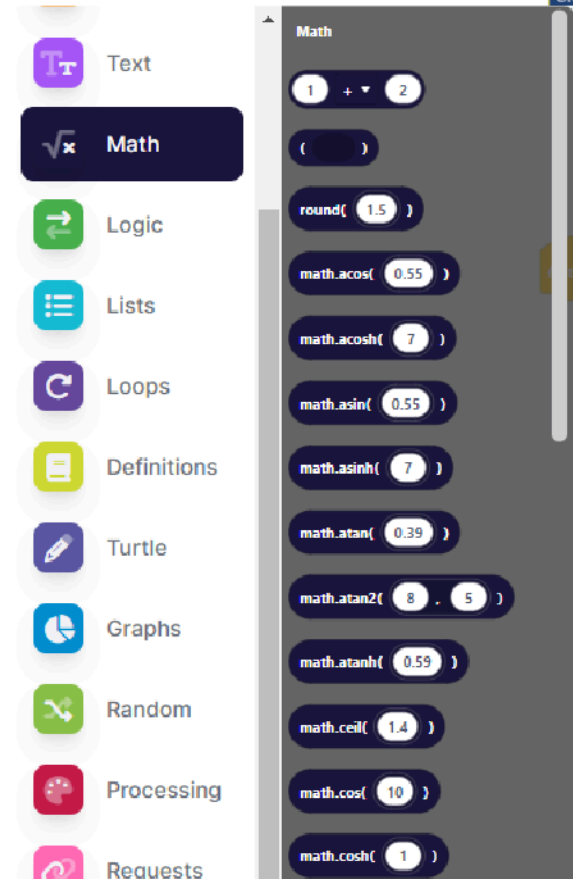


Learning Outcomes:

- **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:-

Imports

Variables

Statements

Text

Imports

import time

import math

import random

Start code here

import math

import time

Code

```

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

```

- import Time and Math.

Program Step 2:-

The screenshot displays a programming interface with a left sidebar containing categories: Imports, Variables, Statements, Text, and Math. The 'Variables' category is selected. The main workspace shows a 'Create variable...' dialog box with a red border, containing a dropdown menu set to 'Hour', an equals sign, and a value of '0'. Below this, three more variable creation blocks are visible for 'Hour', 'min', and 'sec'. To the right, a stack of code blocks is shown, starting with a yellow '# Start code here' block, followed by two pink 'import' blocks for 'math' and 'time', and then four blue assignment blocks for 'sec = 0', 'min = 0', 'sec = 0', and 'Hour = 0'. On the far right, a 'Code' panel displays the corresponding Python 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:-

- Imports
- Variables
- Statements
- Text
- Math

math.exp(65)

math.fabs(-7)

math.factorial(9)

math.floor(1.4)

math.hypot(+ 10 , 5)

math.log(+ 2)

```
# Start code here
import math
import time

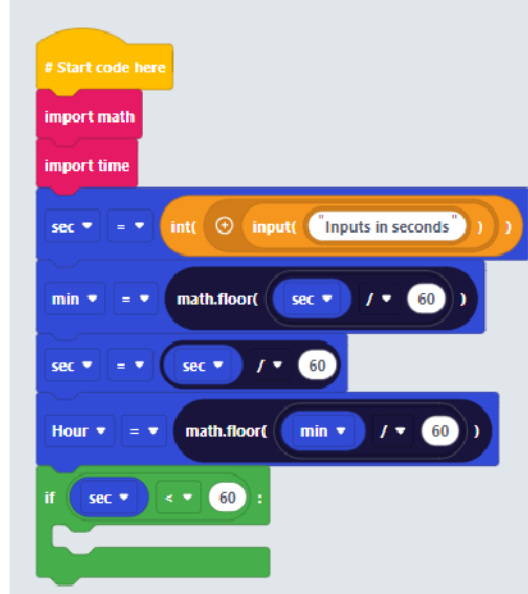
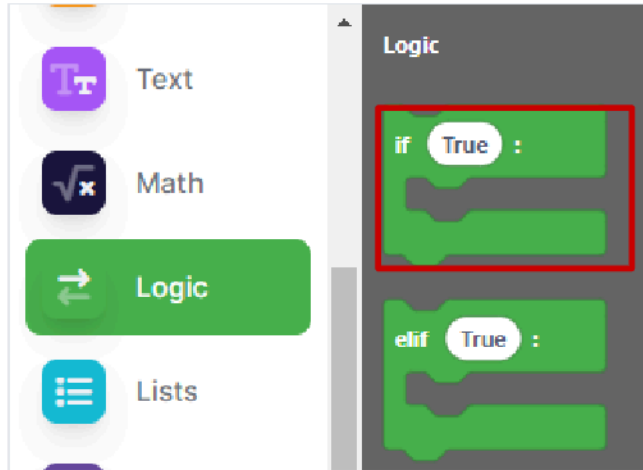
sec = int(input("Inputs in seconds"))
min = math.floor(sec / 60)
sec = sec / 60
Hour = math.floor(min / 60)
```

Code

```
1 #Start code here
2 import math
3 import time
4 sec = int(input("Inputs in seconds"))
5 min2 = math.floor(sec / 60)
6 sec = sec / 60
7 Hour = math.floor(min2 / 60)
8
```

using the math.floor block from the math library

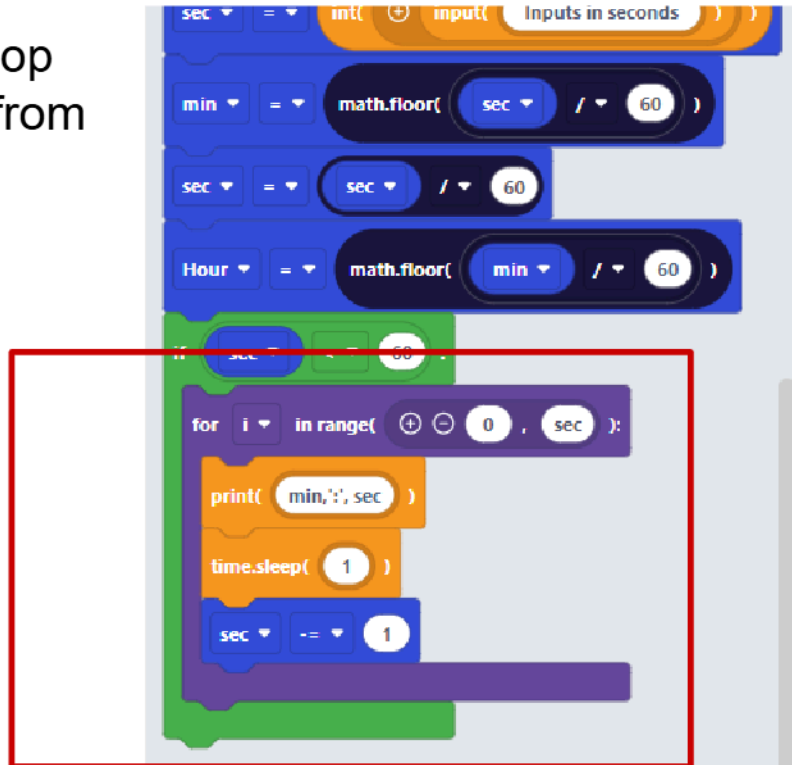
Program Step 4:-



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

Program Step 4:-

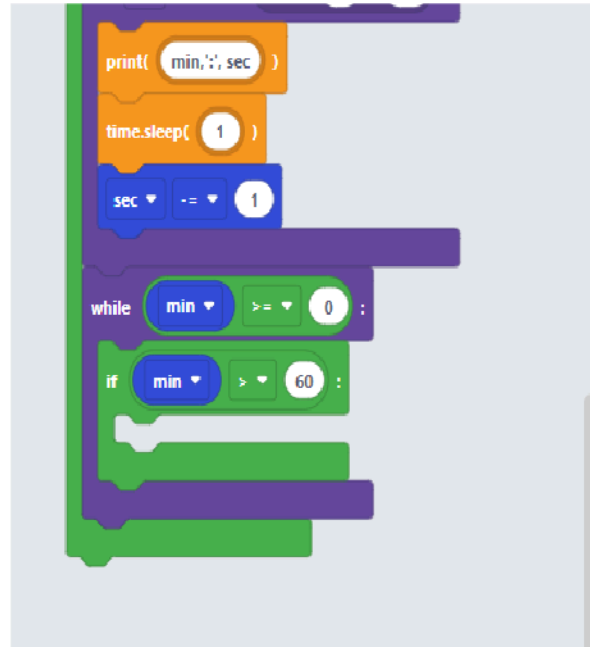
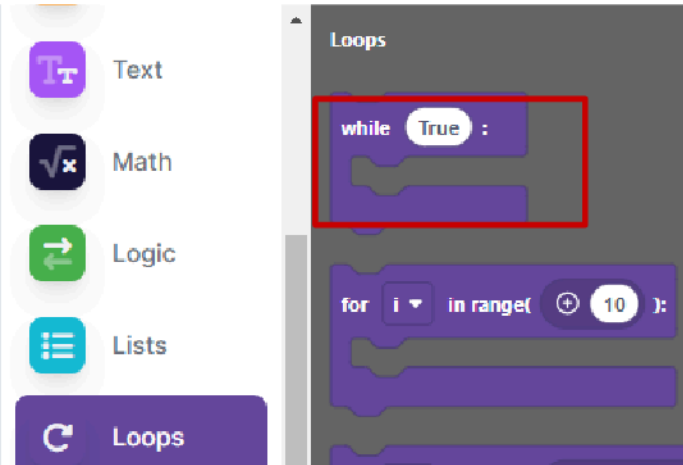
- use the for loop in the range from 0 to sec



Code

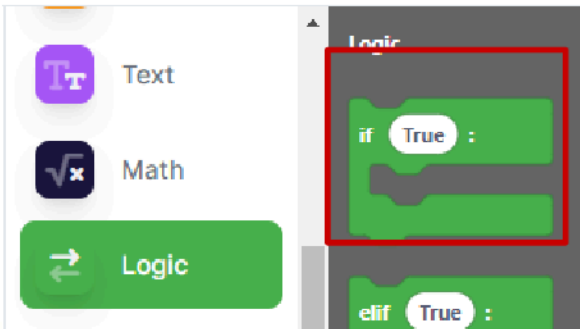
```
1 #Start code here
2 import math
3 import time
4 sec = int(input("Inputs in seconds"))
5 min2 = math.floor(sec / 60)
6 sec = sec / 60
7 Hour = math.floor(min2 / 60)
8 if sec < 60:
9     for i in range(0, sec):
10         print(min,':',sec)
11         time.sleep(1)
12         sec -= 1
13
```

Program Step 5:-



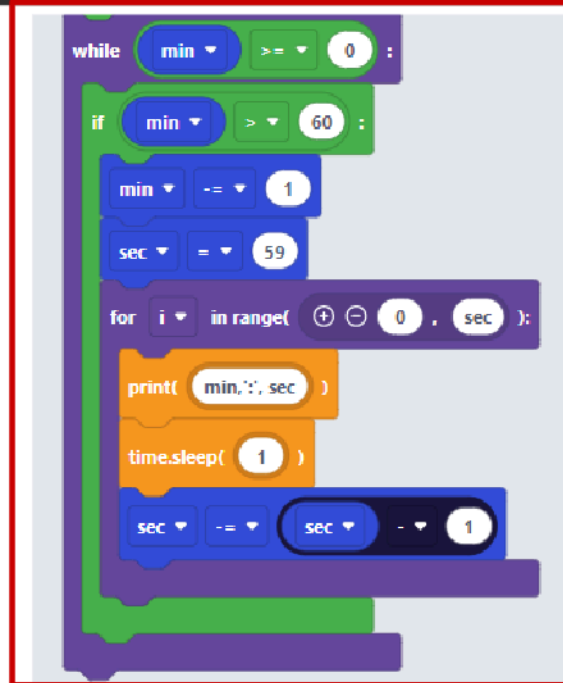
```

1 #Start code here
2 import math
3 import time
4 sec = int(input("Inputs in seconds"))
5 min2 = math.floor(sec / 60)
6 sec = sec / 60
7 Hour = math.floor(min2 / 60)
8 v if sec < 60:
9 v   for i in range(0, sec):
10     print(min,':', sec)
11     time.sleep(1)
12     sec -= 1
13 v   while min2 >= 0:
14 v     if min2 > 60:
15       pass
16
  
```



Program Step 6:-

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

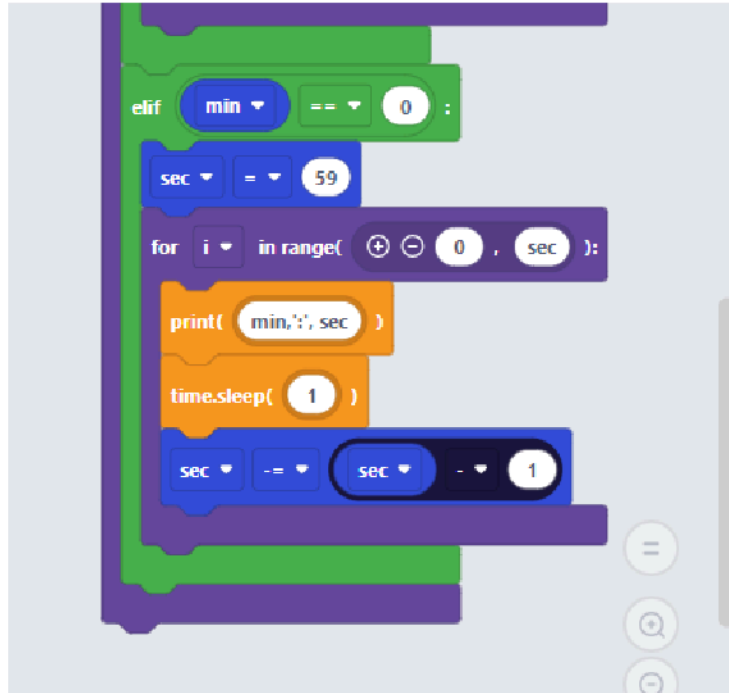


Code

```
1 #Start code here
2 import math
3 import time
4 sec = int(input("Inputs in seco
5 min2 = math.floor(sec / 60)
6 sec = sec / 60
7 Hour = math.floor(min2 / 60)
8 if sec < 60:
9     for i in range(0, sec):
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
```

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

```

1 #Start code here
2 import math
3 import time
4 sec = int(input("Input in seconds"))
5 min2 = math.floor(sec / 60)
6 sec = sec % 60
7 Hour = math.floor(min2 / 60)
8 v if sec < 60:
9 v     for i in range(0, sec):
10         print(min,':' ,sec)
11         time.sleep(1)
12         sec = sec - 1
13 min2 -= 1
14 v while min2 >= 0:
15 v     if min2 > 60:
16         min2 -= 1
17         sec = 59
18 v     for i in range(0, sec):
19         print(min,':' ,sec)
20         time.sleep(1)
21         sec = sec - 1
22 v elif min2 == 0:


```

```

21         sec = sec - 1
22 v elif min2 == 0:
23     sec = 59
24 v     for i in range(0, sec):
25         print(min,':' ,sec)
26         time.sleep(1)
27         sec = sec - 1
28 min2 -= 0
29 print("Time is up")
30

```

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?

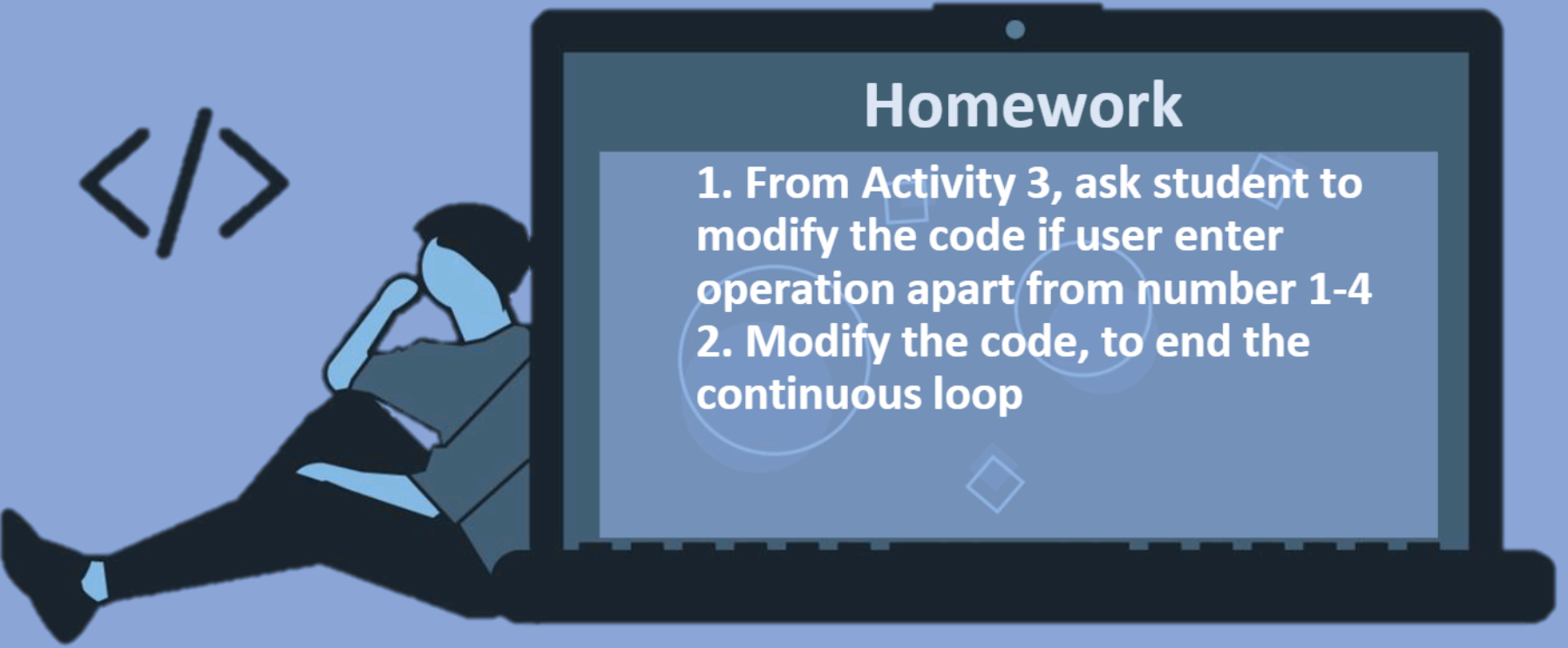
- A. inch
- B. Height
- C. adxxcc
- D. number

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