

In this Application, you will write a program to illustrate the amazing “**FizzBuzz**” phenomenon!

Objectives:

- Make a **while** loop that terminates in two ways
- Define a function that examines numbers for “divisibility”

FizzBuzz

Write a program to print some of the natural numbers (1,2,3, ...), but ...

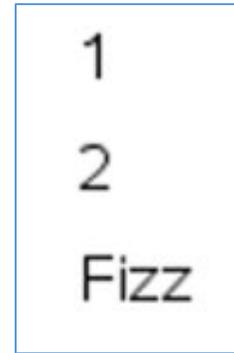
- If the number is divisible by 3, print “Fizz” instead
- If the number is divisible by 5, print “Buzz” instead
- If the number is divisible by both 3 and 5, print “FizzBuzz” instead

Other requirements: The program should end when the escape key is pressed.

“Divisibility” is tested using the % operator (**mod** or remainder).

When **a % b == 0** the *remainder* when **a** is divided by **b** is zero. Thus, **a** is divisible by **b**. Try some examples in the Shell:

```
>>>13%5
3
>>>8%2
0
```

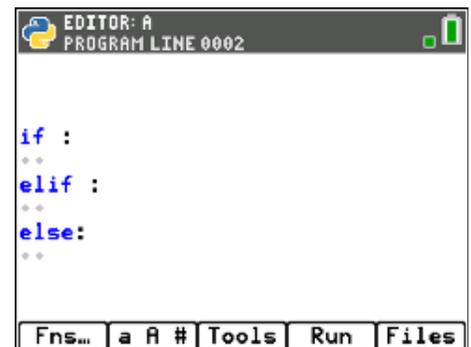


There is one other form of the **if** statement you will find useful:

if <condition1>:
 <>true block1>

elif <condition2>: *there can be many elif blocks*
 <>true block2> **elif** is short for “else if”
 <more elifs?>

else:
 <>false block> this block is processed when none of the others are true.



1. Begin a new Python blank program file. We named it FIZZBUZZ.
#: *It always helps to write a comment at the top of the code explaining the program. You may want to add your name and date here, too.*

You will use the **escape()** function to end the program so add

```
from ti_system import *  
while not escape():
```

which are both found on <Fns...> Modul> **ti_system**.





- Before the **while** loop, set up a variable that represents the counting numbers starting with 1.

```

EDITOR: FIZZBUZZ
PROGRAM LINE 0005
# fizzbuzz program
from ti_system import *
counter=1
while not escape():
..

```

- Use the **if..elif..else** structure found on **<Fns...> Ctl**.

Remember that it works like this:

if *<this is true>*:

<do this>

elif *<this is true>*: (stands for “else if...”)

<do this>

(there may be more **elifs** in here)

else:

<do this>

(when none of the others are true)

```

EDITOR: FIZZBUZZ
Func Ctl Ops List Type I/O Modul
1:if ..
2:if .. else ..
3:if .. elif .. else
4:for i in range(size):
5:for i in range(start,stop):
6:for i in range(strt,stp,step):
7:for i in list:
8:while condition:
9:elif :
0:else:
Esc

```

Caution: Remember to use == when writing a condition, not =. Using the wrong symbol will result in a syntax error: if $x==5$: not if $x=5$:

Using the [test] or <Fns...> Ops menu can help.

- Here is a peek at the **if .. elif .. else** structure, but some information has been omitted, so that you can try to write the code on your own.

The **if** and each **elif** has a *condition* to be met and a code block to be processed when the condition is true. **else**: has no condition and its block will be processed when *none* of the others are true.

counter+=1 is shorthand for **counter = counter + 1**.

Hint: Recall that **A % B** gives the *remainder* when A is divided by B.so, for example, if **counter % 5 == 0** then the counter is divisible by 5 and “Buzz” will be printed.

```

while not escape():
++if counter :
++++print(
++elif counter :
++++print(
++else:
++++print(
++counter+=1
++

```

The conditions and the print(statements in the image are incomplete.

10 Minutes of Code: Python

TI-84 PLUS CE PYTHON

STUDENT ACTIVITY

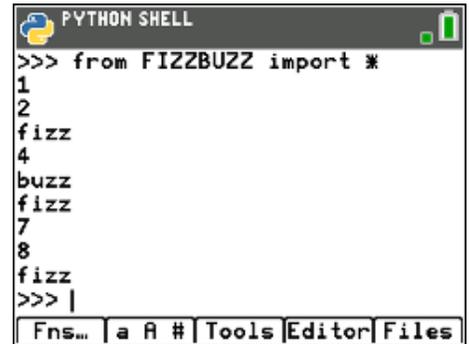
5. A run of the program should look something like the image to the right. If your numbers go by too fast, use a **sleep()** function in the loop to slow things down a bit.

sleep() is in the **time** module so be sure to include:

from time import *

at the top of your code.

What is the first number replaced by “fizzbuzz”?



```
PYTHON SHELL
>>> from FIZZBUZZ import *
1
2
fizz
4
buzz
fizz
7
8
fizz
>>> |
Fns... | a A # | Tools | Editor | Files
```