

# Example - Count the number of 'a's

Write a program that outputs the number of 'a's in it

How can we use an accumulator pattern to count the number of 'a's?

What should the variable be?

What should its initial value be?

How many times should we loop?

How should we update the accumulator each iteration?

What steps does the program need to do?

Write them on paper first!

```
$ python3 account.py
Enter a word: Carrot
Number of a's in Carrot: 1

$ python account.py
Enter a word: mouse
Number of a's in mouse: 0
```

# Algorithm

Ask the user for a word

Initialize an accumulator to count the a's

Repeat for each character in the word

    if the character an 'a':

        increment the accumulator

Print the accumulator

```
account.py -- Atom
File Edit View Selection Find Packages Help
test.py requestChar.py stringLoop.py charLoop.py square.py doubleletter.py account.py quit.py
1 """
2 Write a program that outputs the number of 'a's in
3 a given word
4 """
5
6 def main():
7     word = input("Enter a word: ")
8     numCharacters = len(word)
9     numAs = 0
10    for i in range(numCharacters):
11        currentCharacter = word[i]
12        if currentCharacter == "a":
13            numAs = numAs + 1
14
15    print("Number of a's in %s: %d"%(word,numAs))
16    main()
17
account.py 9:13 LF N UTF-8 Python 0 files
```

# Tracing the program execution

numAs = 0

word = "cats"

Iteration	i	word[i]	currentCharacter == "a"	numAs
1	0	"c"	False	0
2	1	"a"	True	1
3	2	"t"	False	1
4	3	"s"	False	1

# Exercise - Check for 'a'

Write a program that outputs whether a given word has the letter 'a' in it

## Algorithm

Ask user for a word

Define a boolean flag variable

What should its initial value be?

Loop over word

If you see an 'a', set flag to True

Output result based on the flag

```
$ python3 acheck.py  
Enter a word: Carrot  
Carrot has an a in it.
```

```
$ python acheck.py  
Enter a word: mouse  
mouse does not have an a in it.
```

# Exercise - Fizzbang

Write a program that loops through the integers 1 to 25 and prints the following:

- if the number is divisible by 3, prints Fizz
- if the number is divisible by 5, prints Bang
- if the number is divisible by both 3 and 5, prints FizzBang
- otherwise prints the number

```
$ python3 fizzbang.py
1
2
Fizz
4
Bang
Fizz
7
8
Fizz
Bang
11
Fizz
13
14
FizzBang
.
.
.
```