LEARN CODING

ale66

github.com/ale66/learn-coding

AUXILIARY VARIABLES

TOPICS

- counters
- accumulators
- trailers

EXERCISE, B: SOLUTION

Print available fruits but stop as soon as you find bananas

```
1 fruits = ['apple', 'banana', 'cherry', 'blackcurrant']
```

should only print `apple`

```
1 for f in fruits:
2
3   if f == 'banana':
4     break
5
6   else:
7     print(f)
```

COUNTERS

A variable, normally of type integer, that is incremented as we *parse* an iterable

Example: compute list size/lenght

```
1  l = 0
2
3  for f in fruits:
4    l = l +1
5
6  print(f'The lenght of list {fruits} is {l}')
```

Syntax: `l += 1` is shorthand for `l = l + 1`

ANONYMOUS VARIABLES

In fact, we are not operating on f

it can be omitted in favour of an *anonymous variable* _

```
1 l = 0
2
3 for _ in fruits:
4   l += 1
5
6 print(f'The lenght of list {fruits} is {l}')
```

ACCUMULATORS

A variable to record quantities seen during the iteration

Example: compute the average of an arbitrary list of positive numbers

```
 1 l = 0
 2 accumulator = 0
 3
 4 for val in mylist:
 5   l += 1
 6   accumulator += val
 7
 8 average =  accumulator / l # this will be a float
 9
10 print(f'There are {l} values and their average is {average}')
```

TRAILING VARIABLES

A variable that ‘remembers’ past values during an iteration

Example: record the biggest temperature increase ever seen in the list

```
 1 maxincrease = 0
 2
 3 trailer = temperaturelist[0]
 4
 5 for temp in temperaturelist:
 6
 7   current_increase = temp - trailer
 8
 9   if current_increase > maxincrease:
10     maxincrease = current_increase # a new max is found
11
12   # we are finished with this value, assign it to the trailer
13   trailer = temp
14
15 print(f'The maximum day-on-day increase has been {maxincrease} degrees')
```

PROGRAMME COMPREHENSION

To grasp how trailers work, put extra `print()` commands to see what the variables contain

Rename variables:

```
1  yesterday = temperaturelist[0]
2
3  for today in temperaturelist:
4
5    current_increase = today - yesterday
6
7    ...
8
9    yesterday =  today
```

QUIZ

Complete code for searching a given number in a sequence

```
1  KEY = 22
2
3  mylist = [1, 6, 3, 9, 10]
4
5  ___ item ___ mylist:
6    if ___ == ___:
7      found = True
8    else:
9      found = False
```