Loop-else Clauses

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Control Flow Structures

If-else

```
if some_condition:
    do_something()
else:
    do_this_instead()
```

Loop-else

```
while some_condition:
    do_something()
else:
    what()  # ?!
```

The `while...else` Construct

I would not have this feature at all if I had to do it over.

Guido van Rossum

Python-ideas mailing list
(2009)

Photo: Jason E. Kaplan

I gave the ... example of a program for which the capabilities of while and if statements are inadequate

Donald Knuth

Structured Programming with
go to Statements (1974)
Computing Surveys. ACM.

Photo: Dasha Slobozhanina CC-BY

The `while … else` Construct

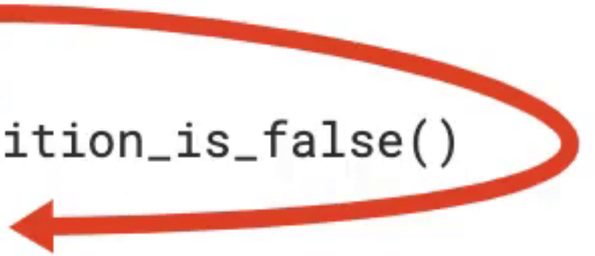
```
while condition:
    flag = execute_condition_is_true()
    if flag:
        break

if not condition:
    execute_condition_is_false()
```

while … if

An independent if clause with negated condition can prevent execution when breaking

```
while condition:
    flag = execute_condition_is_true()
    if flag:
        break
else:  # nobreak
    execute_condition_is_false()
```



while … if

Allows us to avoid the redundant test

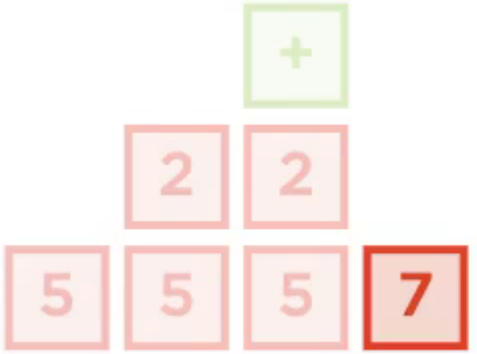
Assist readers of your code with a helpful comment

Stack Evaluation Demo

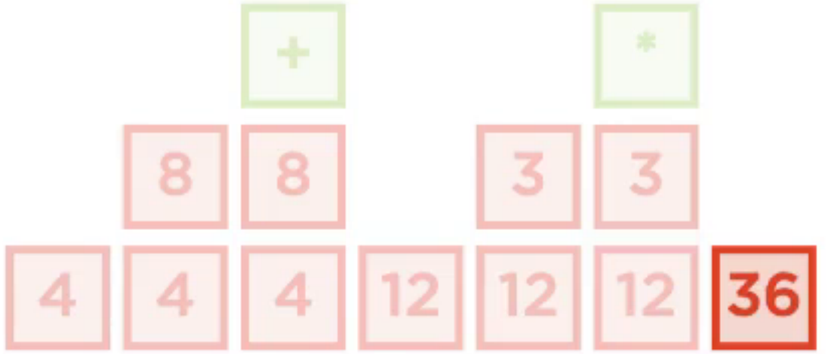
Using `while … else` in practice

Evaluating stack programs

infix	5 + 2	(4 + 8) * 3
postfix	5 2 +	4 8 + 3 *



stack evolution →



stack evolution →

evaluator.py

```
27                program.append(result)
28                pending.clear()
29            else:
30                pending.append(item)
31        else:  # nobreak
32            print("Program successful.")
33            print("Result: ", pending)
34
35        print("Finished")
36
37
38    if __name__ == "__main__":
39        import operator
40
41        program = list(reversed((
42            "# A short stack program to add and",
43            "# and multiply some constants",
44            5
```

execute() › else

Run: evaluator

```
/Users/rjs/.virtualenvs/evaluator/bin/python /Users/rjs/visning-servers/core-python-advanced-flow-control/build/build/ev
Program successful.
Result:  [21]
Finished

Process finished with exit code 0
```