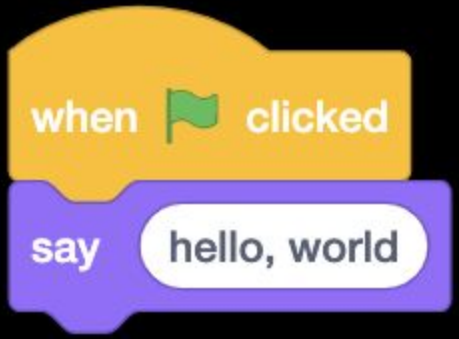
This is CS50


when clicked
say
hello, world

```c
#include <stdio.h>

int main(void)
{
    printf("hello, world\n");
}
```

```
print("hello, world")
```

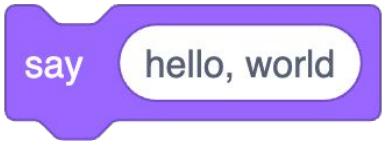
```
make hello

./hello
```

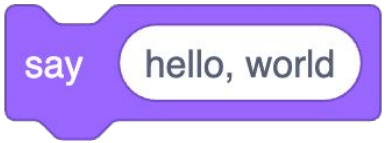
```
clang -o hello hello.c -lcs50

./hello
```

```
python hello.py
```

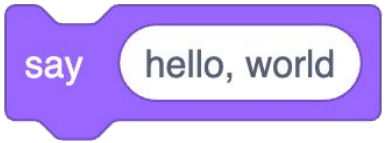
compiled, interpreted

functions


say
hello, world




```
printf("hello, world\n");
```




```
print("hello, world")
```

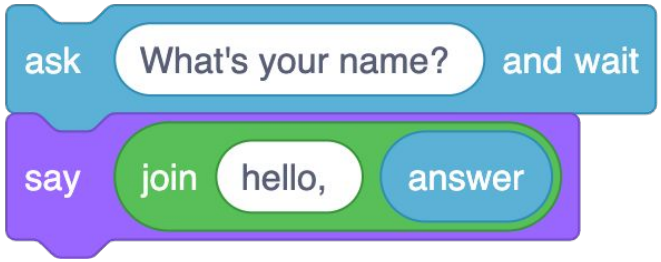
libraries

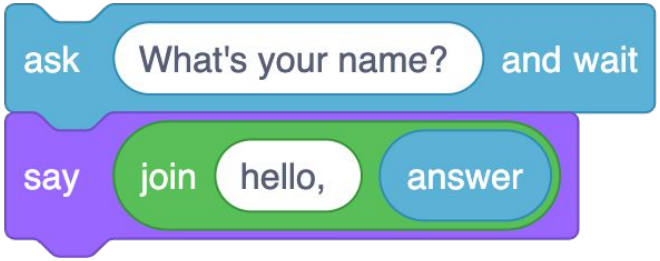
modules, packages

```
#include <cs50.h>
```

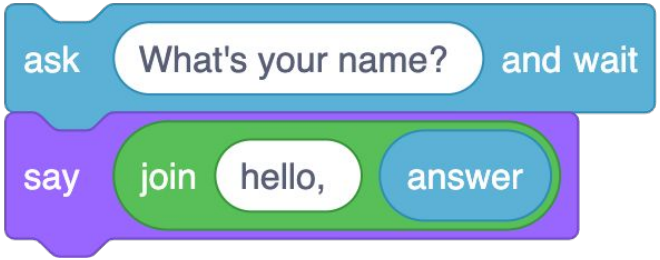
```
import cs50
```

```
from cs50 import get_string
```

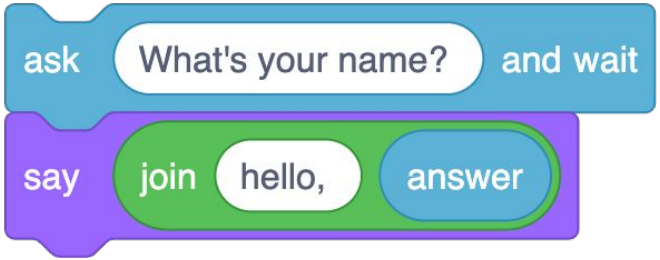

ask
What's your name?
and wait
say
join
hello,
answer



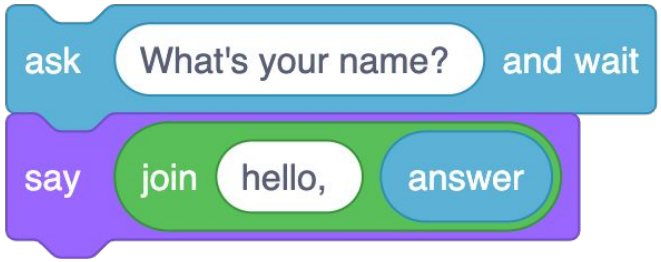

```
string answer = get_string("What's your name? ");
printf("hello, %s\n", answer);
```



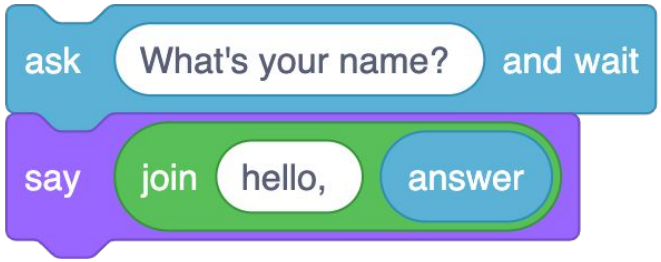

```
answer = get_string("What's your name? ")
print("hello, " + answer)
```




```
answer = get_string("What's your name? ")
print("hello,", answer)
```




```
answer = get_string("What's your name? ")
print(f"hello, {answer}")
```




```
answer = input("What's your name? ")
print(f"hello, {answer}")
```

positional parameters

named parameters

docs.python.org

docs.python.org/3/library/functions.html

https://docs.python.org/3/library/functions.html#print

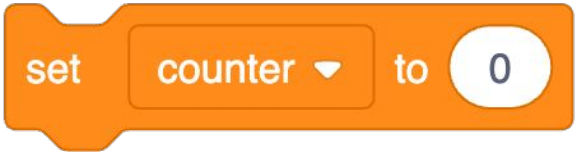
```
print(*objects, sep=' ', end='\n', file=None, flush=False)
```

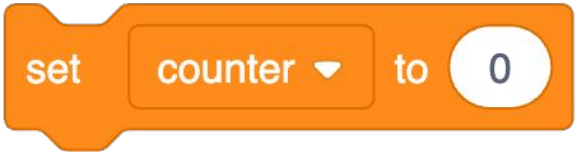
```
print(*objects, sep=' ', end='\n', file=None, flush=False)
```

```
print(*objects, sep=' ', end='\n', file=None, flush=False)
```

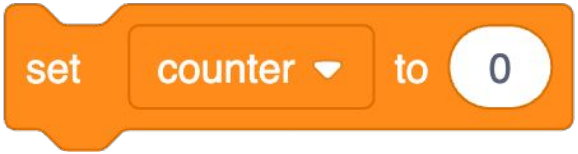
```
print(*objects, sep=' ', end='\n', file=None, flush=False)
```

variables

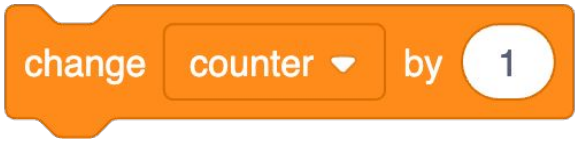

set
counter
to
0

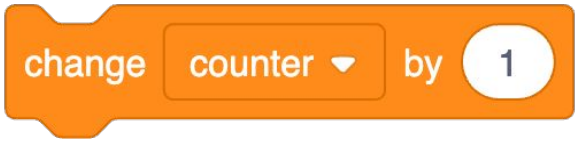



```
int counter = 0;
```

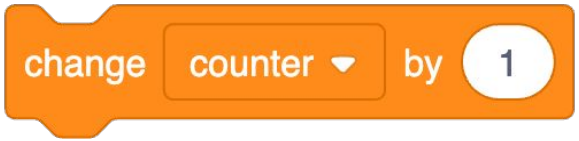



```
counter = 0
```

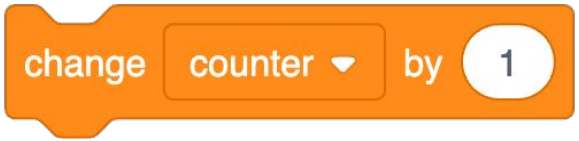

change
counter
by
1




```
counter = counter + 1;
```




```
counter = counter + 1
```




```
counter += 1
```

types

```
bool

char

double

float

int

long

string

...
```

```
bool



float
int


str
...
```

range

list

tuple

dict

set

...

```
get_char

get_double

get_float

get_int

get_long

get_string

...
```

```
get_float

get_int


get_string
```

```
from cs50 import get_float
from cs50 import get_int
from cs50 import get_string
```

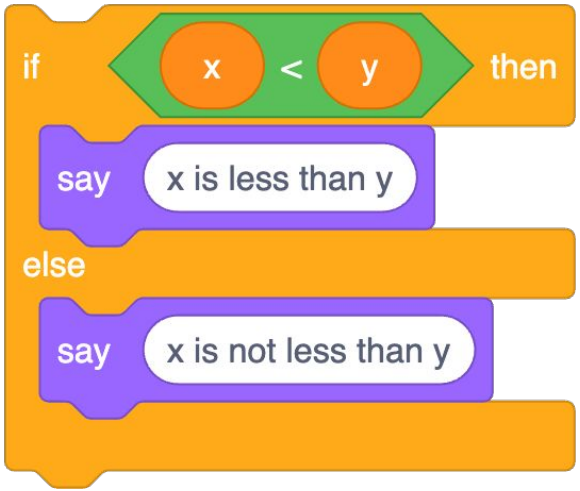
```
from cs50 import get_float, get_int, get_string
```

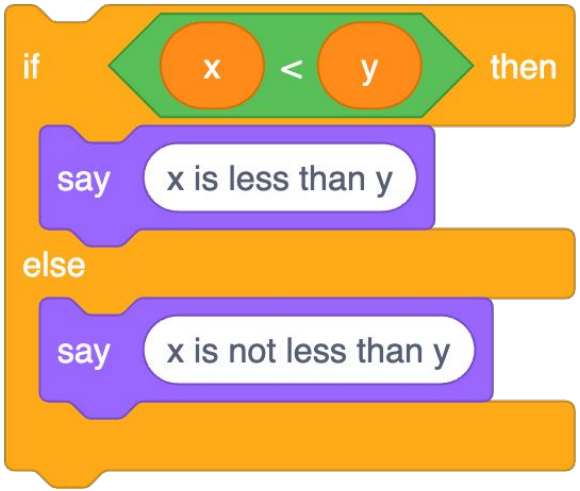
conditionals


if
x
<
y
then
say
x is less than y

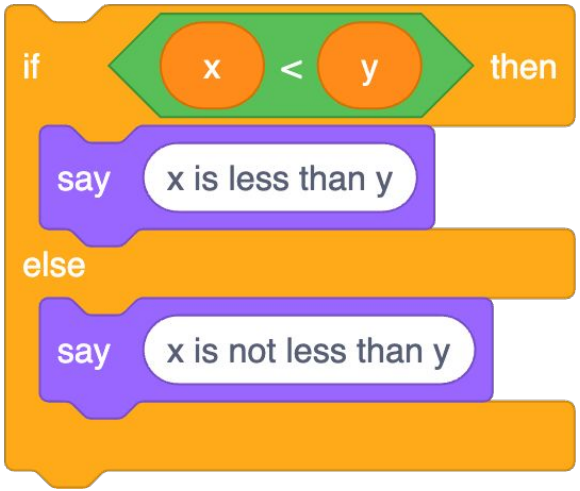

```
if (x < y)
{
    printf("x is less than y\n");
}
```


```
if x < y:
    print("x is less than y")
```

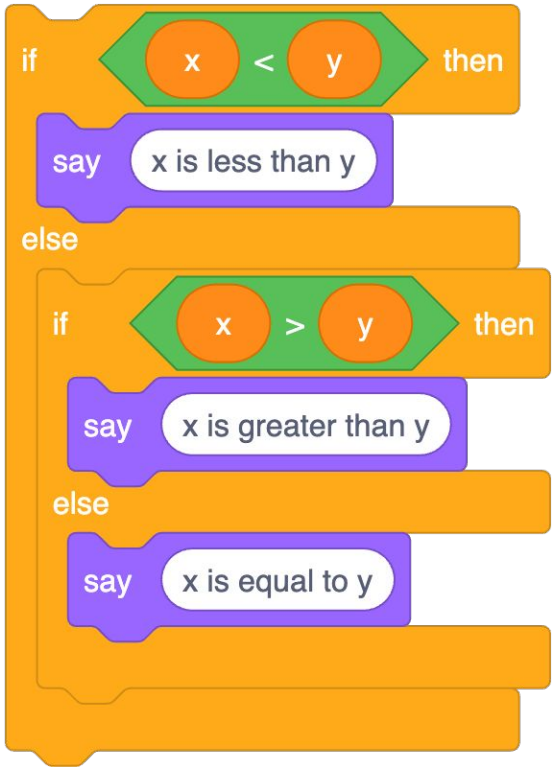

if
x
<
y
then
say
x is less than y
else
say
x is not less than y

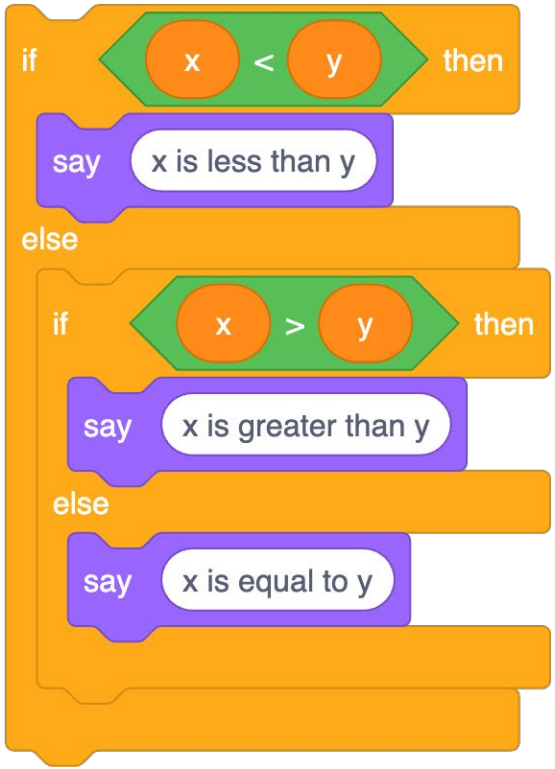



```
if (x < y)
{
    printf("x is less than y\n");
}
else
{
    printf("x is not less than y\n");
}
```

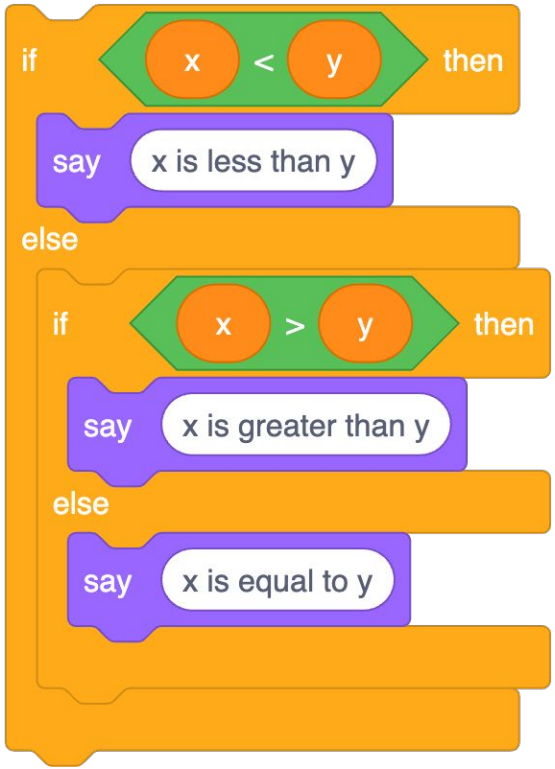



```
if x < y:
    print("x is less than y")
else:
    print("x is not less than y")
```


if
x
<
y
then
say
x is less than y
else
if
x
>
y
then
say
x is greater than y
else
say
x is equal to y




```
if (x < y)
{
    printf("x is less than y\n");
}
else if (x > y)
{
    printf("x is greater than y\n");
}
else
{
    printf("x is equal to y\n");
}
```




```
if x < y:
    print("x is less than y")
elif x > y:
    print("x is greater than y")
else:
    print("x is equal to y")
```

str

object-oriented programming

OOP

docs.python.org/3/library/stdtypes.html#string-methods

loops


repeat
3
say
meow


```
int i = 0;
while (i < 3)
{
    printf("meow\n");
    i++;
}
```


```
i = 0
while i < 3:
    print("meow")
    i += 1
```


repeat
3
say
meow


```
for (int i = 0; i < 3; i++)
{
    printf("meow\n");
}
```


```
for i in [0, 1, 2]:
    print("meow")
```


```
for i in range(3):
    print("meow")
```


```
for _ in range(3):
    print("meow")
```


GOOD SOURCE OF
VITAMIN C
GLUTEN FREE
48
ROLLS
FRUIT BY THE
Foot
™ FRUIT
FLAVORED
SNACKS
BERRY TIE-DYE™
FLAVORED WITH OTHER NATURAL FLAVORS
STRAWBERRY TIE-DYE™
FLAVORED WITH OTHER NATURAL FLAVORS
ENLARGED TO
SHOW DETAIL
48 - 0.75 OZ (21g) ROLLS
NET WT 2 LB 4 OZ (36 OZ) (1.02kg)
PER ROLL
80 CALORIES
0.5g SAT FAT 3% DV
50mg SODIUM 2% DV
9g ADDED SUGARS 17% DV


forever
say
meow


```
while (true)
{
    printf("meow\n");
}
```

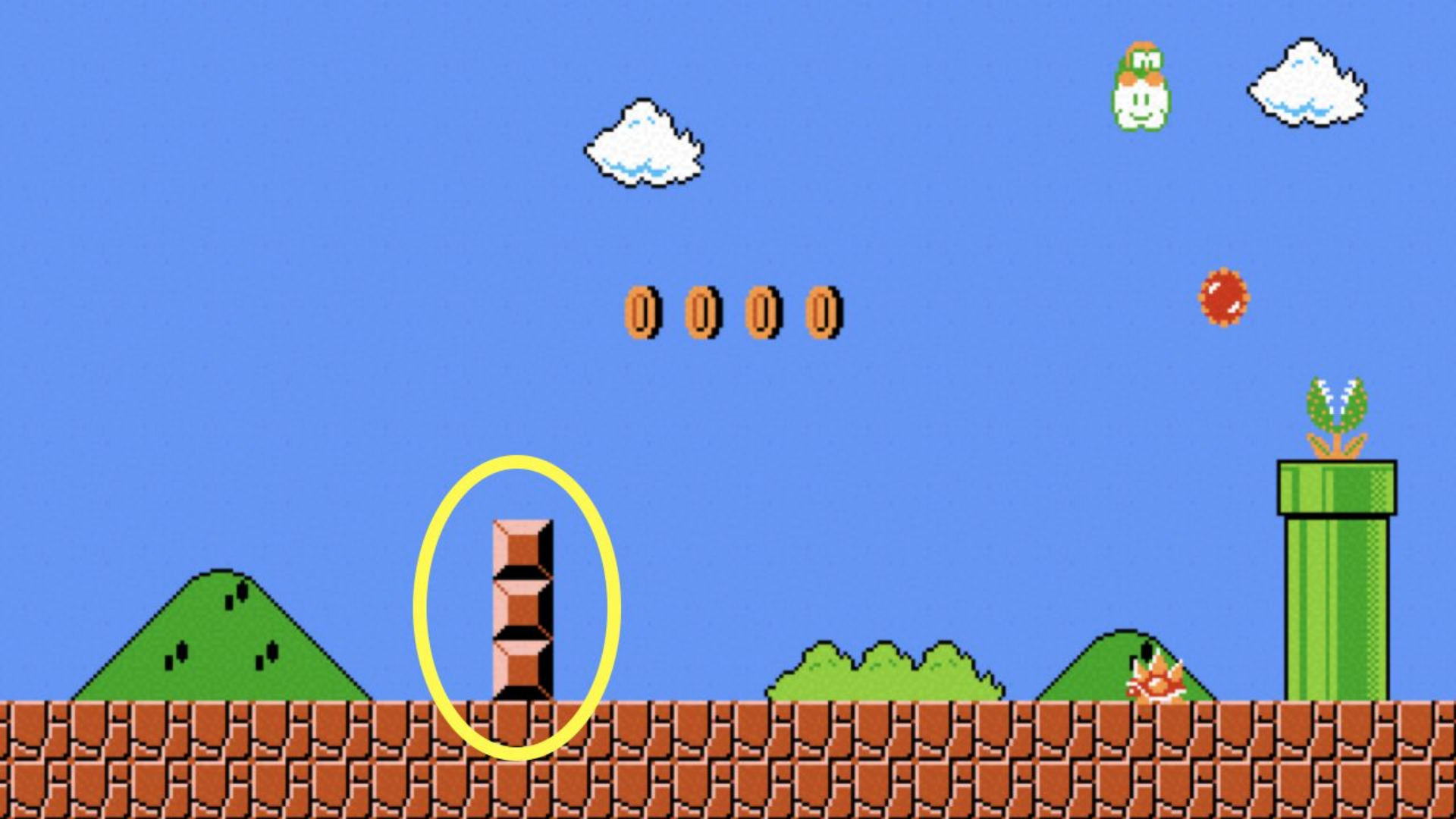

```
while True:
    print("meow")
```

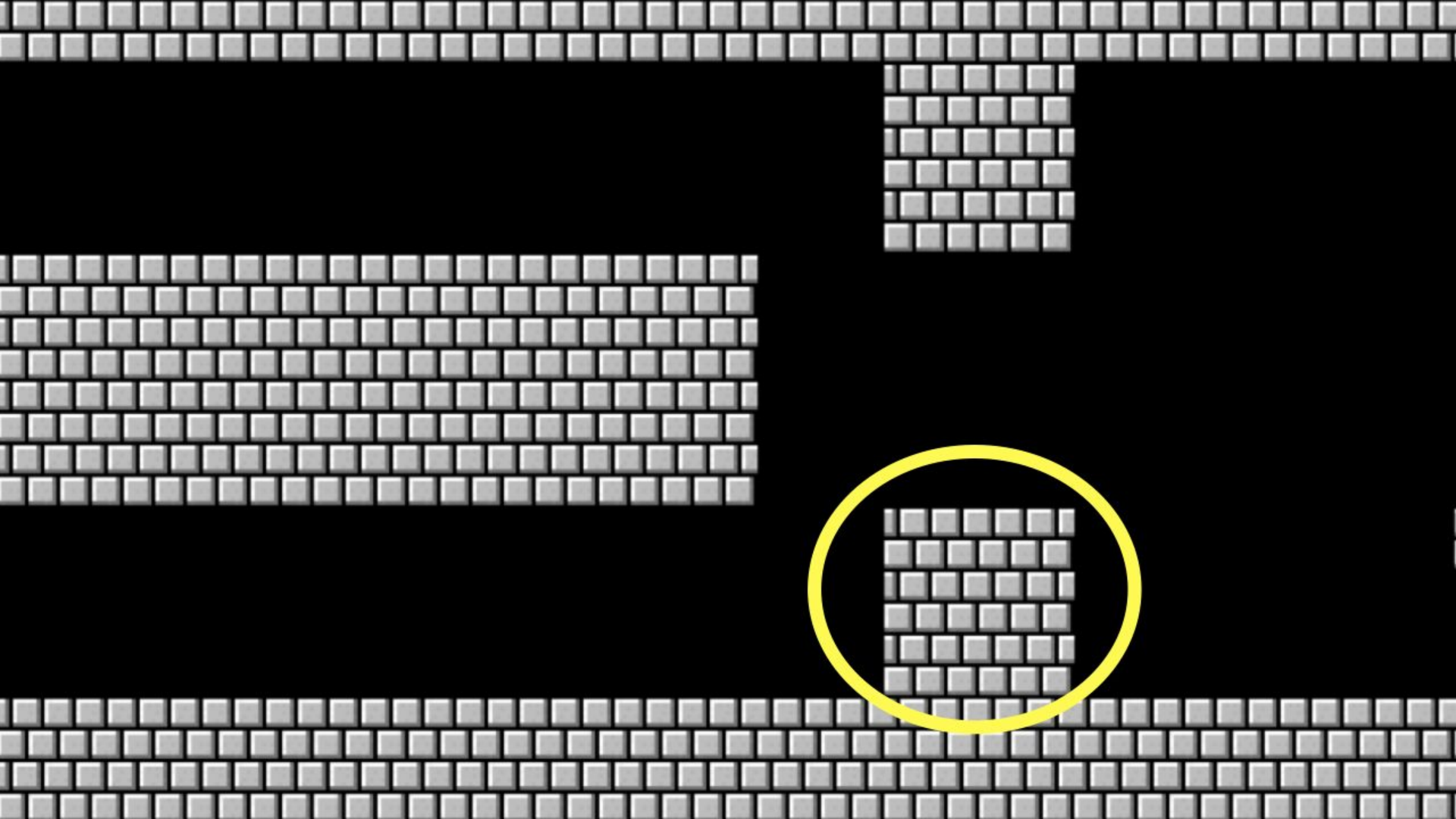
truncation

floating-point imprecision

integer overflow

exceptions





list

docs.python.org/3/library/stdtypes.html#sequence-types-list-tuple-range

len

docs.python.org/3/library/functions.html#len

dict

key	value

docs.python.org/3/library/stdtypes.html#mapping-types-dict

sys

docs.python.org/3/library/sys.html

csv

docs.python.org/3/library/csv.html

pip

This is CS50