

# Herzlich Willkommen bei Inf-Einf-B Woche 6.

Heute sehen wir uns **Python** an. Dies wird in unserem Kurs die *einzig*e Vorlesung sein, in der wir Python an sich behandeln.

Am 6.1.25 findet keine Vorlesung statt, aber es gibt Übungen und Shorts zu weiterführenden Konstrukten von Python. Nächste Vorlesung: 13.1.25 zu HTML/CSS/JavaScript.

An dieser Stelle weichen wir von CS50 ab – einige Inhalte gibt es nur in den Shorts und in den Übungen, aber nicht hier in der Vorlesung.

Erste Shorts sind morgen online, weitere folgen diese Woche und Anfang des neuen Jahres.

Übungen zeigen erst, wie bereits bekannte Aufgaben aus C in Python gelöst werden. Darauf folgen komplexere Aufgaben u.a. zu objektorientierter Programmierung, die mehr Eigeninitiative erfordern – auf Shorts warten und erst diese anschauen!

Langsam auch relevant: **Ideen für Abschlussprojekt** erarbeiten und gerne mit mir oder Tutoren besprechen.

Interesse an Hackathon am 31.1.25?

Vorstellung auf Messe am 3.2.25.

**This is CS50**

Dies ist Inf-Einf-B.



```
#include <stdio.h>

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

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

```
make hello
```

```
./hello
```

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

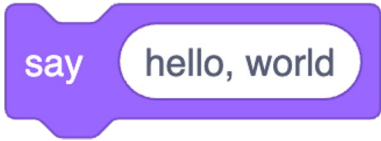
```
./hello
```

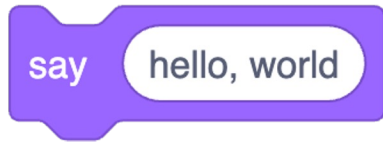
```
python hello.py
```



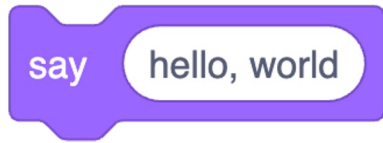
# Funktionen







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



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

# Bibliotheken

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

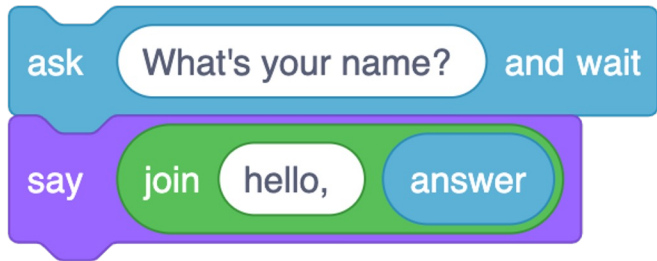
```
import cs50
```



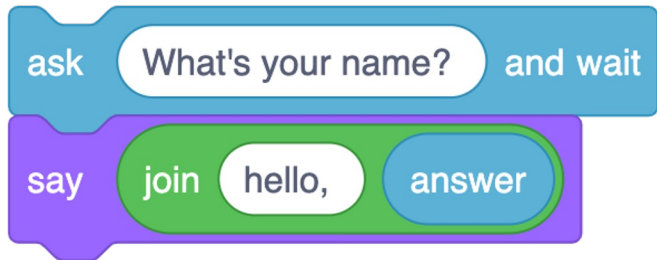
```
from cs50 import get_string
```

ask What's your name? and wait

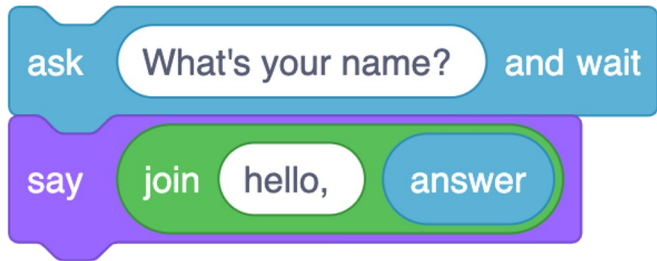
say join hello, answer



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

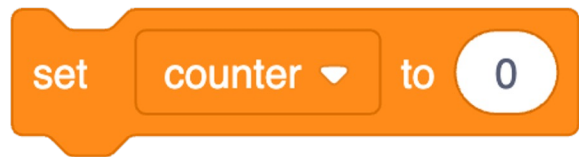


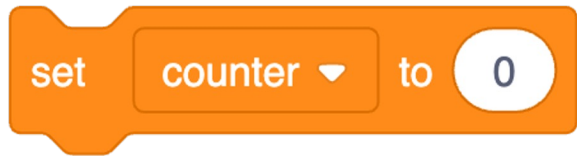
```
answer = get_string("What's your name? ")  
print(f"hello, {answer}")
```



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

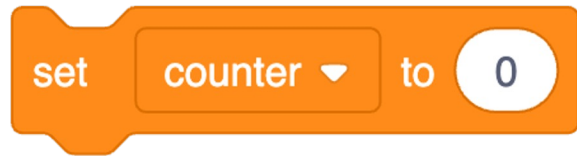
Variablen





```
int counter = 0;
```





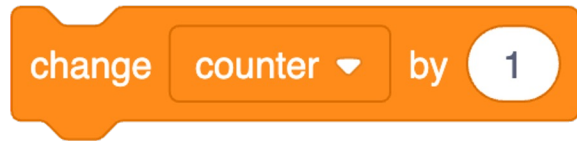
```
counter = 0
```

change

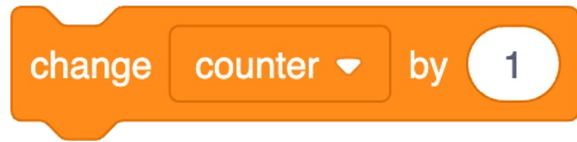
counter ▼

by

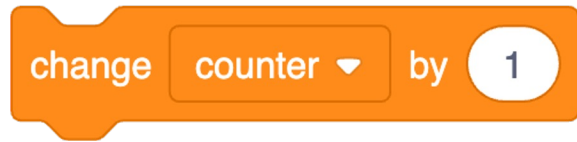
1



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



```
counter = counter + 1
```



```
counter += 1
```

# Datentypen

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
```

# Bedingte Anweisungen





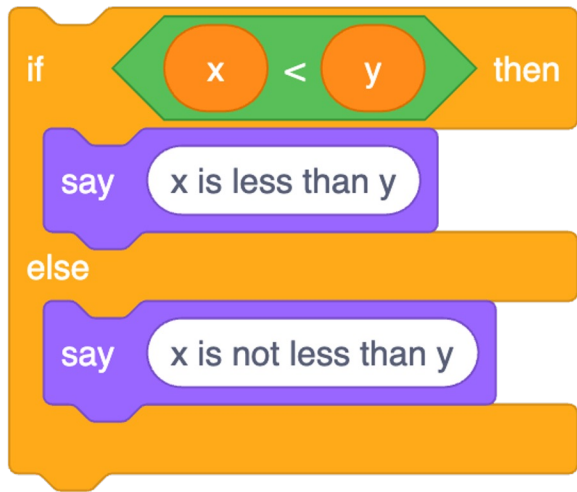
```
if (x < y)
{
    printf("x is less than y\n");
}
```



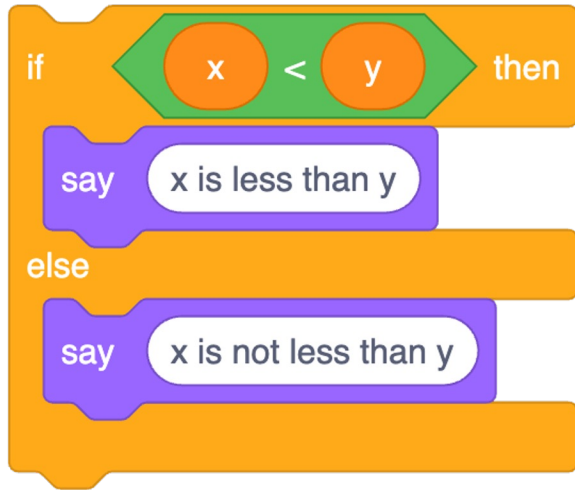


```
if x < y:  
    print("x is less than y")
```

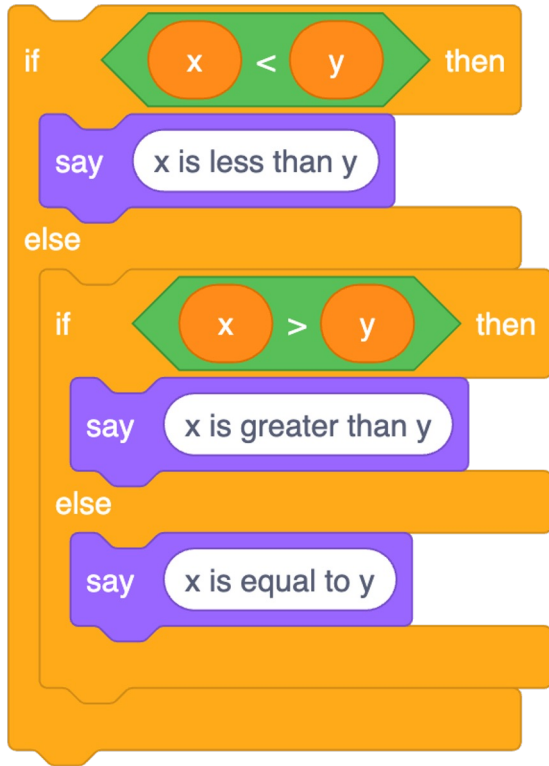


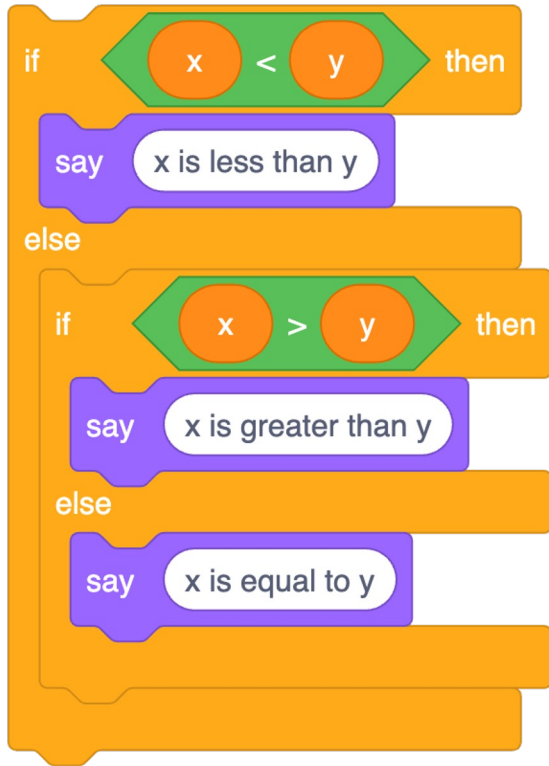


```
if (x < y)
{
    printf("x is less than y\n");
}
else
{
    printf("x is not less than y\n");
}
```

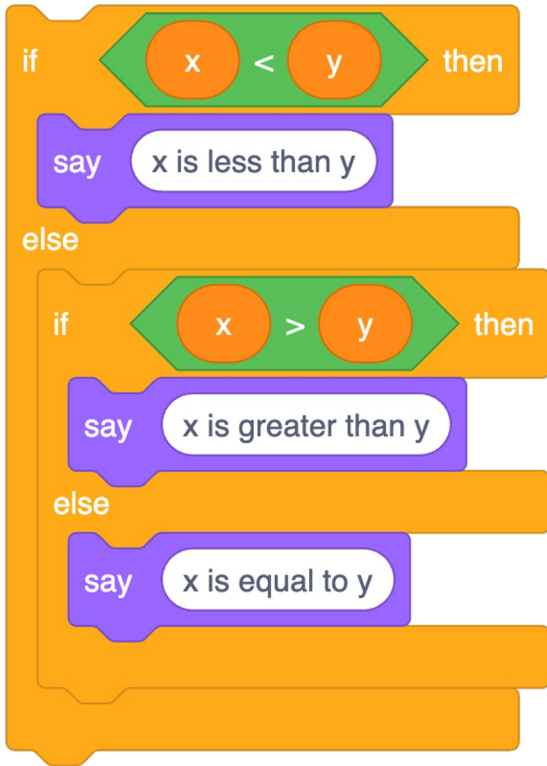


```
if x < y:  
    print("x is less than y")  
else:  
    print("x is not less than y")
```





```
if (x < y)
{
    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



# Objekt-Orientiertes Programmieren

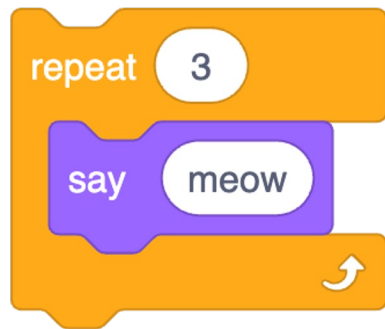
OOP

[docs.python.org/3/library/stdtypes.html#string-methods](https://docs.python.org/3/library/stdtypes.html#string-methods)

[docs.python.org/3/library/functions.html](https://docs.python.org/3/library/functions.html)

[docs.python.org](https://docs.python.org)

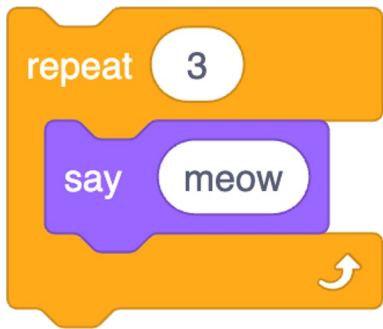
Schleifen



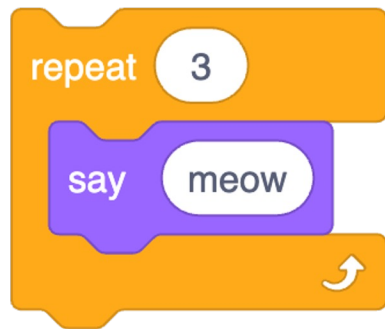


```
int i = 0;
while (i < 3)
{
    printf("meow\n");
    i++;
}
```



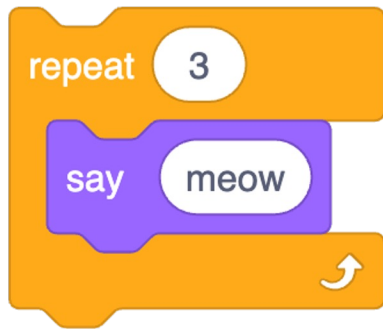


```
i = 0
while i < 3:
    print("meow")
    i += 1
```





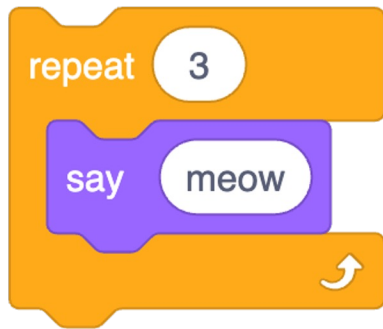
```
for (int i = 0; i < 3; i++)  
{  
    printf("meow\n");  
}
```



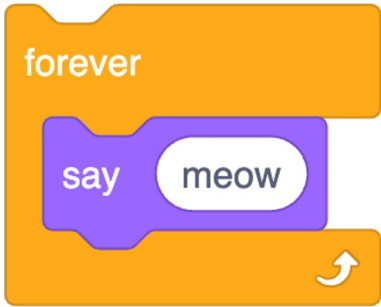
```
for i in [0, 1, 2]:  
    print("hello, world")
```

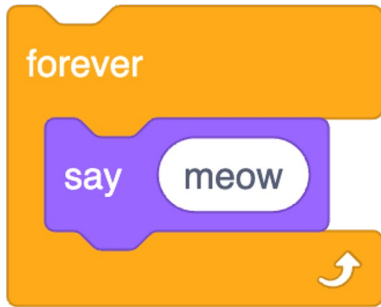


```
for i in range(3):  
    print("hello, world")
```



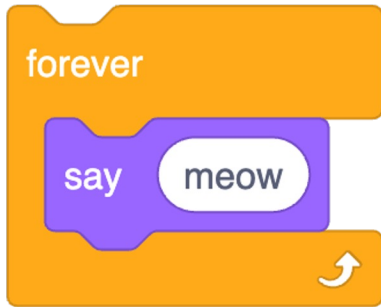
```
for _ in range(3):  
    print("hello, world")
```





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

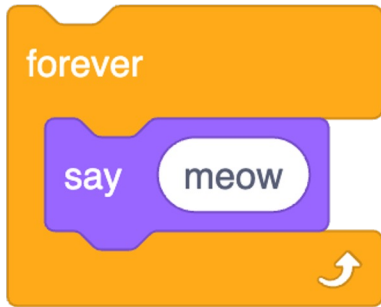




```
while True:  
    print("meow")
```

Benannte Parameter

Bisher: Positions-basierte Parameter



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

Truncation

# Ungenauigkeit von Fließkommazahlen

# Integer Overflow

~~Integer Overflow~~



# Exceptions

list

[docs.python.org/3/library/stdtypes.html#sequence-types-list-tuple-range](https://docs.python.org/3/library/stdtypes.html#sequence-types-list-tuple-range)

len

[docs.python.org/3/library/functions.html#len](https://docs.python.org/3/library/functions.html#len)

dict

Schlüssel

Wert

[docs.python.org/3/library/stdtypes.html#mapping-types-dict](https://docs.python.org/3/library/stdtypes.html#mapping-types-dict)



# This is CS50

Dies war Inf-Einf-B.