0. MOTIVATION
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2. VARIABLES
3. FUNCTIONS
4. CONDITIONALS
5. LOOPS
6. LISTS AND MAPS
7. FILES

The slides are meant as visual support for the lecture.
They are not a documentation nor a script.

Please do not print the slides.

Comments and feedback at n.meseth@hs-osnabrueck.de

MOTIVATION

FIRST PROGRAM

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

use functions

comments

```
# this is a comment
print("hello, world")
```

```
# this is a comment
print("hello, world") # another comment
```

```
'''
a multi-line comment
for longer descriptions
'''
print("hello, world")
```

create functions

```
def greet():
    print("hello")
```

```
def greet(name):
    print("hello", name)
```

bugs

syntax errors

runtime errors

user input

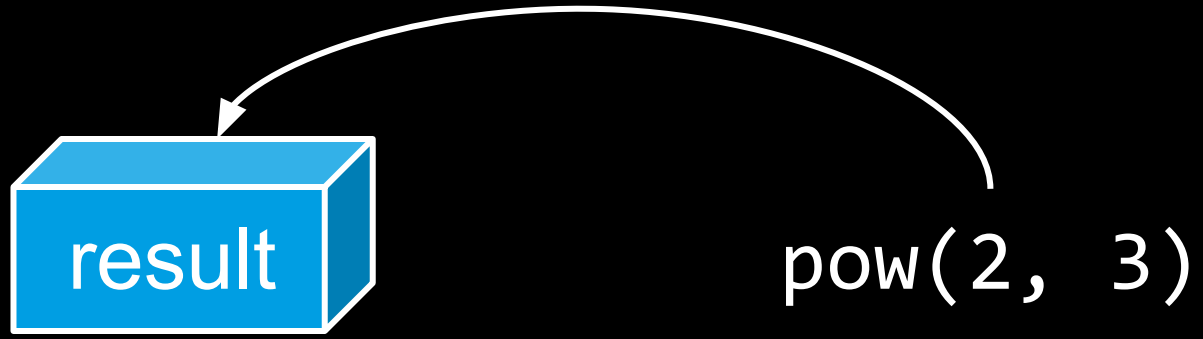
```
user_name = input("What’s your name? ")
```

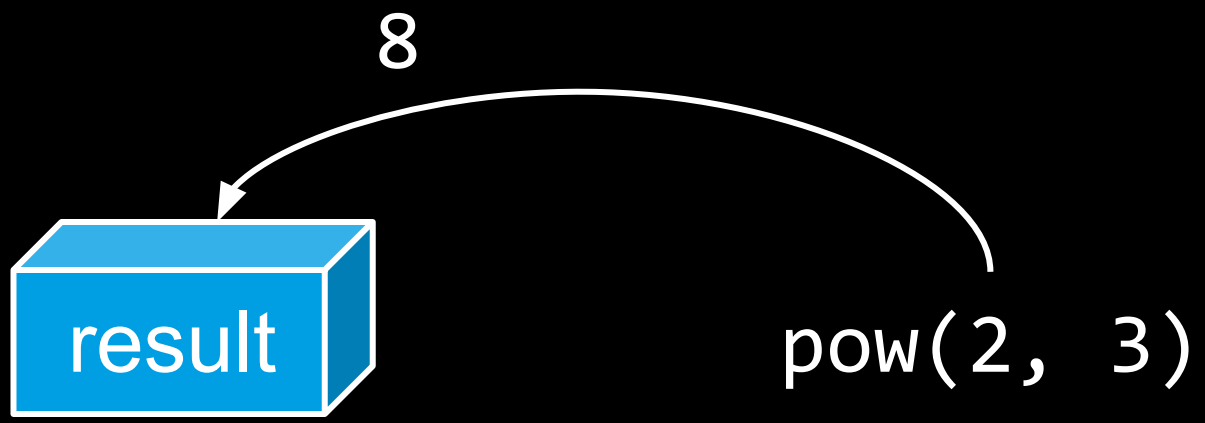
return values

```
result = pow(2, 3)
```

variables


result


result
pow(2, 3)


8
result
pow(2, 3)

```
exp = 4
result = pow(2, exp)
```


```
 = 4
result = pow(2, 
```


```
)
```

```
exp = 4
result = pow(2, exp)
print(result)
```

pseudocode

```
# step 1: determine exponent

# step 2: calculate power

# step 3: print result
```

problem solving → divide and conquer

```
# step 1: determine exponent


# step 2: calculate power


# step 3: print result
```

```
# step 1: determine exponent
exp = 4

# step 2: calculate power


# step 3: print result
```

```
# step 1: determine exponent
exp = 4

# step 2: calculate power
result = pow(2, exp)

# step 3: print result
```

```
# step 1: determine exponent
exp = 4

# step 2: calculate power
result = pow(2, exp)

# step 3: print result
print(result)
```