

# DATA FLOW

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An Introduction to Computer Science



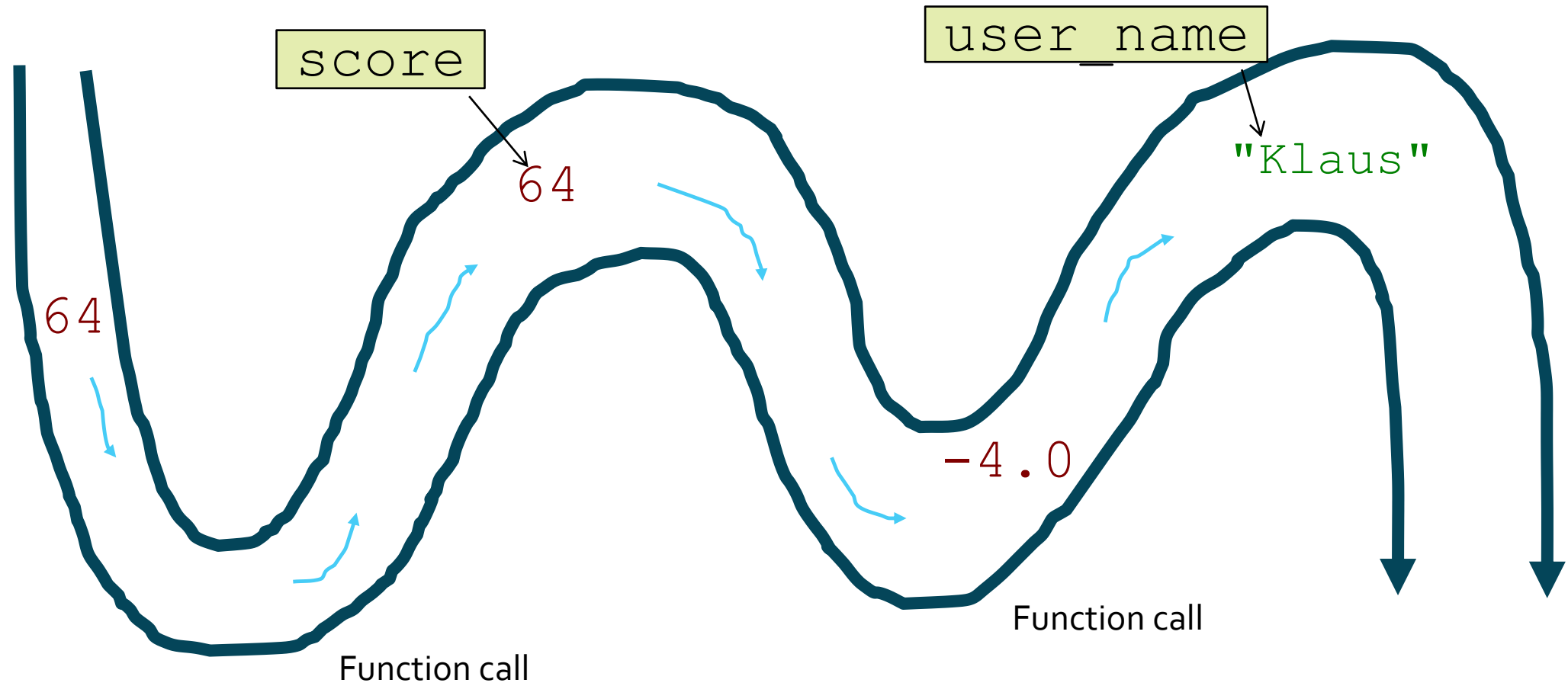
# Scope and Values

Reminder of rules:

1. Variables inside a function cannot be used outside
2. Variables outside a function should not be used inside
3. Function return values, not variables




# Data Flow



# Substitution


```
def make_fraction(top:int, bottom:int)->float:  
    return top/bottom
```

New variables:  
top = 6  
bottom = 3



```
ratio = make_fraction(6, 3)
```

Substituted for  
2.0



# Data between Functions

```
def calculate_grade(raw:int, weight:float) ->:
    grade = 10 * (weight+raw) ** .5
    return grade
```

```
def print_grade(grade):
    print("Your grade was:", grade)
```

```
raw = 45
weight = 5
grade = calculate_grade(raw, weight)
print_grade(grade)
```

These variables are distinct from the ones below with the same name!

These lines actually move values between functions!



# Keywords

`def`  
`return`  
`pass`  
`and`  
`or`  
`not`  
`in`

