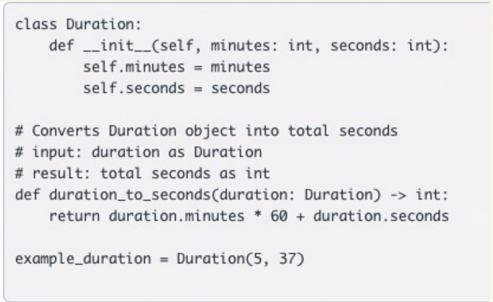
CSC 101

Rainy weather is the best weather.

True or Absolutely True?

Today

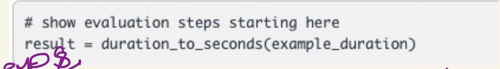
- Making Decisions
- Conditional (if) Statements
- Reasoning about Conditionals
- Testing Conditionals



```
class Duration:
    def __init__(self, minutes: int, seconds: int):
        self.minutes = minutes
        self.seconds = seconds

# Converts Duration object into total seconds
# input: duration as Duration
# result: total seconds as int
def duration_to_seconds(duration: Duration) -> int:
    return duration.minutes * 60 + duration.seconds

example_duration = Duration(5, 37)
```



```
# show evaluation steps starting here
result = duration_to_seconds(example_duration)
```

Known Values (globally)

class Duration ...

def duration_to_seconds

example_duration → minutes 5, seconds 37

result 337

steps

result = duration_to_seconds(example_duration)

result = duration_to_seconds(

→ return duration.minutes * 60
+ duration.seconds

)

return □.minutes * 60
+ duration.seconds

return 5 * 60 + duration.seconds

return 300 + duration.seconds

return 300 + □.seconds

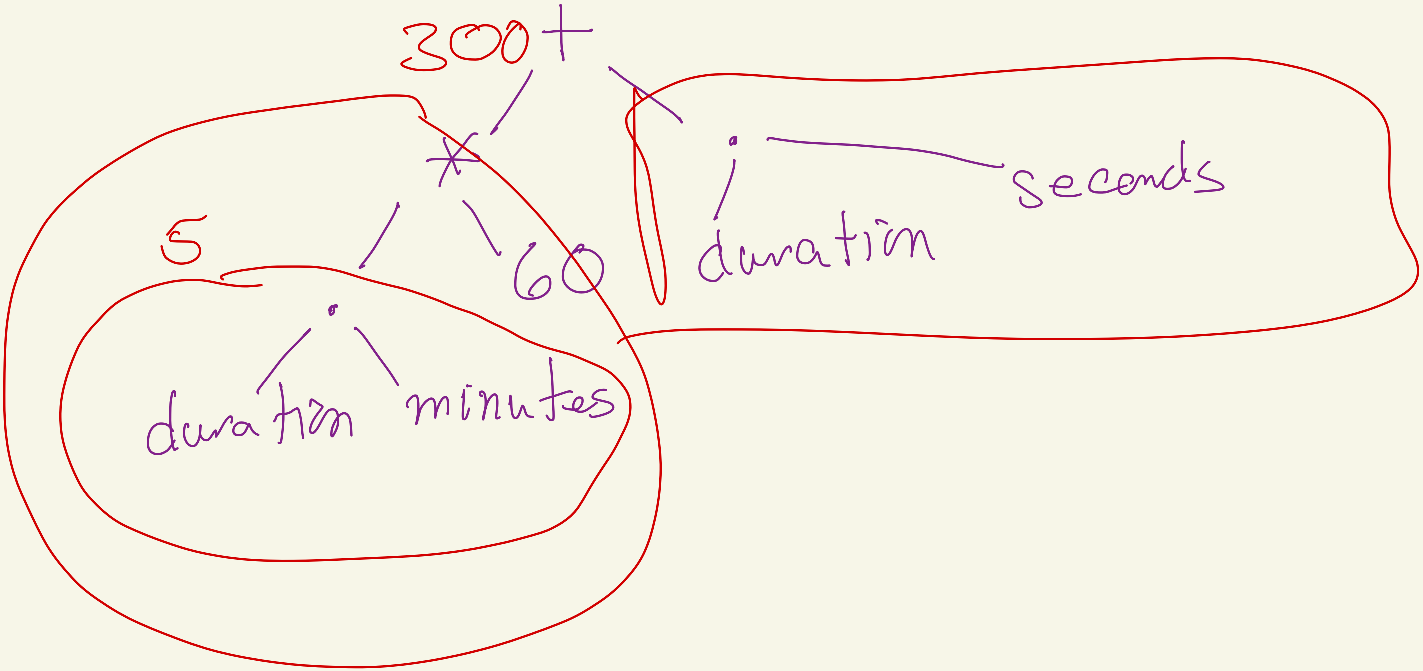
return 300 + 37

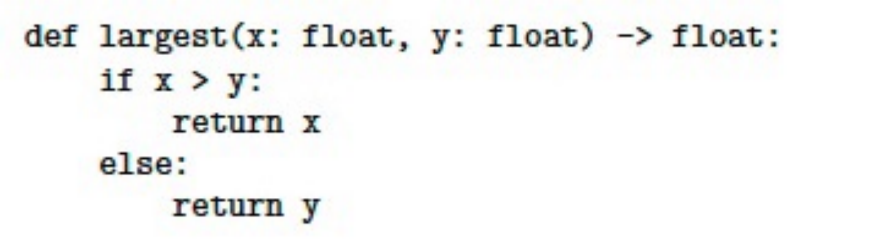
Known values w/in duration_to_secs

duration □

return 337

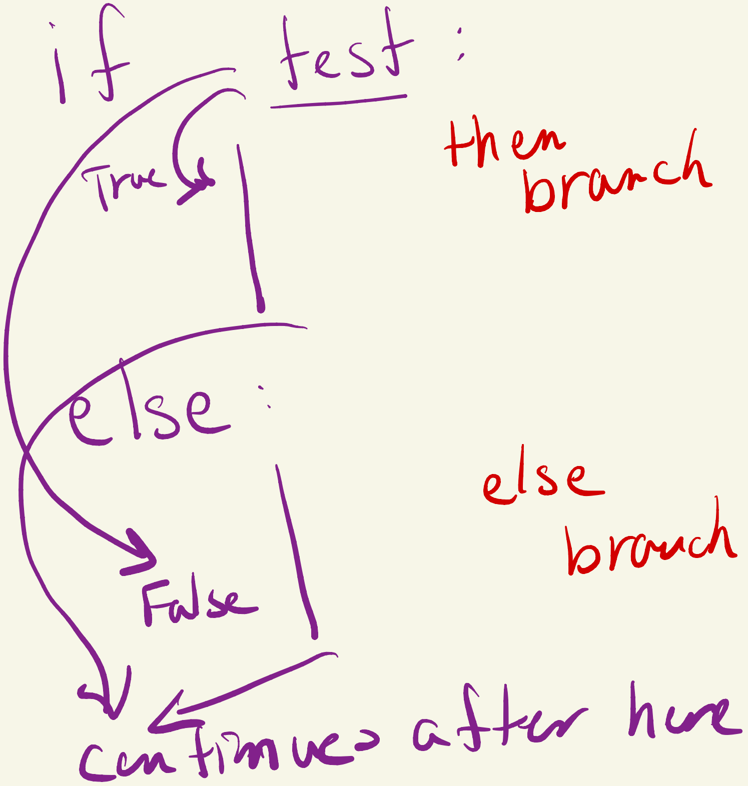
result = 337


300
+
*
5
60
.
duration
minutes
.
duration
seconds



```
def largest(x: float, y: float) -> float:
    if x > y:
        return x
    else:
        return y
```

largest(2, 4)



```
class Tests(...):
    def test_largest(self):
        self.assertAlmostEqual(largest(2, 4),
                                         4)
```

```
max_of_three(3, 4, 2)
def max_of_three(x: float, y: float, z: float) ->
                                              float:

    return largest(largest(X, Y), Z)
```

test__eq__

```
def max_of_three(x: float, y: float, z: float) ->
                                              float:
if x > y:
    if x > z:
        return x
    else:
        return z
else:
    if y > z:
        return y
    else:
        return z
```

what is known here?

x > y

what do we know?
x > y and x > z

what do we know?
x > y and z >= x

what is known here?

not (x > y)

x <= y

```
def max_of_three(x: float, y: float, z: float) ->
                                                  float:
    if x > y and x > z :
        return x                         ← x>y and
                                               x > z
    elif y > z :
        return y                    ⇐ ?
    else:
        return z
```

```
class Point:
    def __init__  , - - -.

    def __eq__   - - -
```

```
def test_eq_Point(self):
        pt1 = Point(1, 2)
        pt2 = Point(1, 2)
      → self.assertEqual(pt1, pt2)
or
      → self.assertTrue(pt1 == pt2)
```