Dates in Python

WORKING WITH DATES AND TIMES IN PYTHON

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Course overview

- Chapter 1: Dates and Calendars
- Chapter 2: Combining Dates and Times
- Chapter 3: Time zones and Daylight Saving
- Chapter 4: Dates and Times in Pandas

Dates in Python

string

"Hello"

array

number

42

date

Why do we need a date class in Python?

```
two_hurricanes = ["10/7/2016", "6/21/2017"]
```

How would you:

- Figure out how many days had elapsed?
- Check that they were in order from earliest to latest?
- Know which day of the week each was?
- Filter out hurricanes which happened between certain dates?

Creating date objects

```
# Import date
from datetime import date

# Create dates
two_hurricanes_dates = [date(2016, 10, 7), date(2017, 6, 21)]
```

Attributes of a date

```
# Import date
from datetime import date

# Create dates
two_hurricanes_dates = [date(2016, 10, 7), date(2017, 6, 21)]
print(two_hurricanes_dates[0].year)
print(two_hurricanes_dates[0].month)
print(two_hurricanes_dates[0].day)
```

```
2016
10
7
```

Finding the weekday of a date

```
print(two_hurricanes_dates[0].weekday())
```

```
4
```

- Weekdays in Python
  - 0 = Monday
  - 1 = Tuesday
  - 2 = Wednesday
  - ...
  - 6 = Sunday

Dates in Python

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Math with Dates

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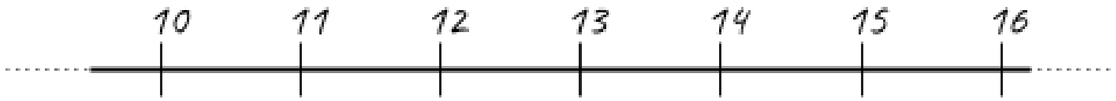
Math with dates

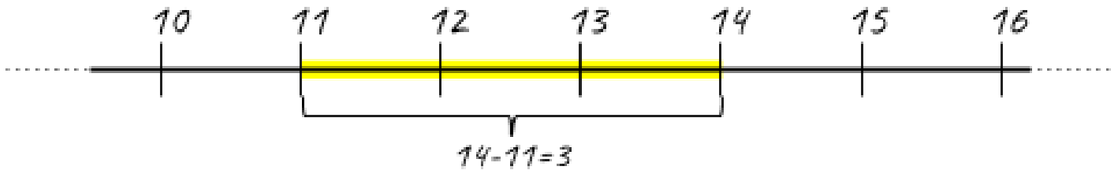



```
# Example numbers
a = 11
b = 14
l = [a, b]

# Find the least least in the list
print(min(l))
```

```
11
```

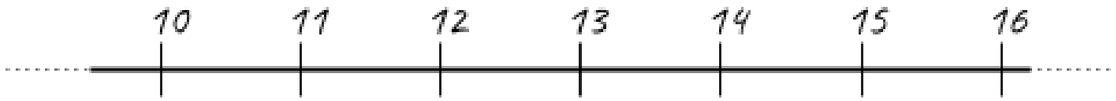
Math with dates



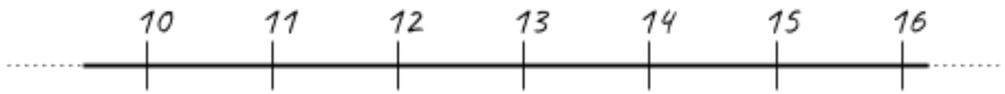

```
# Subtract two numbers
print(b - a)
3

# Add 3 to a
print(a + 3)
14
```

Math with dates



Math with dates

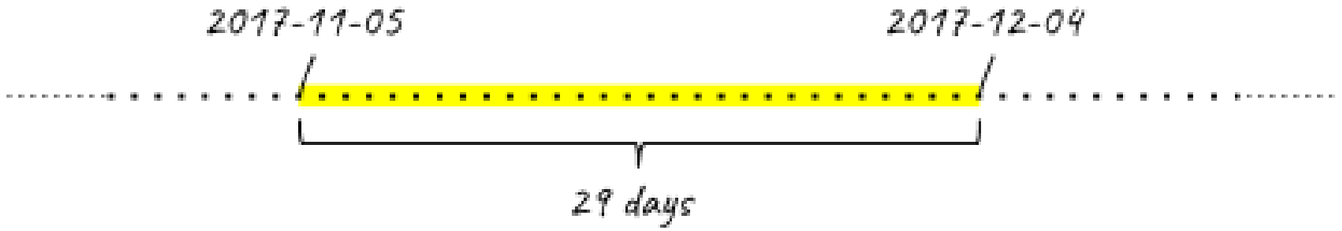



```
# Import date
from datetime import date

# Create our dates
d1 = date(2017, 11, 5)
d2 = date(2017, 12, 4)
l = [d1, d2]

print(min(l))
2017-11-05
```

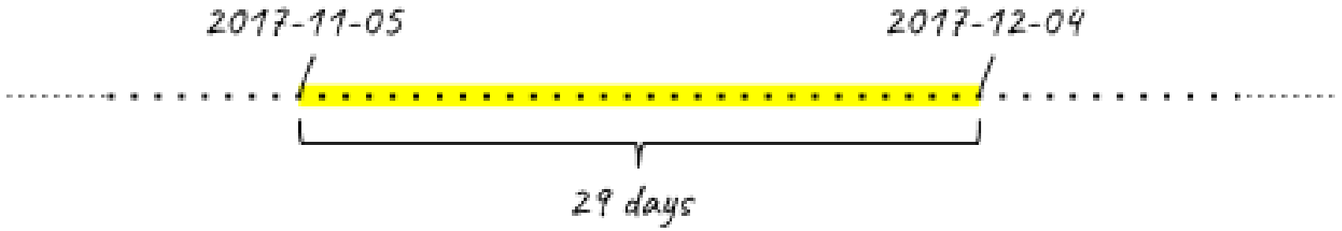
Math with dates




```
# Subtract two dates
delta = d2 - d1

print(delta.days)
```
```
29
```

Math with dates




```
# Import timedelta
from datetime import timedelta

# Create a 29 day timedelta
td = timedelta(days=29)
print(d1 + td)
2017-12-04
```

Incrementing variables with +=

```
# Initialize x to be zero
x = 0

# Increment x
x = x + 1

print(x)
1
```

```
# Initialize x to be zero
x = 0

# Increment x
x += 1

print(x)
1
```

Let's Practice!

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Turning dates into strings

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ISO 8601 format

```
from datetime import date

# Example date
d = date(2017, 11, 5)
# ISO format: YYYY-MM-DD
print(d)
```

```
2017-11-05
```

```
# Express the date in ISO 8601 format and put it in a list
print( [d.isoformat()] )
```

```
['2017-11-05']
```

ISO 8601 format

```
# A few dates that computers once had trouble with
some_dates = ['2000-01-01', '1999-12-31']

# Print them in order
print(sorted(some_dates))
```

```
['1999-12-31', '2000-01-01']
```

Every other format

```
d.strftime()
```

Every other format: strftime

```
# Example date
d = date(2017, 1, 5)

print(d.strftime("%Y"))
```

```
2017
```

```
# Format string with more text in it
print(d.strftime("Year is %Y"))
```

```
Year is 2017
```

Every other format: strftime

```
# Format: YYYY/MM/DD
print(d.strftime("%Y/%m/%d"))
```

```
2017/01/05
```

Turning dates into strings

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