

Working with Dates and Times in Python: Takeaways



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Syntax

IMPORTING MODULES AND DEFINITIONS

- Importing a whole module:

```
import csv
csv.reader()
```

- Importing a whole module with an alias:

```
import csv as c
c.reader()
```

- Importing a single definition:

```
from csv import reader
reader()
```

- Importing multiple definitions:

```
from csv import reader, writer
reader()
writer()
```

- Importing all definitions:

```
from csv import *
```

WORKING WITH THE DATETIME MODULE

- All examples below presume the following import code:

```
import datetime as dt
```

- Creating datetime.datetime string given a month, year, and day:

```
eg_1 = dt.datetime(1985, 3, 13)
```

- Creating a datetime.datetime object from a string:

```
eg_2 = dt.datetime.strptime("24/12/1984", "%d/%m/%Y")
```

- Converting a datetime.datetime object to a string:

```
dt_object = dt.datetime(1984, 12, 24)
dt_string = dt_object.strftime("%d/%m/%Y")
```

- Instantiating a datetime.time object:

```
eg_3 = datetime.time(hour=0, minute=0, second=0, microsecond=0)
```

- Retrieving a part of a date stored in the datetime.datetime object:

```
eg_1.day
```

- Creating a date from a datetime.datetime object:

```
d2_dt = dt.datetime(1946, 9, 10)
d2 = d2_dt.date()
```

- Creating a datetime.date object from a string:

```
d3_str = "17 February 1963"
d3_dt = dt.datetime.strptime(d3_str, "%d %B %Y")
d3 = d3_dt.date()
```

- Instantiating a datetime.timedelta object:

```
eg_4 = dt.timedelta(weeks=3)
```

- Adding a time period to a datetime.datetime object:

```
d1 = dt.date(1963, 2, 26)
d1_plus_lwk = d1 + dt.timedelta(weeks=1)
```

Concepts

- The datetime module contains the following classes:
 - `datetime.datetime` : For working with date and time data
 - `datetime.time` : For working with time data only
 - `datetime.timedelta` : For representing time periods
- Time objects behave similarly to datetime objects for the following reasons:
 - They have attributes like `time.hour` and `time.second` that you can use to access individual time components.
 - They have a `time.strftime()` method, which you can use to create a formatted string representation of the object.
- The timedelta type represents a period of time, e.g. 30 minutes or two days.
- Common format codes when working with `datetime.datetime.strptime` :

| Strftime Code | Meaning | Examples |
|-----------------|--|--|
| <code>%d</code> | Day of the month as a zero-padded number ¹ | <code>04</code> |
| <code>%A</code> | Day of the week as a word ² | <code>Monday</code> |
| <code>%m</code> | Month as a zero-padded number ¹ | <code>09</code> |
| <code>%Y</code> | Year as a four-digit number | <code>1901</code> |
| <code>%y</code> | Year as a two-digit number with zero-padding ^{1, 3} | <code>01</code> (2001) <code>88</code> (1988) |
| <code>%B</code> | Month as a word ² | <code>September</code> |
| <code>%H</code> | Hour in 24 hour time as zero-padded number ¹ | <code>05</code> (5 a.m.) <code>15</code> (3 p.m.) |
| <code>%p</code> | a.m. or p.m. ² | <code>AM</code> |

| Strftime Code | Meaning | Examples |
|-----------------|---|--|
| <code>%I</code> | Hour in 12 hour time as zero-padded number ¹ | <code>05</code> (5 a.m., or 5 p.m. if <code>AM</code> / <code>PM</code> indicates otherwise) |
| <code>%M</code> | Minute as a zero-padded number ¹ | <code>07</code> |

1. The `strptime` parser will parse non-zero padded numbers without raising an error.
2. Date parts containing words will be interpreted using the locale settings on your computer, so `strptime` won't be able to parse 'febrero' (february in Spanish) if your locale is set to an english language locale.
3. Year values from 00-68 will be interpreted as 2000-2068, with values 70-99 interpreted as 1970-1999.

- Operations between `timedelta`, `datetime`, and `time` objects (`datetime` can be substituted with `time`):

| Operation | Explanation | Resultant Type |
|------------------------------------|---|------------------------|
| <code>datetime - datetime</code> | Calculate the time between two specific dates/times | <code>timedelta</code> |
| <code>datetime - timedelta</code> | Subtract a time period from a date or time. | <code>datetime</code> |
| <code>datetime + timedelta</code> | Add a time period to a date or time. | <code>datetime</code> |
| <code>timedelta + timedelta</code> | Add two periods of time together | <code>timedelta</code> |
| <code>timedelta - timedelta</code> | Calculate the difference between two time periods. | <code>timedelta</code> |

Resources

- [Python Documentation - Datetime module](#)
- [Python Documentation: Strftime/Strptime Codes](#)
- [strftime.org](#)