# Python strptime()

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In this article, you will learn to create a datetime object from a string (with the help of examples).

The `strptime()` method creates a datetime object from the given string.

**Note:** You cannot create `datetime` object from every string. The string needs to be in a certain format.

## Example 1: string to datetime object

```
from datetime import datetime

date_string = "21 June, 2018"

print("date_string =", date_string)
print("type of date_string =", type(date_string))

date_object = datetime.strptime(date_string, "%d %B, %Y")

print("date_object =", date_object)
print("type of date_object =", type(date_object))
```

When you run the program, the output will be:

```
date_string = 21 June, 2018
type of date_string = <class 'str'>
date_object = 2018-06-21 00:00:00
type of date_object = <class 'datetime.datetime'>
```

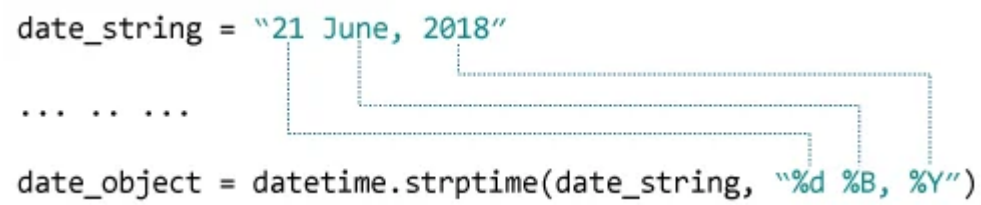
### How strptime() works?

The `strptime()` class method takes two arguments:

- string (that be converted to datetime)
- format code

Based on the string and format code used, the method returns its equivalent `datetime` object.

In the above example:




Here,

- `%d` - Represents the day of the month. **Example:** 01, 02, ..., 31
- `%B` - Month's name in full. **Example:** January, February etc.
- `%Y` - Year in four digits. **Example:** 2018, 2019 etc.

## Example 2: string to datetime object

```
from datetime import datetime

dt_string = "12/11/2018 09:15:32"

# Considering date is in dd/mm/yyyy format
dt_object1 = datetime.strptime(dt_string, "%d/%m/%Y %H:%M:%S")
print("dt_object1 =", dt_object1)

# Considering date is in mm/dd/yyyy format
dt_object2 = datetime.strptime(dt_string, "%m/%d/%Y %H:%M:%S")
print("dt_object2 =", dt_object2)
```

When you run the program, the output will be:

```
dt_object1 = 2018-11-12 09:15:32
dt_object2 = 2018-12-11 09:15:32
```

## Format Code List

The table below shows all the format codes that you can use.

| Directive | Meaning | Example |
|---|---|---|
| `%a` | Abbreviated weekday name. | Sun, Mon, ... |
| `%A` | Full weekday name. | Sunday, Monday, ... |
| `%w` | Weekday as a decimal number. | 0, 1, ..., 6 |
| `%d` | Day of the month as a zero-padded decimal. | 01, 02, ..., 31 |

| Directive | Meaning | Example |
|---|---|---|
| `%-d` | Day of the month as a decimal number. | 1, 2, ..., 30 |
| `%b` | Abbreviated month name. | Jan, Feb, ..., Dec |
| `%B` | Full month name. | January, February, ... |
| `%m` | Month as a zero-padded decimal number. | 01, 02, ..., 12 |
| `%-m` | Month as a decimal number. | 1, 2, ..., 12 |
| `%y` | Year without century as a zero-padded decimal number. | 00, 01, ..., 99 |
| `%-y` | Year without century as a decimal number. | 0, 1, ..., 99 |
| `%Y` | Year with century as a decimal number. | 2013, 2019 etc. |
| `%H` | Hour (24-hour clock) as a zero-padded decimal number. | 00, 01, ..., 23 |
| `%-H` | Hour (24-hour clock) as a decimal number. | 0, 1, ..., 23 |
| `%I` | Hour (12-hour clock) as a zero-padded decimal number. | 01, 02, ..., 12 |
| `%-I` | Hour (12-hour clock) as a decimal number. | 1, 2, ... 12 |
| `%p` | Locale’s AM or PM. | AM, PM |
| `%M` | Minute as a zero-padded decimal number. | 00, 01, ..., 59 |
| `%-M` | Minute as a decimal number. | 0, 1, ..., 59 |
| `%S` | Second as a zero-padded decimal number. | 00, 01, ..., 59 |
| `%-S` | Second as a decimal number. | 0, 1, ..., 59 |
| `%f` | Microsecond as a decimal number, zero-padded on the left. | 000000 - 999999 |
| `%z` | UTC offset in the form +HHMM or -HHMM. | |
| `%Z` | Time zone name. | |
| `%j` | Day of the year as a zero-padded decimal number. | 001, 002, ..., 366 |

| Directive | Meaning | Example |
|---|---|---|
| `%-j` | Day of the year as a decimal number. | 1, 2, ..., 366 |
| `%U` | Week number of the year (Sunday as the first day of the week). All days in a new year preceding the first Sunday are considered to be in week 0. | 00, 01, ..., 53 |
| `%W` | Week number of the year (Monday as the first day of the week). All days in a new year preceding the first Monday are considered to be in week 0. | 00, 01, ..., 53 |
| `%c` | Locale's appropriate date and time representation. | Mon Sep 30 07:06:05 2013 |
| `%x` | Locale's appropriate date representation. | 09/30/13 |
| `%X` | Locale's appropriate time representation. | 07:06:05 |
| `%%` | A literal '%' character. | % |

## ValueError in strptime()

If the string (first argument) and the format code (second argument) passed to the `strptime()` doesn't match, you will get `ValueError`. For example:

```
from datetime import datetime

date_string = "12/11/2018"
date_object = datetime.strptime(date_string, "%d %m %Y")

print("date_object =", date_object)
```

If you run this program, you will get an error.

```
ValueError: time data '12/11/2018' does not match format '%d %m %Y'
```

**Recommended Readings:** Python strftime()