Python DateTime - strptime() Function - GeeksforGeeks

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strptime() is another method available in DateTime which is used to format the time stamp which is in string format to date-time object.

> **Syntax**: datetime.strptime(time_data, format_data)
>
> **Parameter:**
>
> - time_data is the time present in string format
> - format_data is the data present in datetime format which is converted from time_data using this function.

How strptime() works?

This function takes two arguments, a string in which some time is given and a format code, to change the string into, the string is changed to the DateTime object as per the list of codes given below.

Format codes

format code	meaning	example
%a	Abbreviated weekday name	Sun, Mon
%A	Full weekday name	Sunday, Monday
%w	Weekday as decimal number	0...6
%d	Day of the month as a zero-padded decimal	01, 02
%-d	day of the month as decimal number	1, 2..
%b	Abbreviated month name	Jan, Feb
%m	month as a zero padded decimal number	01, 02
%-m	month as a decimal number	1, 2
%B	Full month name	January, February
%y	year without century as a zero padded decimal number	99, 00

format code	meaning	example
%-y	year without century as a decimal number	0, 99
%Y	year with century as a decimal number	2000, 1999
%H	hour(24 hour clock) as a zero padded decimal number	01, 23
%-H	hour(24 hour clock) as a decimal number	1, 23
%I	hour(12 hour clock) as a zero padded decimal number	01, 12
%-I	hour(12 hour clock) as a decimal number	1, 12
%p	locale's AM or PM	AM, PM
%M	Minute as a zero padded decimal number	01, 59
%-M	Minute as a decimal number	1, 59
%S	Second as a zero padded decimal number	01, 59
%-S	Second as a decimal number	1, 59
%f	microsecond as a decimal number, zero padded on the left side	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, 365
%-j	day of the year as a decimal number	1, 365
%U	Week number of the year (Sunday being the first)	0, 6
%W	Week number of the year	00, 53
%c	locale's appropriate date and time representation	Mon Sep 30 07:06:05 2013
%x	locale's appropriate date representation	11/30/98

format code	meaning	example
%X	locale's appropriate time representation	10:03:43
%%	A literal '%' character	%

Example 1: Python program to read datetime and get all time data using strptime. Here we are going to take time data in the string format and going to extract hours, minutes, seconds, and milliseconds

- Python3

Python3

```
from datetime import datetime

time_data = "25/05/99 02:35:5.523"

format_data = "%d/%m/%y %H:%M:%S.%f"

date = datetime.strptime(time_data, format_data)

print(date.microsecond)

print(date.hour)

print(date.minute)

print(date.second)

print(date)
```

Output:

```
523000

2

35

5

1999-05-25 02:35:05.523000
```

Example 2: Python code that uses strptime. Here we are going to take time data in the string format and going to extract the time stamp in "%d/%m/%y %H:%M:%S.%f" format.

- Python3

Python3

```
from datetime import datetime
```

```
time_data = ["25/05/99 02:35:8.023", "26/05/99 12:45:0.003",

             "27/05/99 07:35:5.523", "28/05/99 05:15:55.523"]

format_data = "%d/%m/%y %H:%M:%S.%f"

for i in time_data:

    print(datetime.strptime(i, format_data))
```

Output:

1999-05-25 02:35:08.023000

1999-05-26 12:45:00.003000

1999-05-27 07:35:05.523000

1999-05-28 05:15:55.523000

we can get the time that follows a structure with all dates by using strptime() itself.

Syntax:

time.strptime(Timestamp, '%d/%m/%y %H:%M:%S')

where Timestamp includes time and date

Example: Python code to get time in structure:

- Python3

Python3

```
import time

print(time.strptime('04/04/21 09:31:22', '%d/%m/%y %H:%M:%S'))

print(time.strptime('05/04/21 09:00:42', '%d/%m/%y %H:%M:%S'))

print(time.strptime('06/04/21 09:11:42', '%d/%m/%y %H:%M:%S'))

print(time.strptime('07/04/21 09:41:12', '%d/%m/%y %H:%M:%S'))
```

Output:

time.struct_time(tm_year=2021, tm_mon=4, tm_mday=4, tm_hour=9, tm_min=31, tm_sec=22, tm_wday=6, tm_yday=94, tm_isdst=-1)

time.struct_time(tm_year=2021, tm_mon=4, tm_mday=5, tm_hour=9, tm_min=0, tm_sec=42, tm_wday=0, tm_yday=95, tm_isdst=-1)

time.struct_time(tm_year=2021, tm_mon=4, tm_mday=6, tm_hour=9, tm_min=11, tm_sec=42, tm_wday=1, tm_yday=96, tm_isdst=-1)

```
time.struct_time(tm_year=2021, tm_mon=4, tm_mday=7,
tm_hour=9, tm_min=41, tm_sec=12, tm_wday=2, tm_yday=97,
tm_isdst=-1)
```

It is also possible to get the string datetime in yyyy-mm-dd datetime format.
yyyy-mm-dd stands for year-month-day. We can convert string format to
DateTime by using the strptime() function. We will use the '%Y/%m/%d'
format to get the string to datetime.

> **Syntax:** datetime.datetime.strptime(input,format)
>
> **Parameter:**
>
> - input is the string datetime
> - format is the format – 'yyyy-mm-dd'
> - datetime is the module

For this first, the module is imported and the input DateTime string is given.
Now use strptime to get the required format and get the date from DateTime
using date() function

Example 1: Python program to convert string datetime format to datetime

- Python3

Python3

```python
import datetime

input = '2021/05/25'

format = '%Y/%m/%d'

datetime = datetime.datetime.strptime(input, format)

print(datetime.date())
```

Output:

> 2021-05-25

Example 2: Convert list of string datetime to datetime

- Python3

Python3

```python
import datetime

input = ['2021/05/25', '2020/05/25', '2019/02/15', '1999/02/4']

format = '%Y/%m/%d'

for i in input:
```

```
print(datetime.datetime.strptime(i, format).date())
```

Output:

2021-05-25

2020-05-25

2019-02-15

1999-02-04

We can also display DateTime in **"%d/%m/%Y %H:%M:%S"** Format. For this, we are going to get the data in date-month-year hours:minutes;seconds format. So we have to take input datetime string and get this format

Syntax: datetime.strptime(input_date, "%d/%m/%Y %H:%M:%S")

Parameter:

- datetime is the module
- input_date is the string datetime format
- strptime is used to convert input_date string into datetime

Example 3: Python program to get the string datetime into "%d/%m/%Y %H:%M:%S" Format

- Python3

Python3

```
from datetime import datetime

date = "25/05/2021 02:35:15"

datetime_date = datetime.strptime(date, "%d/%m/%Y %H:%M:%S")

print(datetime_date)
```

Output:

2021-05-25 02:35:15