

Python DateTime

- 打印当前日期和时间
- 把天、小时、分钟转换成秒
- 使用panda在python中获取当前日期和时间
- 将字符串转换为datetime对象
- 获取当前时间(以毫秒为单位)
- 获取当前的日期时间在MST, EST, UTC, GMT和HST格式
- 用Python从给定的日期中获取星期几
- 如何计算两个datetime对象之间的时间差?
- 将(Unix)时间戳秒转换为日期和时间字符串
- 将数据时间对象转换为Unix(时间戳)
- 在当前日期时间上添加年、月、日、时、分、秒
- 获取指定开始日期和结束日期之间的日期范围
- 用当前日期时间减去年、月、日、时、分、秒
- 打印特定年份的所有星期一
- 打印特定年份的日历
- 如何从月号中得到月名?
- 如何开始和结束一个星期的日期从一个给定的日期?
- 根据当前日期查找前一个和下一个星期一的日期
- 获取当前季度的第一个日期和最后一个日期

打印当前日期和时间

Displays the current date and time using time module

```
#Python's program that displays the current time and date in various format.

#import time module
import time
from time import gmtime, strftime

t = time.localtime()
print (time.asctime(t))
print(strftime("%a, %d %b %Y %H:%M:%S +0000", gmtime()))
print(strftime("%A", gmtime()))
print(strftime("%D", gmtime()))
print(strftime("%B", gmtime()))
print(strftime("%y", gmtime()))

# Convert seconds into GMT date
print(strftime("%a, %d %b %Y %H:%M:%S +0000", gmtime(1234567890)))
```

```
Sat Sep 21 08:09:50 2019
Sat, 21 Sep 2019 00:09:50 +0000
Saturday
09/21/19
September
19
Fri, 13 Feb 2009 23:31:30 +0000
```

把天、小时、分钟转换成秒

Convert Days, Hours, Minutes into Seconds

```
#Python's program to convert number of days, hours, minutes and seconds to seconds.
##

#Define the constants
SECONDS_PER_MINUTE = 60
SECONDS_PER_HOUR = 3600
SECONDS_PER_DAY = 86400

#Read the inputs from user
days = int(input("Enter number of Days: "))
hours = int(input("Enter number of Hours: "))
minutes = int(input("Enter number of Minutes: "))
seconds = int(input("Enter number of Seconds: "))

#Calculate the days, hours, minutes and seconds
total_seconds = days * SECONDS_PER_DAY
total_seconds = total_seconds + (hours * SECONDS_PER_HOUR)
total_seconds = total_seconds + (minutes * SECONDS_PER_MINUTE)
total_seconds = total_seconds + seconds

#Display the result
print("Total number of seconds: ", "%d" % (total_seconds))
```

```
Enter number of Days: 5
Enter number of Hours: 23
Enter number of Minutes: 12
Enter number of Seconds: 6
Total number of seconds: 515526
```

使用panda在python中获取当前日期和时间

Using Pandas get current date and time in python

```
# Python's program to get current date time using pandas.

import pandas as pd
print(pd.datetime.now())
print(pd.datetime.now().date())
print(pd.datetime.now().year)
print(pd.datetime.now().month)
print(pd.datetime.now().day)
print(pd.datetime.now().hour)
print(pd.datetime.now().minute)
print(pd.datetime.now().second)
print(pd.datetime.now().microsecond)
```

```
2019-09-21 08:13:52.961000
2019-09-21
2019
9
21
8
13
52
961000
```

将字符串转换为datetime对象

[Python program to convert string into datetime object](#)

```
# Python's program to convert string into date time
from datetime import datetime
from dateutil import parser

d1 = "Jan 7 2019 1:15PM"
d2 = "2019 Jan 7 1:33PM"

# If you know date format
date1 = datetime.strptime(d1, '%b %d %Y %I:%M%p')
print(type(date1))
print(date1)

# If you don't know date format
date2 = parser.parse(d2)
print(type(date2))
print(date2)
```

```
<class 'datetime.datetime'>
2019-01-07 13:15:00
<class 'datetime.datetime'>
2019-01-07 13:33:00
```

获取当前时间(以毫秒为单位)

[Get current time in milliseconds in Python](#)

```
# Python's program to get time in milliseconds.
import time

milliseconds = int(round(time.time() * 1000))
print(milliseconds)
```

```
1569025167444
```

获取当前的日期时间在MST, EST, UTC, GMT和HST格式

[Get current date time in MST, EST, UTC, GMT and HST](#)

```
# Python's program to get current time MST EST UTC GMT HST
from datetime import datetime
```

```

from pytz import timezone

mst = timezone('MST')
print("Time in MST:", datetime.now(mst))

est = timezone('EST')
print("Time in EST:", datetime.now(est))

utc = timezone('UTC')
print("Time in UTC:", datetime.now(utc))

gmt = timezone('GMT')
print("Time in GMT:", datetime.now(gmt))

hst = timezone('HST')
print("Time in HST:", datetime.now(hst))

```

```

Time in MST: 2019-09-20 17:20:42.246000-07:00
Time in EST: 2019-09-20 19:20:42.246000-05:00
Time in UTC: 2019-09-21 00:20:42.246000+00:00
Time in GMT: 2019-09-21 00:20:42.247000+00:00
Time in HST: 2019-09-20 14:20:42.247000-10:00

```

用Python从给定的日期中获取星期几

Get the day of week from given a date in Python

```

# Python's program to get the day of week of today or given date.
import datetime

dayofweek = datetime.date(2010, 6, 16).strftime("%A")
print("星期:", dayofweek)
# weekday Monday is 0 and Sunday is 6
print("weekday():", datetime.date(2010, 6, 16).weekday())

# isoweekday() Monday is 1 and Sunday is 7
print("isoweekday()", datetime.date(2010, 6, 16).isoweekday())

dayofweek = datetime.datetime.today().strftime("%A")
print(dayofweek)
print("weekday():", datetime.datetime.today().weekday())
print("isoweekday()", datetime.datetime.today().isoweekday())

```

```

星期: Wednesday
weekday(): 2
isoweekday() 3
Saturday
weekday(): 5
isoweekday() 6

```

如何计算两个datetime对象之间的时间差？

How to calculate the time difference between two datetime objects?

```

# Python's program to calculate time difference between two datetime objects.

```

```
import datetime
from datetime import timedelta

datetimeFormat = '%Y-%m-%d %H:%M:%S.%f'
date1 = '2016-04-16 10:01:28.585'
date2 = '2016-03-10 09:56:28.067'
diff = datetime.datetime.strptime(date1, datetimeFormat)
        - datetime.datetime.strptime(date2, datetimeFormat)

print("Difference:", diff)
print("Days:", diff.days)
print("Microseconds:", diff.microseconds)
print("Seconds:", diff.seconds)
```

```
Difference: 37 days, 0:05:00.518000
Days: 37
Microseconds: 518000
Seconds: 300
```

将(Unix)时间戳秒转换为日期和时间字符串

Convert (Unix) timestamp seconds to date and time string

```
# Python's program to convert (Unix) timestamp to date and time string.
from datetime import datetime

dateStr = datetime.fromtimestamp(1415419007).strftime("%A, %B %d, %Y %I:%M:%S")
print(type(dateStr))
print(dateStr)
```

```
<class 'str'>
Saturday, November 08, 2014 11:56:47
```

将数据时间对象转换为Unix(时间戳)

Convert data time object to Unix (time-stamp)

```
# Python's program to convert datetime object to Unix Timestamp

import datetime
import time

# Saturday, October 10, 2015 10:10:00 AM
date_obj = datetime.datetime(2015, 10, 10, 10, 10)
print("Unix Timestamp: ", (time.mktime(date_obj.timetuple())))
```

```
Unix Timestamp: 1444443000.0
```

在当前日期时间上添加年、月、日、时、分、秒

Add N number of Year, Month, Day, Hour, Minute, Second to current date-time

```
# Python's program to add N year month day hour min sec to date.
```

```
import datetime
from dateutil.relativedelta import relativedelta

add_days = datetime.datetime.today() + relativedelta(days=+6)
add_months = datetime.datetime.today() + relativedelta(months=+6)
add_years = datetime.datetime.today() + relativedelta(years=+6)

add_hours = datetime.datetime.today() + relativedelta(hours=+6)
add_mins = datetime.datetime.today() + relativedelta(minutes=+6)
add_seconds = datetime.datetime.today() + relativedelta(seconds=+6)

print("Current Date Time:", datetime.datetime.today())
print("Add 6 days:", add_days)
print("Add 6 months:", add_months)
print("Add 6 years:", add_years)
print("Add 6 hours:", add_hours)
print("Add 6 mins:", add_mins)
print("Add 6 seconds:", add_seconds)
```

```
Current Date Time: 2019-09-21 08:26:17.029000
Add 6 days: 2019-09-27 08:26:17.029000
Add 6 months: 2020-03-21 08:26:17.029000
Add 6 years: 2025-09-21 08:26:17.029000
Add 6 hours: 2019-09-21 14:26:17.029000
Add 6 mins: 2019-09-21 08:32:17.029000
Add 6 seconds: 2019-09-21 08:26:23.029000
```

获取指定开始日期和结束日期之间的日期范围

Get range of dates between specified start and end date

```
# Python's program to display all dates between two dates.
import datetime

start = datetime.datetime.strptime("2019-09-15", "%Y-%m-%d")
end = datetime.datetime.strptime("2019-09-30", "%Y-%m-%d")
date_array = [
    (start + datetime.timedelta(days=x) for x in range(0, (end-start).days))

for date_object in date_array:
    print(date_object.strftime("%Y-%m-%d"))
```

```
2019-09-15
2019-09-16
2019-09-17
2019-09-18
2019-09-19
2019-09-20
2019-09-21
2019-09-22
2019-09-23
2019-09-24
2019-09-25
2019-09-26
2019-09-27
2019-09-28
```

用当前日期时间减去年、月、日、时、分、秒

Subtract N number of Year, Month, Day, Hour, Minute, Second to current date-time

```
# Python's program to subtract N year month day hour min sec to date.
import datetime
from dateutil.relativedelta import relativedelta

sub_days = datetime.datetime.today() + relativedelta(days=-6)
sub_months = datetime.datetime.today() + relativedelta(months=-6)
sub_years = datetime.datetime.today() + relativedelta(years=-6)

sub_hours = datetime.datetime.today() + relativedelta(hours=-6)
sub_mins = datetime.datetime.today() + relativedelta(minutes=-6)
sub_seconds = datetime.datetime.today() + relativedelta(seconds=-6)

print("Current Date Time:", datetime.datetime.today())
print("Subtract 6 days:", sub_days)
print("Subtract 6 months:", sub_months)
print("Subtract 6 years:", sub_years)
print("Subtract 6 hours:", sub_hours)
print("Subtract 6 mins:", sub_mins)
print("Subtract 6 seconds:", sub_seconds)
```

```
Current Date Time: 2019-09-21 08:28:36.708000
Subtract 6 days: 2019-09-27 08:26:17.029000
Subtract 6 months: 2020-03-21 08:26:17.029000
Subtract 6 years: 2025-09-21 08:26:17.029000
Subtract 6 hours: 2019-09-21 14:26:17.029000
Subtract 6 mins: 2019-09-21 08:32:17.029000
Subtract 6 seconds: 2019-09-21 08:26:23.029000
```

从指定的年份和月份中获取每月第一天的工作日和每月的天数

Get weekday of first day of the month and number of days in month, from specified year and month

```
# Python's program to weekday of first day of the month and
# number of days in month, for the specified year and month.
import calendar

print("Year:2002 - Month:2")
month_range = calendar.monthrange(2002, 2)
print("Weekday of first day of the month:", month_range[0])
print("Number of days in month:", month_range[1])
print()
print("Year:2010 - Month:5")
month_range = calendar.monthrange(2010, 5)
print("Weekday of first day of the month:", month_range[0])
print("Number of days in month:", month_range[1])
```

```
Year:2002 - Month:2
Weekday of first day of the month: 4
Number of days in month: 28

Year:2010 - Month:5
Weekday of first day of the month: 5
Number of days in month: 31
```

打印特定年份的所有星期一

Print all Monday's of a specific year

```
# Python's program to print all Monday's of a specific year
from datetime import date, timedelta

year = 2018
date_object = date(year, 1, 1)
date_object += timedelta(days=1-date_object.isoweekday())

while date_object.year == year:
    print(date_object)
    date_object += timedelta(days=7)
```

```
2018-01-01
2018-01-08
2018-01-15
2018-01-22
2018-01-29
2018-02-05
2018-02-12
2018-02-19
2018-02-26
2018-03-05
2018-03-12
2018-03-19
2018-03-26
2018-04-02
2018-04-09
2018-04-16
2018-04-23
2018-04-30
2018-05-07
2018-05-14
2018-05-21
2018-05-28
2018-06-04
2018-06-11
2018-06-18
2018-06-25
2018-07-02
2018-07-09
2018-07-16
2018-07-23
2018-07-30
2018-08-06
2018-08-13
2018-08-20
```


2018-08-27
2018-09-03
2018-09-10
2018-09-17
2018-09-24
2018-10-01
2018-10-08
2018-10-15
2018-10-22
2018-10-29
2018-11-05
2018-11-12
2018-11-19
2018-11-26
2018-12-03
2018-12-10
2018-12-17
2018-12-24
2018-12-31

打印特定年份的日历

Print calendar of specific year

```
# Python's program to print calendar of specific year.  
  
import calendar  
cal_display = calendar.TextCalendar(calendar.MONDAY)  
# Year: 2019  
# Column width: 1  
# Lines per week: 1  
# Number of spaces between month columns: 0  
# No. of months per column: 2  
print(cal_display.formatyear(2019, 1, 1, 0, 2))
```

2019

January							February							
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	
		1	2	3	4	5	6					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10	
14	15	16	17	18	19	20	11	12	13	14	15	16	17	
21	22	23	24	25	26	27	18	19	20	21	22	23	24	
28	29	30	31				25	26	27	28				

March							April							
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	
					1	2	3	1	2	3	4	5	6	7
4	5	6	7	8	9	10	8	9	10	11	12	13	14	
11	12	13	14	15	16	17	15	16	17	18	19	20	21	
18	19	20	21	22	23	24	22	23	24	25	26	27	28	
25	26	27	28	29	30	31	29	30						

May							June						
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
		1	2	3	4	5						1	2
6	7	8	9	10	11	12	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16

20	21	22	23	24	25	26	17	18	19	20	21	22	23
27	28	29	30	31			24	25	26	27	28	29	30

July							August						
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
	1	2	3	4	5	6				1	2	3	4
8	9	10	11	12	13	14	5	6	7	8	9	10	11
15	16	17	18	19	20	21	12	13	14	15	16	17	18
22	23	24	25	26	27	28	19	20	21	22	23	24	25
29	30	31					26	27	28	29	30	31	

September							October						
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
						1		1	2	3	4	5	6
2	3	4	5	6	7	8	7	8	9	10	11	12	13
9	10	11	12	13	14	15	14	15	16	17	18	19	20
16	17	18	19	20	21	22	21	22	23	24	25	26	27
23	24	25	26	27	28	29	28	29	30	31			
30													

November							December						
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
					1	2							1
4	5	6	7	8	9	10	2	3	4	5	6	7	8
11	12	13	14	15	16	17	9	10	11	12	13	14	15
18	19	20	21	22	23	24	16	17	18	19	20	21	22
25	26	27	28	29	30		23	24	25	26	27	28	29
							30	31					

如何从月号中得到月名？

How I can get the month name from the month number?

```
# Python's program to get the month name from the month number
import calendar
import datetime

# Month name from number
print("Month name from number 5:")
month_num = 1
month_abre = datetime.date(2015, month_num, 1).strftime('%b')
month_name = datetime.date(2015, month_num, 1).strftime('%B')
print("Short Name:", month_abre)
print("Full Name:", month_name)

print("\nList of all months from calendar")
# Print list of all months from calendar
for month_val in range(1, 13):
    print(calendar.month_abbr[month_val], "-", calendar.month_name[month_val])
```

```
Month name from number 5:
Short Name: Jan
Full Name: January

List of all months from calendar
Jan - January
Feb - February
Mar - March
```

```
Apr - April
May - May
Jun - June
Jul - July
Aug - August
Sep - September
Oct - October
Nov - November
Dec - December
```

如何开始和结束一个星期的日期从一个给定的日期?

How to get start and end of date of a week from a given date?

```
# Python's program to get start and end of week
from datetime import datetime, timedelta

date_str = '2018-01-14'
date_obj = datetime.strptime(date_str, '%Y-%m-%d')

start_of_week = date_obj - timedelta(days=date_obj.weekday()) # Monday
end_of_week = start_of_week + timedelta(days=6) # Sunday
print(start_of_week)
print(end_of_week)
```

```
2018-01-08 00:00:00
2018-01-14 00:00:00
```

根据当前日期查找前一个和下一个星期一的日期

Find the previous and coming Monday's date, based on current date

```
# Python's program to get last and coming Monday
import datetime

today = datetime.date.today()
last_monday = today - datetime.timedelta(days=today.weekday())
coming_monday = today + datetime.timedelta(days=-today.weekday(), weeks=1)
print("Today:", today)
print("Last Monday:", last_monday)
print("Coming Monday:", coming_monday)
```

```
Today: 2019-09-21
Last Monday: 2019-09-16
Coming Monday: 2019-09-23
```

获取当前季度的第一个日期和最后一个日期

Get First Date and Last Date of Current Quarter

```
# Python's program to get first and last day of Current Quarter Year
from datetime import datetime, timedelta

current_date = datetime.now()
current_quarter = round((current_date.month - 1) // 3 + 1) # 使用整除//,3个月一个季度
first_date = datetime(current_date.year, 3 * current_quarter - 2, 1)
last_date = datetime(current_date.year, 3 * current_quarter + 1, 1) + timedelta(days=-1)

print("First Day of Quarter:", first_date)
print("Last Day of Quarter:", last_date)
```

```
First Day of Quarter: 2019-07-01 00:00:00
Last Day of Quarter: 2019-09-30 00:00:00
```