Python Datetime library

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This is a Jupyter notebook converted to LaTeX using the nbconvert tool. It introduces the ***Datetime*** library. For any question or remark please email me or send a request throught my github.

1 Python Datetime

Python has a module named ***Datetime*** to work with dates and times. It provides a variety of classes for representing and manipulating date and time, as well as for formatting and parsing dates and times in a variety of formats.

date	**time**
year	hour
month	minute
day	second
weekday	microsecond
	timezone

2 Time

The time class represents a time object. It has the following attributes:

- ***hour*** : The hour of the time (0-23).
- ***minute*** : The minute of the time (0-59).

2.1 Get current date and time

```
from datetime import datetime
# Get the current date and time
now = datetime.now()
# Print the current date and time
print("Current date and time: ", now)
```

output:

```
Current date and time:  2025-12-13 17:20:00.123456
```

Here, we have imported the datetime module and used the now() function to get the current date and time. The result is stored in the now variable, which is a datetime object. We then printed the current date and time using the print() function.

3 Date

The date class represents a date object. It has the following attributes:

- ***year*** : The year of the date.
- ***month*** : The month of the date (1-12).
- ***day*** : The day of the date (1-31).

3.1 Get current date

```
from datetime import date
# Get the current date
today = date.today()
# Print the current date
print("Current date: ", today)
```

output:

```
Current date:  2025-12-13
```

Here, we have imported the date module and used the today() function to get the current date. The result is stored in the today variable, which is a date object. We then printed the current date using the print() function.

4 Timezone

The timezone class represents a timezone object. It has the following attributes:

- ***name*** : The name of the timezone.
- ***offset*** : The offset of the timezone from UTC.

4.1 Get current timezone

```
from datetime import datetime, timezone
# Get the current timezone
tz = datetime.now(timezone.utc).astimezone().tzinfo
# Print the current timezone
```

5 Attributes of datetime Module

We can use the dir() function to geta a list containing all attributes of a module.

```
import datetime
print(dir(datetime))
```

output:

```
['MAXYEAR', 'MINYEAR', '__builtins__', '__cached__', '__doc__', '__file__', '__loader__',
'__name__', '__package__', '__spec__', '_divide_and_round', '_isoweek1monday',
'date', 'datetime', 'datetime_CAPI', 'timedelta', 'time', 'timezone', 'tzinfo']
```

Among all the attributes of datetime module, the most commonly used classes in the datetime module are:

- ***datetime.datetime*** - represents a single point in time, including a date and a time.
- ***datetime.date*** - represents a date (year, month, and day) without a time.
- ***datetime.time*** - represents a time (hour, minute, second, and microsecond) without a date.
- ***datetime.timedelta*** - represents a duration, which can be used to perform arithmetic with datetime objects.

6 strftime

This function formats a datetime object into a string according to a specified format such as Short/Long days (Mon, Monday), Short/Long years(21, 2021), Numeric/Alphabetic month(03, March).

The format string can contain various directives that specify how to format the date and time.

Notation	Meaning	Example
%a	Weekday, abbreviated	Wed
%A	Weekday, full	Wednesday
%w	Weekday as a number 0-6, 0 is Monday	3
%d	Day of the month 01-31	13
%b	Month name, abbreviated	Dec
%B	Month name, full	December
%m	Month as a number 01-12	12
%y	Year without century 00-99	21
%Y	Year with century	2021
%H	Hour 00-23	17
%I	Hour 01-12	05
%p	AM/PM	PM
%M	Minute 00-59	20
%S	Second 00-59	00
%f	Microsecond 000000-999999	123456
%z	UTC offset	+0100
%Z	Timezone name	CET

```
from datetime import datetime
# Get the current date and time
now = datetime.now()
# Format the date and time
formatted_date = now.strftime("%Y-%m-%d %H:%M:%S")
# Print the formatted date and time
print("Formatted date and time: ", formatted_date)
```

output:

```
Formatted date and time:  2025-12-13 17:20:00
```

7 References

- Python Datetime Module on w3schools
- Python Datetime documentation on python.org