

# Lesson 11

## Python Essentials

### Overview

1. Regular Expressions
2. Dates
3. Time Zones
4. Calendar

### Regular Expressions (Regex)

- Finding matches based on sophisticated patterns.
- Use `re` module.

Function	Description
<code>findall</code>	Returns a list containing all matches
<code>search</code>	Returns a Match object if there is a match anywhere in the string
<code>split</code>	Returns a list where the string has been split at each match
<code>sub</code>	Replaces one or many matches with a string

Notes: <https://docs.python.org/2/library/re.html>

### Metacharacters

- Characters with a special meaning

Character	Description	Example
<code>[]</code>	A set of characters	<code>"[a-m]"</code>
<code>\</code>	Signals a special sequence (use also to escape special characters)	<code>"\"</code>
<code>.</code>	Any character (except newline character)	<code>"he.o"</code>
<code>^</code>	Starts with	<code>"^hello"</code>

Character	Description	Example
\$	Ends with	"world\$"
*	Zero or more occurrences	"aix*"
+	One or more occurrences	"aix+"
{}	Exactly the specified number of occurrences	"al{2}"
()	Capture and group	Either or

Notes: <https://docs.python.org/2/library/re.html>

## Special Sequences

- A special sequence is a \*\*\*\*\* followed by one of the characters in the list below.
- Have special meaning.

Element	Description
.	matches any character except n
d	matches any digit [0-9]
D	matches non-digit characters [^0-9]
s	matches whitespace character [ t n r f v]
S	matches non-whitespace character [^ t n r f v]
w	matches alphanumeric character [a-zA-Z0-9_]
W	matches any non-alphanumeric character [^a-zA-Z0-9]

## Dates

- use the datetime library
- timedelta defines a period of time

```
from datetime import datetime
current_date = datetime.now()
print('Today is: ' + str(current_date))
```

```
from datetime import timedelta
one_day = timedelta(days=1)
yesterday = today - one_day
print('Yesterday was: ' + str(yesterday))
```

```
birthday_date = datetime.strptime(birthday, '%d/%m/%Y')
print ('Birthday: ' + str(birthday_date))
```

## Time Zones

- dateutil includes an interface to the IANA time zone database

```
from dateutil import tz
from datetime import datetime

datetime.now(tz=tz.UTC)
```

## Calendar

- Calendar module outputs calendars.
- Provides useful functions.

```
import calendar

yy = 2021
mm = 4

# display the calendar
print(calendar.month(yy, mm))
```