In [1]:

```
import re
```

In [2]:

```
txt = "The rain in Spain"
x = re.findall("ai", txt)
print(x)
```

```
['ai', 'ai']
```

In [3]:

```
txt = "The rain in Spain"

#Find all lower case characters alphabetically between "a" and "m":

x = re.findall("[a-m]", txt)
print(x)
```

```
['h', 'e', 'a', 'i', 'i', 'a', 'i']
```

In [4]:

```
txt = "That will be 59 dollars"

#Find all digit characters:

x = re.findall("\d", txt)
print(x)
```

```
['5', '9']
```

In [5]:

```
txt = "hello world"

#Search for a sequence that starts with "he", followed by two (any) characters, and an
 "o":

x = re.findall("he..o", txt)
print(x)
```

```
['hello']
```

In [6]:

```
txt = "hello world"

#Check if the string starts with 'hello':

x = re.findall("^hello", txt)
if x:
  print("Yes, the string starts with 'hello'")
else:
  print("No match")
```

```
Yes, the string starts with 'hello'
```

In [7]:

```
txt = "hello world"

#Check if the string ends with 'world':

x = re.findall("world$", txt)
if x:
  print("Yes, the string ends with 'world'")
else:
  print("No match")
```

```
Yes, the string ends with 'world'
```

In [8]:

```
txt = "The rain in Spain falls mainly in the plain!"

#Check if the string contains "ai" followed by 0 or more "x" characters:

x = re.findall("aix*", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['ai', 'ai', 'ai', 'ai']
Yes, there is at least one match!
```

In [9]:

```
txt = "The rain in Spain falls mainly in the plain!"

#Check if the string contains "ai" followed by 1 or more "x" characters:

x = re.findall("aix+", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
[]
No match
```

In [10]:

```
txt = "The rain in Spain falls mainly in the plain!"

#Check if the string contains "a" followed by exactly two "l" characters:

x = re.findall("al{2}", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['all']
Yes, there is at least one match!
```

In [11]:

```
txt = "The rain in Spain falls mainly in the plain!"

#Check if the string contains either "falls" or "stays":

x = re.findall("falls|stays", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['falls']
Yes, there is at least one match!
```

In [12]:

```
import re

txt = "The rain in Spain"

#Check if the string starts with "The":

x = re.findall("\AThe", txt)

print(x)

if x:
  print("Yes, there is a match!")
else:
  print("No match")
```

```
['The']
Yes, there is a match!
```

In [13]:

```
txt = "The rain in Spain"

#Check if "ain" is present at the end of a WORD:

x = re.findall(r"ain\b", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['ain', 'ain']
Yes, there is at least one match!
```

In [14]:

```
txt = "The rain in Spain"

#Check if "ain" is present, but NOT at the beginning of a word:

x = re.findall(r"\Bain", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['ain', 'ain']
Yes, there is at least one match!
```

In [15]:

```
txt = "The rain in Spain"

#Return a match at every no-digit character:

x = re.findall("\D", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['T', 'h', 'e', ' ', 'r', 'a', 'i', 'n', ' ', 'i', 'n', ' ', 'S', 'p',
'a', 'i', 'n']
Yes, there is at least one match!
```

In [16]:

```
txt = "The rain in Spain"

#Check if the string contains any digits (numbers from 0-9):

x = re.findall("\d", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
[]
No match
```

In [17]:

```
txt = "The rain in Spain"

#Return a match at every word character (characters from a to Z, digits from 0-9, and t
he underscore _ character):

x = re.findall("\w", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['T', 'h', 'e', 'r', 'a', 'i', 'n', 'i', 'n', 'S', 'p', 'a', 'i', 'n']
Yes, there is at least one match!
```

In [19]:

```
import re
txt = "The rain in Spain"

#Check if the string has any a, r, or n characters:

x = re.findall("[arn]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['r', 'a', 'n', 'n', 'a', 'n']
Yes, there is at least one match!
```

In [20]:

```
txt = "The rain in Spain"

#Check if the string has any characters between a and n:

x = re.findall("[a-n]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['h', 'e', 'a', 'i', 'n', 'i', 'n', 'a', 'i', 'n']
Yes, there is at least one match!
```

In [21]:

```
txt = "The rain in Spain"

#Check if the string has other characters than a, r, or n:

x = re.findall("[^arn]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['T', 'h', 'e', ' ', 'i', ' ', 'i', ' ', 'S', 'p', 'i']
Yes, there is at least one match!
```

In [22]:

```
txt = "The rain in Spain"

#Check if the string has any 0, 1, 2, or 3 digits:

x = re.findall("[0123]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
[]
No match
```

In [28]:

```
txt = "The 1 rain 3 3 in 2 Spain"

#Check if the string has any 0, 1, 2, or 3 digits:

x = re.findall("[0123]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['1', '3', '3', '2']
Yes, there is at least one match!
```

In [23]:

```
txt = "8 times before 11:45 AM"

#Check if the string has any digits:

x = re.findall("[0-9]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['8', '1', '1', '4', '5']
Yes, there is at least one match!
```

In [24]:

```
txt = "8 times before 11:45 AM"

#Check if the string has any two-digit numbers, from 00 to 59:

x = re.findall("[0-5][0-9]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['11', '45']
Yes, there is at least one match!
```

In [25]:

```
txt = "8 times before 11:45 AM"

#Check if the string has any characters from a to z lower case, and A to Z upper case:

x = re.findall("[a-zA-Z]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['t', 'i', 'm', 'e', 's', 'b', 'e', 'f', 'o', 'r', 'e', 'A', 'M']
Yes, there is at least one match!
```

In [26]:

```
txt = "8 times before 11:45 AM"

#Check if the string has any + characters:

x = re.findall("[+]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
[]
No match
```

In [27]:

```
txt = "8 times + before + 11:45 AM"

#Check if the string has any + characters:

x = re.findall("[+]", txt)

print(x)

if x:
  print("Yes, there is at least one match!")
else:
  print("No match")
```

```
['+', '+']
Yes, there is at least one match!
```

In [29]:

```
txt ="Regular expression is a sequence of character(s) mainly used to find and replace
 patterns in a string or file"


#Check if the string starts with 'hello':

x = re.findall("^Regular", txt)
if x:
  print("Yes, the string starts with 'Regular'")
else:
  print("No match")
```

```
Yes, the string starts with 'Regular'
```

In [30]:

```
txt ="Regular expression is a sequence of character(s) mainly used to find and replace
 patterns in a string or file"
x = re.findall("file$", txt)
if x:
  print("Yes, the string ends with 'file'")
else:
  print("No match")
```

```
Yes, the string ends with 'file'
```

In [31]:

```
txt= 'Regular expression is a sequence of character(s) mainly used to find and replace
 patterns in a string or file'

start = txt.find("patterns") + len("patterns")
end = txt.find("file")
substring = txt[start:end]
print(substring)
```

```
 in a string or
```

In [32]:

```
txt= 'Regular expression is a sequence of character(s) mainly used to find and replace
 patterns in a string or file'

start = txt.find("patterns")
end = txt.find("file") + + len("file")
substring = txt[start:end]
print(substring)
```

```
patterns in a string or file
```

In [34]:

```
replacement_patterns = [
(r'won\'t', 'will not'),
(r'can\'t', 'cannot'),
(r'i\'m', 'i am'),
(r'ain\'t', 'is not'),
(r'(\w+)\'ll', '\g<1> will'),
(r'(\w+)n\'t', '\g<1> not'),
(r'(\w+)\'ve', '\g<1> have'),
(r'(\w+)\'s', '\g<1> is'),
(r'(\w+)\'re', '\g<1> are'),
(r'(\w+)\'d', '\g<1> would')]


class RegexReplacer(object):
  def __init__(self, patterns=replacement_patterns):
    self.patterns = [(re.compile(regex), repl) for (regex, repl)in patterns]
  def replace(self, text):
    s = text
    for (pattern, repl) in self.patterns:
      (s, count) = re.subn(pattern, repl, s)
    return s

replacer= RegexReplacer()
txt=Sentence1="We'll see how to replace words using regular expressions such doesn't, c
an’t and so on"
print(replacer.replace(txt))
```

```
We will see how to replace words using regular expressions such does not,
can’t and so on
```

In [39]:

```
class RepeatReplacer(object):
 def __init__(self):
  self.repeat_regexp = re.compile(r'(\w*)(\w)\2(\w*)')
  self.repl = r'\1\2\3'
 def replace(self, word):
  repl_word = self.repeat_regexp.sub(self.repl, word)
  if repl_word != word:
   return self.replace(repl_word)
  else:
    return repl_word

replacer= RegexReplacer()
txt = "We likkkkkke python"
print(replacer.replace(txt))
```

```
We likkkkkke python
```

In [ ]: