

Objetivos

Unidad 1 – Lenguajes Regulares y Autómatas

Explicar los conceptos fundamentales de alfabetos, cadenas y lenguajes.

Entender y aplicar, tanto las nociones de lenguajes y expresiones regulares, como de autómatas de estado finito, para el reconocimiento de patrones, procesamiento, validación y extracción de texto usando un lenguaje de programación.

In this follow-up you'll work with regular expressions in python.

Instructions

- Work on the jupyter notebook provided in the assignment's statement, change the name for <yourName>_<youtLastName>.ipynb
- Solve at least 3 from the 5 challenges. You'll get extra credit if provide more solved challenges.
- **For each solved challenge**, you must deliver written in English and by hand (on paper, of course) the following:
 - o The statement of the challenge
 - o The regular expression
 - o An explanation of the parts in the regular expression.

Example:

→ In the notebook

```
example= r'\b(\w+)\b=?.*\b\1\b'  
print(bool(re.compile(example).search("apple banana orange apple")))  
print(bool(re.compile(example).search("hello world, this is a test")))
```

True
False

→ In the paper

Exercise X. Find a repeated substring in a text.

Regular expression: `r'\b(\w+)\b=?.*\b\1\b'`

Explanation

`\b` is the word boundary to ensure we're capturing a complete word.

`(\w+)` to match one word and store it as a group (`\1`).

`\b` To ensure that the captured substring is a full word.

`=?.*` Matches any characters using look-ahead, allowing words or spaces between occurrences.

`\b\1\b`. Matches the same word again later in the string.

Rubrica:

- Each challenge will be marked according to the number of test cases your solution pass. Each of the exercises must be solved using regular expressions, any other approach, even if it works, won't be accepted.
- Percentages:
 - o For each of the three challenges 20 points for the solution in the notebook, and 10 for the explanation.
 - o 10 points for the grammar and spelling
- Extra credit: you'll receive 10 extra points for each extra challenge solved.