B24267

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1 What is the function that creates Regex object?
re.compile()

2 Why are raw strings often used when creating Regex objects
- Raw strings are used to avoid ~~unintended~~ issues with escape sequences in regular expressions.

3 What search() method returns.
- Returns a match object if the pattern is found in the string. otherwise, it returns none.

4 How do you get the actual string that match the pattern from a Match object
-Use group() method of the match object to retrieve the actual string that match the pattern

5 In the regex created r'(\d\d\d)-(\d\d\d-\dd\d\d) what does group 0 cover? Group 1? Group 2
Group 0 → Returns the entire match for example (076-291-6855)
Group 1 → Returns the first set of digits befor the hyphen (076)
Group 2 → Returns the second set of digits after the hypen (291-6855)

6 Parentheses and periods have specific meanings in regex syntax. How would you specify that you want a regex to match actual parentheses and period characters
→ Escape them with \: , \(matches (. and \. matches .

7 The findall() mtd returns a list of str or a list of tuples of strs. What makes it return one or the other?
• It returns a list of strings if a regex has no groups.
• It returns a list of tuples if a regex has groups.

8 What does the | character signify in regular expressions?
Signifies an OR operation, matching one pattern or another.

9 What two things does the ? character signify in regular expressions?
- Makes the preceding group optional eg (wo)? man matches "woman" or "man"
when used with * or + makes the match non-greedy

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10 What is the difference between + and * characters.

+ signifies or represents 1 or more occurrences.

* Represents 0 or more occurrences.

11 What is the difference between {3} and {3,5} in regular expressions?

→ {3} → Matches exactly 3 occurrences

→ {3,5} → Matches between 3 and 5 occurrences

12 What do the \d, \w and \s shorthand character classes signify in regular expression.

→ \d → Matches any digit [0-9]

\w → Matches any word character (alphanumeric + underscore) [a-zA-Z0-9_]

\s → matches any whitespace character

13 What do \D, \W and \S shorthand character classes signify in regular expression.

\D → Matches any non-digit character.

\W → Matches any non-word character.

\S → Matches any non-whitespace character.

14 What is the difference between .* and .*?

.* → ~~Matches~~ Matches as much characters as possible (greedy match)

.*? → Matches as little characters as possible (non-greedy match)

15 What is the character class syntax to match all numbers and lowercase letters?

[0-9a-z]

16 How do you make a regular expression case-insensitive?

re.IGNORECASE

17 What does the . character normally match? What does it match if re.DOTALL is passed as the second argument to re.compile()?

It matches any character except a newline.

18 If numRegex = re.compile(r'\d+'), what will numRegex.sub('X', '12 drummers, 11 pipers, five rings, 3 hens') return?

→ Returns 'X drummers, X pipers, five rings, X hens'

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19 What does passing re.VERBOSE as the second argument to re.compile() allow you to do?

→ Allows you to write more readable regex patterns by ignoring whitespace and adding comments within the pattern.

20 How would you write a regex that matches a number with commas for every three digits? It must match the following

→ r'\d{1,3}(,\d{3})*$'

21 Regex for fullname ending with "Watanabe"

r'^[A-Z][a-z]* Watanabe$'

22 Regex for ~~Structure Sentence~~ specific sentence ending with a period.

→ ~~r'^(Alice|Bob|Carol$) (eats|pets|throws) (apples|cats|baseball~~

→ r'^(Alice|Bob|Carol) (eats|Pets|throws) (apples|cats|baseballs)\.$

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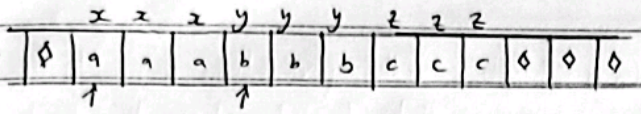
A turing machine that can accept $a^n b^n c^n$

$L = a^n b^n c^n \mid n \geq 1$

eg $n=1 \rightarrow abc$, $n=2 \rightarrow aabbcc$, $n=3 \rightarrow aaabbbccc$ ....

$L = \{abc, aabbcc, aaabbbccc, \ldots\}$



Tape symbols

States	a	b	c	x	y		
q_0	q_1, x, R				$q_4\ y\ R$		
q_1	q_1, a, R	q_2, y, R			$q_1\ y\ R$		
q_2		$q_2\ b\ R$	q_3, z, L			$q_2\ z\ R$	
q_3	q_3, a, L	$q_3\ b\ L$		$q_0, x\ R$	$q_3\ y\ L$	$q_3, z\ L$	
q_4					$q_4\ y\ R$	$q_4\ z\ R$	$q_4\ \Delta\ R$
q_5							

TM $= M = \{q_0, q_1, q_2, q_3, q_4, q_5\}$

$\Sigma = \{a, b, c\}$

$T = \{a, b, c, x, y, z, \Delta\}$

δ = transition table

→ (q) → q_0

(f) → q_5