1. What is the name of the feature responsible for generating Regex objects?

The feature responsible for generating Regex objects in Python is the re module. This module provides support for working with regular expressions, allowing you to compile regex patterns and use them for various string manipulation tasks.

1. Why do raw strings often appear in Regex objects?

Raw strings often appear in Regex objects to make the regular expressions easier to read and write. In Python, raw strings are defined by prefixing a string with the letter r or R, like this: r"some\_string"

1. What is the return value of the search() method?

The search() method in the re module is used to search for a pattern within a string. The return value depends on whether a match is found

1. From a Match item, how do you get the actual strings that match the pattern?

To get the actual strings that match the pattern from a match object, you can use the group() method. The group() method returns the part of the string where there was a match.

1. In the regex which created from the r'(\d\d\d)-(\d\d\d-\d\d\d\d)', what does group zero cover? Group 2? Group 1?

match.group(0) returns the entire matched string.

match.group(1) returns the part matched by the first set of parentheses.

match.group(2) returns the part matched by the second set of parentheses.

1. In standard expression syntax, parentheses and intervals have distinct meanings. How can you tell a regex that you want it to fit real parentheses and periods?

In standard expression syntax, parentheses and intervals have distinct meanings. How can you tell a regex that you want it to fit real parentheses and periods

1. The findall() method returns a string list or a list of string tuples. What causes it to return one of the two options?

**No Capturing Groups**: findall() returns a list of matched strings.

**With Capturing Groups**: findall() returns a list of tuples, with each tuple containing the matched strings for the capturing groups.

1. In standard expressions, what does the | character mean?

In regular expressions, the | character is known as the **alternation operator**. It is used to specify alternatives or "or" conditions within a regex pattern. When you use the | operator, it means that the regex can match either the pattern on the left side of the | or the pattern on the right side of it.

1. In regular expressions, what does the character stand for?

In regular expressions, the . (dot) character is a special metacharacter that matches any single character except for a newline (\n). It's a wildcard that stands for "any character."

10.In regular expressions, what is the difference between the + and \* characters?

In regular expressions, the + and \* characters are quantifiers, and they control how many times a preceding element can be matched.

1. What is the difference between {4} and {4,5} in regular expression?

In regular expressions, {4} and {4,5} are quantifiers that specify the number of times the preceding element should occur

1. What do you mean by the \d, \w, and \s shorthand character classes signify in regular expressions?

\d represents any digit (0-9).

\w represents any word character. This includes letters (a-z, A-Z), digits (0-9), and underscores (\_).

\s represents any whitespace character. This includes spaces, tabs, and newline characters.

1. What do means by \D, \W, and \S shorthand character classes signify in regular expressions?

\D represents any character that is **not** a digit

\W Represents any character that is **not** a word character. This includes any character that is not a letter (a-z, A-Z), digit (0-9), or underscore (\_).

\S Represents any character that is **not** a whitespace character. This includes any character that is not a space, tab, or newline

1. What is the difference between .\*? and .\*?

The .\*? and .\* are both regex patterns used to match sequences of characters. The key difference lies in how greedy they are in matching text

1. What is the syntax for matching both numbers and lowercase letters with a character class?

To match both numbers (digits) and lowercase letters with a character class in a regular expression, you can use the square brackets [] to define a character class that includes both ranges

1. What is the procedure for making a normal expression in regax case insensitive?

To make a regular expression case insensitive in Python, you can use the re.IGNORECASE flag, also known as re.I. This flag makes the pattern matching case insensitive, meaning it will match letters regardless of their case (uppercase or lowercase).

1. What does the . character normally match? What does it match if re.DOTALL is passed as 2nd argument in re.compile()?

In regular expressions, the . (dot) character is a special metacharacter that normally matches any single character **except** for a newline (\n).

1. If numReg = re.compile(r'\d+'), what will numRegex.sub('X', '11 drummers, 10 pipers, five rings, 4 hen') return?

'X drummers, X pipers, five rings, X hen'

1. What does passing re.VERBOSE as the 2nd argument to re.compile() allow to do?

Passing re.VERBOSE (also known as re.X) as the second argument to re.compile() allows you to write more readable and organized regular expressions by enabling you to include whitespace and comments within the pattern. This can be especially helpful for complex regex patterns.

20. How would you write a regex that match a number with comma for every three digits? It must match the given following:

'42'

'1,234'

'6,368,745'

but not the following:

'12,34,567' (which has only two digits between the commas)

'1234' (which lacks commas)

**'42' matches**

**'1,234' matches**

**'6,368,745' matches**

**'12,34,567' does not match**

**'1234' does not match**

21. How would you write a regex that matches the full name of someone whose last name is Watanabe? You can assume that the first name that comes before it will always be one word that begins with a capital letter. The regex must match the following:

'Haruto Watanabe'

'Alice Watanabe'

'RoboCop Watanabe'

but not the following:

'haruto Watanabe' (where the first name is not capitalized)

'Mr. Watanabe' (where the preceding word has a nonletter character)

'Watanabe' (which has no first name)

'Haruto watanabe' (where Watanabe is not capitalized)

**'Haruto Watanabe' matches**

**'Alice Watanabe' matches**

**'RoboCop Watanabe' matches**

**'haruto Watanabe' does not match**

**'Mr. Watanabe' does not match**

**'Watanabe' does not match**

**'Haruto watanabe' does not match**

22. How would you write a regex that matches a sentence where the first word is either Alice, Bob, or Carol; the second word is either eats, pets, or throws; the third word is apples, cats, or baseballs; and the sentence ends with a period? This regex should be case-insensitive. It must match the following:

'Alice eats apples.'

'Bob pets cats.'

'Carol throws baseballs.'

'Alice throws Apples.'

'BOB EATS CATS.'

but not the following:

'RoboCop eats apples.'

'ALICE THROWS FOOTBALLS.'

'Carol eats 7 cats.'

**'Alice eats apples.' matches**

**'Bob pets cats.' matches**

**'Carol throws baseballs.' matches**

**'Alice throws Apples.' matches**

**'BOB EATS CATS.' matches**

**'RoboCop eats apples.' does not match**

**'ALICE THROWS FOOTBALLS.' does not match**

**'Carol eats 7 cats.' does not match**