Question 1- Write a Python program to check that a string contains only a certain set of characters (in this case a-z, A-Z and 0-9).

In [2]:
```python
import re
def is_allowed_specific_char(string):
    charRe = re.compile(r'[^a-zA-Z0-9]')
    string = charRe.search(string)
    return not bool(string)

print(is_allowed_specific_char("ABCDEFabcdef123450")) # True
print(is_allowed_specific_char("*&%@#!}{")) # False
```

```
True
False
```

Question 2- Create a function in python that matches a string that has an a followed by zero or more b's

In [3]:
```python
import re

def text_match(text):
    patterns = '^a(b*)$'
    if re.search(patterns, text):
        return 'Found a match!'
    else:
        return('Not matched!')

print(text_match("ac"))
print(text_match("abc"))
print(text_match("a"))
print(text_match("ab"))
print(text_match("abb"))
```

```
Not matched!
Not matched!
Found a match!
Found a match!
Found a match!
```

Question 3- Create a function in python that matches a string that has an a followed by one or more b's

In [4]:
```python
import re

def text_match(text):
    patterns = 'ab+?'
    if re.search(patterns, text):
        return 'Found a match!'
    else:
        return('Not matched!')

print(text_match("ab"))
print(text_match("abc"))
```

```
Found a match!
Found a match!
```

Question 4- Create a function in Python and use RegEx that matches a string that has an a followed by zero or one 'b'.

In [5]:
```python
import re

def text_match(text):
    patterns = 'ab?'
    if re.search(patterns, text):
        return 'Found a match!'
    else:
        return('Not matched!')

print(text_match("ab"))
print(text_match("abc"))
```

```
Found a match!
Found a match!
```

Question 5- Write a Python program that matches a string that has an a followed by three 'b'.

In [6]:
```python
import re

def text_match(text):
    patterns = 'ab{3}'
    if re.search(patterns, text):
        return 'Found a match!'
    else:
        return('Not matched!')

print(text_match("abbb"))
print(text_match("abc"))
```

```
Found a match!
Not matched!
```

Question 6- Write a regular expression in Python to split a string into uppercase letters. Sample text: "ImportanceOfRegularExpressionsInPython" Output: ['Importance', 'Of', 'Regular', 'Expression', 'In', 'Python']

In [7]:
```python
import re

text = "ImportanceOfRegularExpressionsInPython"
result = re.findall('[A-Z][^A-Z]*', text)

print(result)
```

```
['Importance', 'Of', 'Regular', 'Expressions', 'In', 'Python']
```

Question 7- Write a Python program that matches a string that has an a followed by two to three 'b'.

In [8]:
```python
import re

def text_match(text):
    patterns = 'ab{2,3}'
    if re.search(patterns, text):
        return 'Found a match!'
    else:
        return('Not matched!')

print(text_match("ab"))
print(text_match("aabbbbbc"))
```

```
Not matched!
Found a match!
```

Question 8- Write a Python program to find sequences of lowercase letters joined with a underscore.

In [9]:
```python
import re

def text_match(text):
    patterns = r'\b[a-z]+_[a-z]+\b'
    return re.findall(patterns, text)

print(text_match("This is a sample_text string to test for regex matching."))
```

```
['sample_text']
```

Question 9- Write a Python program that matches a string that has an 'a' followed by anything, ending in 'b'.

In [12]:
```python
import re
def text_match(text):
        patterns = 'a.*?b$'
        if re.search(patterns,  text):
                return 'Found a match!'
        else:
                return('Not matched!')

print(text_match("aabbbbd"))
print(text_match("aabAbbbc"))
print(text_match("accddbbjjjb"))
```

```
Not matched!
Not matched!
Found a match!
```

Question 10- Write a Python program that matches a word at the beginning of a string.

In [17]:
```python
import re

def text_match(text):
    patterns = '^\\w+'
    if re.search(patterns, text):
        return 'Found a match!'
    else:
        return('Not matched!')

print(text_match("The quick brown fox jumps over the lazy dog."))
```

```
Found a match!
```

Question 11- Write a Python program to match a string that contains only upper and lowercase letters, numbers, and underscores.

In [18]:
```python
import re

def text_match(text):
    patterns = '^[a-zA-Z0-9_]*$'
    if re.search(patterns, text):
        return 'Found a match!'
    else:
        return('No match found!')

print(text_match("The quick brown fox jumps over the lazy dog."))
print(text_match("Python_Exercises_1"))
```

```
No match found!
Found a match!
```

Question 12- Write a Python program where a string will start with a specific number.

In [19]:
```python
string = "123abc"
if string.startswith("1"):
    print("String starts with 1")
else:
    print("String does not start with 1")
```

```
String starts with 1
```

Question 13- Write a Python program to remove leading zeros from an IP address

In [20]:
```python
def remove_zeros_from_ip(ip_add):
    new_ip_add = ".".join([str(int(i)) for i in ip_add.split(".")])
    return new_ip_add

print(remove_zeros_from_ip("255.024.01.01"))
print(remove_zeros_from_ip("127.0.0.01"))
```

```
255.24.1.1
127.0.0.1
```

Question 14- Write a regular expression in python to match a date string in the form of Month name followed by day number and year stored in a text file. Sample text : ' On August 15th 1947 that India was declared independent from British colonialism, and the reins of control were handed over to the leaders of the Country'. Output- August 15th 1947 Hint- Use re.match() method here

In [27]:
```python
import re

text = "On August 15th 1947 that India was declared independent from British colonialism, and the reins of control were handed over to the leaders of the Count
date_regex = r"([a-zA-Z]+) (\d{1,2})(st|nd|rd|th)? (\d{4})"
match = re.search(date_regex, text)
if match:
    print(match.group())
```

```
August 15th 1947
```

Question 15- Write a Python program to search some literals strings in a string. Go to the editor Sample text : 'The quick brown fox jumps over the lazy dog.' Searched words : 'fox', 'dog', 'horse'

In [28]:
```python
import re

def search_string(text, words):
    for word in words:
        if re.search(word, text):
            print(f"Found '{word}'")
        else:
            print(f"Not found '{word}'")

text = 'The quick brown fox jumps over the lazy dog.'
words = ['fox', 'dog', 'horse']
search_string(text, words)
```

```
Found 'fox'
Found 'dog'
Not found 'horse'
```

Question 16- Write a Python program to search a literals string in a string and also find the location within the original string where the pattern occurs Sample text : 'The quick brown fox jumps over the lazy dog.' Searched words : 'fox'

In [29]:
```python
import re

pattern = 'fox'
text = 'The quick brown fox jumps over the lazy dog.'
match = re.search(pattern, text)
s = match.start()
e = match.end()
print('Found \"%s\" in \"%s\" from %d to %d ' % (match.re.pattern, match.string, s, e))
```

```
Found "fox" in "The quick brown fox jumps over the lazy dog." from 16 to 19
```

Question 17- Write a Python program to find the substrings within a string. Sample text : 'Python exercises, PHP exercises, C# exercises' Pattern : 'exercises'.

In [32]:
```python
def find_substrings(string, pattern):
    start = 0
    while True:
        start = string.find(pattern, start)
        if start == -1:
            return
        yield start
        start += len(pattern)

string = 'Python exercises, PHP exercises, C# exercises'
pattern = 'exercises'

for index in find_substrings(string, pattern):
    print(f'Found exercises at index {index}')
```

```
Found exercises at index 7
Found exercises at index 22
Found exercises at index 36
```

Question 18- Write a Python program to find the occurrence and position of the substrings within a string.

In [33]:
```python
import re

text = 'Python exercises, PHP exercises, C# exercises'
pattern = 'exercises'

for match in re.finditer(pattern, text):
    s = match.start()
    e = match.end()
    print('Found \"%s\" at %d:%d' % (text[s:e], s, e))
```

```
Found "exercises" at 7:16
Found "exercises" at 22:31
Found "exercises" at 36:45
```

Question 19- Write a Python program to convert a date of yyyy-mm-dd format to dd-mm-yyyy format.

In [38]:
```python
import re
def change_date_format(dt):
        return re.sub(r'(\d{4})-(\d{1,2})-(\d{1,2})', '\\3-\\2-\\1', dt)
dt1 = "2023-07-10"
print("Original date in YYY-MM-DD Format: ",dt1)
print("New date in DD-MM-YYYY Format: ",change_date_format(dt1))
```

```
Original date in YYY-MM-DD Format:  2023-07-10
New date in DD-MM-YYYY Format:  10-07-2023
```

In [39]:
```python
from datetime import datetime

date_string = "2022-07-10"
date_object = datetime.strptime(date_string, "%Y-%m-%d")
new_date_string = date_object.strftime("%d-%m-%Y")

print(new_date_string)
```

```
10-07-2022
```

Question 20- Write a Python program to find all words starting with 'a' or 'e' in a given string.

In [40]:
```python
import re

text = "apple banana cherry date eggplant fig grapefruit"
pattern = r"\b([aeAE]\w+)\b"

matches = re.findall(pattern, text)

print(matches)
```

```
['apple', 'eggplant']
```

Question 21- Write a Python program to separate and print the numbers and their position of a given string.

In [41]:
```python
import re

text = "The quick brown fox jumps over the 123 lazy dog."
pattern = r"\d+"

for match in re.finditer(pattern, text):
    print("Number:", match.group(), "Position:", match.start())
```

```
Number: 123 Position: 35
```

Question 22- Write a regular expression in python program to extract maximum numeric value from a string

In [42]:
```python
import re

text = "The maximum numeric value is 1234.5678"
pattern = r"\d+(\.\d+)?"

matches = re.findall(pattern, text)

max_value = float("-inf")
for match in matches:
    value = float(match)
    if value > max_value:
        max_value = value

print("Maximum numeric value:", max_value)
```

```
Maximum numeric value: 0.5678
```

In [47]:
```python
import re

text = "The maximum numeric value is 1234.5678"
pattern = r"\d+\.\d+"

matches = re.findall(pattern, text)

max_value = float("-inf")
for match in matches:
    value = float(match)
    if value > max_value:
        max_value = value

print("Maximum floating-point value:", max_value)
```

```
Maximum floating-point value: 1234.5678
```

Question 23- Write a Regex in Python to put spaces between words starting with capital letters

In [48]:
```python
import re

text = "ThisIsAStringWithWordsStartingWithCapitalLetters"
pattern = r"(?<!^)(?=[A-Z])"

new_text = re.sub(pattern, " ", text)

print(new_text)
```

```
This Is A String With Words Starting With Capital Letters
```

Question 24- Python regex to find sequences of one upper case letter followed by lower case letters

In [49]:
```python
import re

text = "This is a String with Sequences of One Upper Case Letter Followed by Lower Case Letters"
pattern = r"[A-Z][a-z]+"

matches = re.findall(pattern, text)

print(matches)
```

```
['This', 'String', 'Sequences', 'One', 'Upper', 'Case', 'Letter', 'Followed', 'Lower', 'Case', 'Letters']
```

Question 25- Write a Python program to remove duplicate words from Sentence using Regular Expression

In [50]:
```python
import re

text = "This is a sentence with duplicate words and duplicate words"
pattern = r"\b(\w+)\b(?=.*\b\1\b)"

new_text = re.sub(pattern, "", text)

print(new_text)
```

```
This is a sentence with   and duplicate words
```

Question 26- Write a python program using RegEx to accept string ending with alphanumeric character.

In [52]:
```python
import re

regex_expression = '[a-zA-z0-9]$'

def check_string(my_string):
    if(re.search(regex_expression, my_string)):
        print("The string ends with an alphanumeric character")
    else:
        print("The string does not end with an alphanumeric character")

my_string_1 = "Python@"
print("The string is :")
print(my_string_1)
check_string(my_string_1)

my_string_2 = "Python1245"
print("\nThe string is :")
print(my_string_2)
check_string(my_string_2)
```

```
The string is :
Python@
The string does not end with an alphanumeric character

The string is :
Python1245
The string ends with an alphanumeric character
```

Question 27-Write a python program using RegEx to extract the hashtags. Sample Text: text = """RT @kapil_kausik: #Doltiwal I mean #xyzabc is "hurt" by #Demonetization as the same has rendered USELESS <U+00A0><U+00BD><U+00B1><U+0089> "acquired funds" No wo""" Output: ['#Doltiwal', '#xyzabc', '#Demonetization']

In [56]:
```python
# -*- coding: utf-8 -*-
import string
tweets = []

a = "RT @kapil_kausik: #Doltiwal I mean #xyzabc is hurt by #Demonetization as the same has rendered USELESS <U+00A0><U+00BD><U+00B1><U+0089> acquired funds No

# filter for printable characters then
a = ''.join(filter(lambda x: x in string.printable, a))

print(a)

for tweet in a.split(' '):
    if tweet.startswith('#'):
        tweets.append(tweet.strip(','))

print(tweets)
```

```
RT @kapil_kausik: #Doltiwal I mean #xyzabc is hurt by #Demonetization as the same has rendered USELESS <U+00A0><U+00BD><U+00B1><U+0089> acquired funds No wo
['#Doltiwal', '#xyzabc', '#Demonetization']
```

Question 28- Write a python program using RegEx to remove <U+..> like symbols Check the below sample text, there are strange symbols something of the sort <U+..> all over the place. You need to come up with a general Regex expression that will cover all such symbols. Sample Text: "@Jags123456 Bharat band on 28??<U+00A0><U+00BD><U+00B8><U+0082>Those who are protesting #demonetization are all different party leaders" Output: @Jags123456 Bharat band on 28??Those who are protesting #demonetization are all different party leaders

In [57]:
```python
import re

def remove_symbols(text):
    return re.sub(r'<U\+\w{4}>', '', text)

sample_text = "@Jags123456 Bharat band on 28??<U+00A0><U+00BD><U+00B8><U+0082>Those who are protesting #demonetization are all different party leaders"
output = remove_symbols(sample_text)
print(output)
```

```
@Jags123456 Bharat band on 28??Those who are protesting #demonetization are all different party leaders
```

Question 29- Write a python program to extract dates from the text stored in the text file. Sample Text: Ron was born on 12-09-1992 and he was admitted to school 15-12-1999. Store this sample text in the file and then extract dates.

In [60]:
```python
import os

print(os.getcwd())
```

```
C:\Users\lenovo
```

In [61]:
```python
with open('sample.txt', 'w') as f:
    f.write('Ron was born on 12-09-1992 and he was admitted to school 15-12-1999.')
```

In [62]:
```python
import re

with open('sample.txt', 'r') as f:
    text = f.read()
    dates = re.findall(r'\d{2}-\d{2}-\d{4}', text)
    print(dates)
```

```
['12-09-1992', '15-12-1999']
```

Question 30- Write a Python program to replace all occurrences of a space, comma, or dot with a colon. Sample Text- 'Python Exercises, PHP exercises.' Output: Python:Exercises::PHP:exercises:

In [63]:
```python
text = 'Python Exercises, PHP exercises.'
text = text.replace(' ', ':').replace(',', ':').replace('.', ':')
print(text)
```

```
Python:Exercises::PHP:exercises:
```

In [ ]: