In [1]:
```python
import regex as re
```

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 [4]:
```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"))
print(is_allowed_specific_char("*&%@#!}{"))
```

```
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 [5]:
```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 [9]:
```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 [14]:
```python
import re
def text_match(text):
    patterns = 'ab?'
    if re.search(patterns, text):
        return 'found a match!'
    else:
        return('not matched1')

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

```
found a match!
found a match!
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 [15]:
```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("aabbbbbc"))
```

```
found a match!
found a match!
```

Question 6- Write a regular expression in Python to split a string into uppercase letters.

In [16]:
```python
import re
text = "ImportanceOfRegularExpressionInPython"
print(re.findall('[A-Z][^A-Z]*', text))
```

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

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

In [17]:
```python
import re
def text_match(text):
    pattern = 'ab{2,3}'
    if re.search(pattern, 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 [18]:
```python
import re
def text_match(text):
    pattern = '^[a-z]+_[a-z]+$'
    if re.search(pattern, text):
        return 'found a match!'
    else:
        return('not matched!')
print(text_match("aab_cbbbc"))
print(text_match("aab_Abbbc"))
print(text_match("Aaab_abbbc"))
```

```
found a match!
not matched!
not matched!
```

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

In [21]:
```python
import re
def text_match(text):
    pattern = 'a.*?b$'
    if re.search(pattern, text):
        return 'found a match!'
    else:
        return('not matched!')

print(text_match("aabbbd"))
print(text_match("aabAbbbc"))
print(text_match("accddbbjjhhb"))
```

```
not matched!
not matched!
found a match!
```

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

In [23]:
```python
import re
def text_match(text):
    pattern = '^\W+'
    if re.search(pattern, text):
        return 'found a match!'
    else:
        return('not matched!')

print(text_match("Delhi is the capital of india."))
print(text_match(" Delhi is the capital of india."))
```

```
not matched!
found a match!
```

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

In [31]:
```python
import re
def text_match(text):
    pattern = '^[a-zA-Z0-9_]*$'
    if re.search(pattern, text):
        return 'found a match!'
    else:
        return('not matched!')
print(text_match("Delhi is the capital of india."))
print(text_match("Python_Exercises_1"))
```

```
not matched!
found a match!
```

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

In [32]:
```python
import re
def match_num(string):
    text = re.compile(r"^5")
    if text.match(string):
        return True
    else:
        return False
print(match_num('5-2345861'))
print(match_num('6-2345861'))
```

```
True
False
```

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

In [35]:
```python
import re
ip = "192.68.065.203"
string = re.sub('\.[0]*','.', ip)
print(string)
```

```
192.68.65.203
```

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.

In [82]:
```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 Country."
pattern = r"\b\w+\s+\d+(?:st|nd|rd|th)?\s+\d{4}\b"
matches = re.findall(pattern, text)
if matches:
    print(matches[0])
```

```
August 15th 1947
```

Question 15- Write a Python program to search some literals strings in a string. Go to the editor

In [14]:
```python
import re
pattern = [ 'fox', 'dog', 'horse' ]
text = 'The quick brown fox jumps over the lazy dof.'
for pattern in pattern:
    print('searching for "%s"in "%s" ->' % (pattern, text),)
    if re.search(pattern, text):
        print('matched!')
    else:
        print('nor matched!')
```

```
searching for "fox"in "The quick brown fox jumps over the lazy dof." ->
matched!
searching for "dog"in "The quick brown fox jumps over the lazy dof." ->
nor matched!
searching for "horse"in "The quick brown fox jumps over the lazy dof." ->
nor matched!
```

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

In [23]:
```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.

In [24]:
```python
import re
text = 'Python exercises, PHP exercises, C# exercises'
pattern = 'exercises'
for match in re.findall(pattern, text):
    print('found "%s"' % match)
```

```
found "exercises"
found "exercises"
found "exercises"
```

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

In [25]:
```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 [29]:
```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 = "2026-01-02"
print("Original date in YYY-MM-DD Format: ",dt1)
print("New date in DD_MM_YYY Format: ", change_date_format(dt1))
```

```
Original date in YYY-MM-DD Format:  2026-01-02
New date in DD_MM_YYY Format:  02-01-2026
```

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

In [30]:
```python
import re
text = "The following example created an Arraylist with a capacity of 50 elements. Four elements are then added to the Arraylist is trimmed accordingly."
list = re.findall("[ae]\w+", text)
print(list)
```

```
['example', 'eated', 'an', 'aylist', 'apacity', 'elements', 'elements', 'are', 'en', 'added', 'aylist', 'ed', 'accordingly']
```

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

In [31]:
```python
import re
text = "The following example created an Arraylist with a capacity of 50 elements. Four elements are then added to the Arraylist is trimmed accordingly."
for m in re.finditer("\d+", text):
    print(m.group(0))
    print("Index position:", m.start())
```

```
50
Index position: 62
```

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

In [43]:
```python
import re
def extract_max_numeric_value(string):
    numeric_values = re.findall(r'\d+', string)
    if numeric_values:
        max_value = max(map(int, numeric_values))
        return max_value
    else:
        return none

input_string = "The maximum value is 42, but there are also 10and 99."
max_value = extract_max_numeric_value(input_string)
print("Maximum numeric value:", max_value)
```

```
Maximum numeric value: 99
```

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

In [45]:
```python
import re
def capital_words_spaces(str1):
    return re.sub(r"(\w)([A-Z])", r"\1 \2", str1)

print(capital_words_spaces("Python"))
print(capital_words_spaces("PythonExercises"))
print(capital_words_spaces("PythonExercisesPracticeSolution"))
```

```
Python
Python Exercises
Python Exercises Practice Solution
```

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

In [60]:
```python
import re
def find_sequences(string):
    pattern = r'[A-Z][a-z]+'
    sequences = re.findall(pattern, string)
    return sequences

# Exsample usage:
input_string = "I love Python, and I enjoy using regex."
sequences = find_sequences(input_string)
print("Sequences found:", sequences)
```

```
Sequences found: ['Python']
```

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

In [61]:
```python
import re

def remove_duplicate_words(sentence):
    pattern = r'\b(\w+)\b\s+(?=.*\b\1\b)'
    cleaned_sentence = re.sub(pattern, '', sentence)
    return cleaned_sentence

#example usage:
input_sentence = "I love love Python programming programming."
cleaned_sentence = remove_duplicate_words(input_sentence)
print("Cleaned sentence:", cleaned_sentence)
```

```
Cleaned sentence: I love Python programming.
```

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

In [66]:
```python
import re
def accept_string_ending_alphanumeric(string):
    pattern = r'^.*[a-zA-Z0-9]$'
    if re.match(pattern, string):
        return True
    else:
        return False
input_string = "Hello123"
if accept_string_ending_alphanumeric(input_string):
    print('String accepted.')
else:
    print('String not accepted.')
```

```
String accepted.
```

Question 27-Write a python program using RegEx to extract the hashtags.

In [68]:
```python
import re
def extract_hashtags(text):
    pattern = r'#\w+'
    hashtags = re.findall(pattern, text)
    return hashtags
text = """RT @kapil_kaushik: #Doltiwal I mean #xyzabc is "hurt" by #Demonetization as the same has rendered USELESS <ed><U+00A0><U+00BD><ed><U+00B1><U+0089> "acquired funds" No wo"""
hashtags = extract_hashtags(text)
print("Extracted hashtags:", hashtags)
```

```
Extracted hashtags: ['#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 [69]:
```python
import re
def remove_U_plus_sympols(text):
    pattern = r'<U\+\w+>'
    cleaned_text = re.sub(pattern, '',text)
    return cleaned_text
text = "@Jags123456 Bharat band on 28??<ed><U+00A0><U+00BD><ed><U+00B8><U+0082>Those who  are protesting #demonetization  are all different party leaders"
cleaned_text = remove_U_plus_symbols(text)
print("Cleaned text:", cleaned_text)
```

```
Cleaned text: @Jags123456 Bharat band on 28??<ed><ed>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 [73]:
```python
import re
with open('text_file.txt', 'r') as file:
    text = file.read()
dates = re.findall(r'\d{2}-\d{2}-\d{4}', text)
for date in dates:
    print(date)
```

```
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 [75]:
```python
def replace_space_comma_dot_with_colon(text):
    replaced_text = text.replace(' ', ':').replace(',', ':').replace('.', ':')
    return replaced_text
sample_text = 'Python Exercises, PHP exercises.'
output_text = replace_space_comma_dot_with_colon(sample_text)
print("Output:", output_text)
```

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

In [ ]: