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## Topic - Regular Expression

**Ques 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 [11]: 1 class Introduction():
2         '''This class is for introduction of programm and take a user input.'''
3         def welcome_note(self):
4             '''This function only print welcomenote.'''
5             print('This is a python programm to check that a string contains only a certain set of characters .')
6
7         def user_input(self):
8             '''This method will take input from user.'''
9             user_string = input('Enter the String here = ')
10            return user_string
11
12         def methods_calling(self):
13             '''This method call the method of this class'''
14             self.welcome_note()
15             return self.user_input()
16
17 class CheckingString():
18     '''This class contains the methods which check that string contain specific character or not.'''
19     def __init__(self,string):
20         self.input_string = string
21
22     def patternmatching(self):
23         import re
24         pattern = '[\w\s]+'
25         res = re.match(pattern, self.input_string)
26         if res:
27             valid_string = res.group()
28
29         else:
30             print('String is not valid,please enter a valid string.')
31             valid_string = None
32         return valid_string
33
34 intro =Introduction()
35 value = intro.methods_calling()
36 obj = CheckingString(value)
37 print(f'Valid string entered by user = {obj.patternmatching()}')
38
39
```

This is a python programm to check that a string contains only a certain set of characters .  
Enter the String here = @@##%^  
String is not valid,please enter a valid string.  
Valid string entered by user = None

**Ques 2 - Create a program to split a string by only the first occurrence of any substring.**

```
In [4]: 1 class Introduction():
2         '''This class is for introduction of programm and take a user input.'''
3         def welcome_note(self):
4             '''This function only print welcomenote.'''
5             print('This is a python programm to split a string by only the first occurrence of any substring.')
6
7         def user_input(self):
8             '''This method will take input from user.'''
9             user_string = input('Enter the String here = ')
10            sub_string = input('Enter the sub string here = ')
11            return user_string,sub_string
12
13        def methods_calling(self):
14            '''This method call the method of this class'''
15            self.welcome_note()
16            return self.user_input()
17
18    class CheckingString():
19        '''This class contains the methods which check that string contain specific character or not.'''
20        def __init__(self,string,sub):
21            self.input_string = string
22            self.sub = sub
23
24        def patternmatching(self):
25            import re
26            pattern = '\\b{\\b}'.format(self.sub)
27            res = re.split(pattern, self.input_string,maxsplit=1)
28
29            return res
30
31    intro =Introduction()
32    value = intro.methods_calling()
33    obj = CheckingString(value[0],value[1])
34    print(f'List of splited string = {obj.patternmatching()}')
35
36
```

This is a python programm to split a string by only the first occurrence of any substring.  
Enter the String here = Python and data science and data  
Enter the sub string here = data  
List of splited string = ['Python and ', ' science and data']

### Ques 3 - Code that would match a string that has an a followed by zero or more b's.

```
In [6]: 1 import re
2 class Introduction():
3         '''This class is for introduction of programm and take a user input.'''
4         def welcome_note(self):
5             '''This function only print welcomenote.'''
6             print('This is a python programm to match a string that has an a followed by zero or more b"s.')
7
8         def user_input(self):
9             '''This method will take input from user.'''
10            user_string = input('Enter the String here = ')
11            return user_string
12
13        def methods_calling(self):
14            '''This method call the method of this class'''
15            self.welcome_note()
16            return self.user_input()
17
18    class Matching():
19        '''This class match the requied pattern'''
20        def __init__(self,string):
21            self.input_string = string
22
23        def pattern_matching(self):
24            pattern = '^a[b*B]*$'
25            res = re.match(pattern,self.input_string)
26            if res:
27                print('String enter by user match the required pattern.')
28            else:
29                print('String enter by user not match the required pattern.')
30
31    intro =Introduction()
32    value = intro.methods_calling()
33    obj = Matching(value)
34    print()
35    obj.pattern_matching()
```

This is a python programm to match a string that has an a followed by zero or more b"s.  
Enter the String here = abbb

String enter by user match the required pattern.

**Ques 4- Wap to find Three-digit numbers followed by space followed by two-digit numbers in a string.**

```
In [7]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to find Three-digit numbers followed by space followed by two-digit numbers in a string.'''
5     pattern = r'\b\d{3}[\s]\d{2}\b'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all number seprated by space = {matching(string_input)}')
```

Enter the string here = 123 25 4566 566 36 77899 4452 552 96 1348 1

List of all number seprated by space = ['123 25', '566 36', '552 96']

**Ques 5- Write a Python program that matches a string that has an a followed by one or more b's.**

```
In [8]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to matches a string that has an a followed by one or more b's.'''
5     pattern = r'\bab+\b'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all words = {matching(string_input)}')
```

Enter the string here = ab abbb acb abccc abd abbbbbbbb

List of all words = ['ab', 'abbb', 'abbbbbbbb']

**Ques 6- Write a program to search inform in a string both in uppercase & in lowercase. (INFORM or inform)**

```
In [9]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to search inform in a string both in uppercase & in lowercase. (INFORM or inform)'''
5     pattern = r'\b(INFORM|inform)'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all words = {matching(string_input)}')
```

Enter the string here = We inform to one student but he dont INFORM to others

List of all words = ['inform', 'INFORM']

**Ques 7 - WAP that matches a string that has an a followed by zero or one 'b'.**

```
In [12]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to matches a string that has an a followed by zero or one 'b'.'''
5     pattern = r'\bab*\b'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all words = {matching(string_input)}')
```

Enter the string here = abbbb axcd a abb dggbbb cbb cabb

List of all words = ['abbbb', 'a', 'abb']

**Ques 8 - WAP that matches a string that has an a followed by three 'b'.**

```
In [ ]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to matches a string that has an a followed by three 'b'.'''
5     pattern = r'\bab{3}\b'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all words = {matching(string_input)}')
```

**Ques 9 - Write a Python program that matches a string that has an a followed by two to three 'b'.**

```
In [18]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to matches a string that has an a followed by two to three 'b'.'''
5     pattern = r'\bab{2,3}\b'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all words = {matching(string_input)}')
```

Enter the string here = abbb abb csabb cabb habb  
List of all words = ['abbb', 'abb']

### Ques 10 - Find all the words starting in range of k-n using a for loop & re.

```
In [20]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to matches words starting in range of k-n using a for loop & re..'''
5     pattern = r'\b[k-nK-N]\w{0,15}'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all words = {matching(string_input)}')
```

Enter the string here = kiran big karpe loop range mahi number velocity  
List of all words = ['kiran', 'karpe', 'loop', 'mahi', 'number']

### By using loop :-

```
In [29]: 1 import re
2 string_input = input('Enter the string here = ').split()
3
4 def matching(string):
5     '''This function is to matches words starting in range of k-n using a for loop & re..'''
6     matched_list = []
7     for i in string:
8
9         if i[0] == 'k' or i[0] == 'l' or i[0] == 'm' or i[0] == 'n':
10
11             matched_list.append(i)
12
13     return matched_list
14 print(f'List of all words = {matching(string_input)}')
```

Enter the string here = kiran big karpe loop range mahi number velocity  
List of all words = ['kiran', 'karpe', 'loop', 'mahi', 'number']

### Ques 11 - Write a Python program to find sequences of lowercase letters joined with an underscore.

```
In [30]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to find sequences of lowercase letters joined with an underscore.'''
5     pattern = r'\b[a-z]{1,10}\w[_][a-z]{1,10}\b'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all words = {matching(string_input)}')
```

Enter the string here = cat\_dog Velocity and data\_science are Very\_good.  
List of all words = ['cat\_dog', 'data\_science']

### Ques 12 - Write a program to find the sequences of one upper case letter followed by lower case letters.

```
In [33]: 1 import re
2 string_input = input('Enter the string here = ')
3 def matching(string):
4     '''This function is to find the sequences of one upper case letter followed by lower case letters.'''
5     pattern = r'\b[A-Z][a-z]+\b'
6     res = re.findall(pattern,string)
7     return res
8 print(f'List of all words = {matching(string_input)}')
```

Enter the string here = Velocity and Data Science are very Good FiEld  
List of all words = ['Velocity', 'Data', 'Science', 'Good']

### Ques 13 - Write a program that matches a string that has an 'a' followed by anything, ending in 'b'.

```
In [3]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to match a string that has an "a" followed by anything, ending in "b".')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        user_string = input('Enter the String here = ').split(' ')
11        return user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        return self.user_input()
17
18 class Matching():
19     '''This class match the requied pattern'''
20     def __init__(self,string):
21         self.input_string = string
22
23     def pattern_matching(self):
24         pattern = '^a.*b$'
25         match_list = []
26         for i in self.input_string:
27             res = re.search(pattern,i)
28             if res:
29                 match_list.append(res.group())
30         return match_list
31
32 intro =Introduction()
33 value = intro.methods_calling()
34 obj = Matching(value)
35 print(f'List that have matching words of string = {obj.pattern_matching()}')
```

This is a python programm to match a string that has an "a" followed by anything, ending in "b".  
Enter the String here = ab askjfsjfjsb jcdclj Sbauha accbcbcb accb  
List that have matching words of string = ['ab', 'askjfsjfjsb', 'accbcbcb', 'accb']

#### Ques 14 - WAP that matches a word at the beginning of a string.

```
In [23]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to match a word at the beginning of a string.')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        user_string = input('Enter the String here = ')
11        return user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        return self.user_input()
17
18 class Matching():
19     '''This class match the requied pattern'''
20     def __init__(self,string):
21         self.input_string = string
22
23     def pattern_matching(self):
24         pattern = '^[a-zA-Z]+'
25         res = re.match(pattern,self.input_string)
26         if res:
27             print('Yes,there is word at the start of string.')
28         else:
29             print('No,there is not a word at the start of string.')
30
31 intro =Introduction()
32 value = intro.methods_calling()
33 obj = Matching(value)
34 print()
35 obj.pattern_matching()
```

This is a python programm to match a word at the beginning of a string.  
Enter the String here = python and data science

Yes,there is word at the start of string.

#### Ques 15 - Write a program that matches a word at the end of a string. with optional punctuation.

```

In [27]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to match a word at the end of a string.')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        user_string = input('Enter the String here = ')
11        return user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        return self.user_input()
17
18 class Matching():
19     '''This class match the requied pattern'''
20     def __init__(self,string):
21         self.input_string = string
22
23     def pattern_matching(self):
24         pattern = '[a-zA-Z]$\n'
25         res = re.match(pattern,self.input_string)
26         if res:
27             print('Yes,there is word at the end of string.')
28         else:
29             print('No,there is not a word at the end of string.')
30
31 intro =Introduction()
32 value = intro.methods_calling()
33 obj = Matching(value)
34 print()
35 obj.pattern_matching()

```

This is a python programm to match a word at the end of a string.  
Enter the String here = python and data science is4566

No,there is not a word at the end of string.

### Ques 16 - Write a Python program that matches a word containing 'z'.

```

In [15]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to match a word containing "z".')
7     @staticmethod
8     def user_input():
9         '''This method will take input from user.'''
10        user_string = input('Enter the String here = ')
11        return user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        return self.user_input()
17
18 class Matching():
19     '''This class match the requied pattern'''
20     def __init__(self,string):
21         self.input_string = string
22
23     def pattern_matching(self):
24         pattern = '[a-zA-Z]*z[a-zA-Z]*\n'
25         res = re.findall(pattern,self.input_string)
26         return res
27
28 intro =Introduction()
29 value = intro.methods_calling()
30 obj = Matching(value)
31 print()
32 print(f'List containing all the words that contain "z" = {obj.pattern_matching()}')

```

This is a python programm to match a word containing "z".  
Enter the String here = zoo is best place to study alzebra and zebronics contain zinc in it bezants

List containing all the words that contain "z" = ['zoo', 'alzebra', 'zebronics', 'zinc', 'bezants']

### Ques 17 -Write a program that matches a word containing 'z', not at the start or end of the word.



```
In [19]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to match a word containing "z",not at the start or end of the word.')
7     @staticmethod
8     def user_input():
9         '''This method will take input from user.'''
10        user_string = input('Enter the String here = ')
11        return user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        return self.user_input()
17
18 class Matching():
19     '''This class match the requied pattern'''
20     def __init__(self,string):
21         self.input_string = string
22
23     def pattern_matching(self):
24         pattern = '[a-zA-y]+z+[a-zA-y]+'
25         res = re.findall(pattern,self.input_string)
26         return res
27
28 intro =Introduction()
29 value = intro.methods_calling()
30 obj = Matching(value)
31 print()
32 print(f'List containing all the words that contain "z" = {obj.pattern_matching()}')
```

This is a python programm to match a word containing "z",not at the start or end of the word.  
Enter the String here = jazzily alzebra zebronics contain zinc in it bezants jazzman

List containing all the words that contain "z" = ['jazzily', 'alzebra', 'bezants', 'jazzman']

### Ques 18 - Write a program to match a string that contains only upper and lowercase letters, numbers, and underscores.

```
In [2]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to match a string that contains only upper and lowercase letters, numbers,
7 # @staticmethod
8     def user_input(self):
9         '''This method will take input from user.'''
10        self.user_string = input('Enter the String here = ').split(' ')
11        return self.user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        return self.user_input()
17
18 class Matching(Introduction):
19     '''This class match the requied pattern'''
20     def __init__(self):
21         super().__init__
22         self.methods_calling()
23 #         self.input_string = string
24
25     def pattern_matching(self):
26         pattern = '^[\w_]+$'
27         match_list = []
28         for i in self.user_string:
29             res = re.search(pattern,i)
30             if res:
31                 match_list.append(res.group())
32         return match_list
33
34 # intro =Introduction()
35 # value = intro.methods_calling()
36 obj = Matching()
37 print(f'List that have matching words of string = {obj.pattern_matching()}')
```

This is a python programm to match a string that contains only upper and lowercase letters, numbers, and underscores.  
Enter the String here = Python A\_N\_D data sci%&ence %\$%^\* 114  
List that have matching words of string = ['Python', 'A\_N\_D', 'data', '114']

**Ques 19 - WAP where a string will start with a specific number.**

```

In [20]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm where a string will start with a specific number.')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        self.user_string = input('Enter the String here = ')
11        self.number = input('Enter the specific number = ')
12        return self.user_string
13
14    def methods_calling(self):
15        '''This method call the method of this class'''
16        self.welcome_note()
17        self.user_input()
18
19 class Matching(Introduction):
20     '''This class match the requied pattern'''
21     def __init__(self):
22         super().__init__()
23         self.methods_calling()
24
25     def pattern_matching(self):
26         pattern = '^{}'.format(self.number)
27         res = re.match(pattern,self.user_string)
28         if res:
29             print(f'Yes,string enter by user is start with specific number "{self.number}"')
30         else:
31             print(f'No,string enter by user is not start with specific number "{self.number}"')
32
33
34 obj = Matching()
35 print()
36 obj.pattern_matching()

```

This is a python programm where a string will start with a specific number.

Enter the String here = 12456

Enter the specific number = 1

Yes,string enter by user is start with specific number "1"

**Ques 20 - Write a Python program to remove leading zeros from an IP address.**

```

In [6]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to remove leading zeros from an IP address..')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        self.user_string = input('Enter the IP Address here = ')
11        return self.user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        self.user_input()
17
18 class Matching(Introduction):
19     '''This class match the requied pattern'''
20     def __init__(self):
21         super().__init__()
22         self.methods_calling()
23
24     def pattern_matching(self):
25         pattern = '0'
26         res = re.sub(pattern,'',self.user_string)
27         return res
28
29
30 obj = Matching()
31 print()
32 print(f'The IP address after removing all leading zeros = {obj.pattern_matching()}')

```

This is a python programm to remove leading zeros from an IP address..

Enter the IP Address here = 192.005.063.000

The IP adress after removing all leading zeros = 192.5.63.



**Ques 21 - Write a program to check for a number at the end of a string.**

```
In [12]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to check for a number at the end of a string.')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        self.user_string = input('Enter the String here = ')
11        return self.user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        self.user_input()
17
18 class Matching(Introduction):
19     '''This class match the requied pattern'''
20     def __init__(self):
21         super().__init__()
22         self.methods_calling()
23
24     def pattern_matching(self):
25         pattern = '\d$'
26         res = re.search(pattern,self.user_string)
27         if res:
28             print('Yes, string enter by you ends with number.')
29         else:
30             print('No, string enter by you not ends with number.')
31
32 obj = Matching()
33 print()
34 obj.pattern_matching()
```

This is a python programm to check for a number at the end of a string.  
Enter the String here = python123

Yes, string enter by you ends with number.

**Ques 22 - Code a program to search the numbers (0-9) of length between 1 to 3 in a given string. .  
"Exercises number 1, 12, 13, and 345 are important"**

```
In [25]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to search the numbers (0-9) of length between 1 to 3 in a given string."Exe
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        self.user_string = input('Enter the String here = ')
11        return self.user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        self.user_input()
17
18 class Matching(Introduction):
19     '''This class match the requied pattern'''
20     def __init__(self):
21         super().__init__()
22         self.methods_calling()
23
24     def pattern_matching(self):
25         pattern = r'\b\d{1,3}\b'
26         res = re.findall(r'\b\d{1,3}\b',self.user_string)
27         return res
28 obj = Matching()
29 print()
30 print(f'The List of number of length 1-3 = {obj.pattern_matching()}')
```

This is a python programm to check for a number at the end of a string.  
Enter the String here = 1245 25 693 123 12 1 4 888569 223333

The List of number of length 1-3 = ['25', '693', '123', '12', '1', '4']

**Ques 23 - Write a program to search some literals strings in a string.**

**Sample text : 'The quick brown fox jumps over the lazy dog.'**

**Searched words : 'fox', 'dog', 'horse'**

```
In [31]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to search some literals strings in a string.')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        self.user_string = input('Enter the String here = ')
11        return self.user_string
12
13    def methods_calling(self):
14        '''This method call the method of this class'''
15        self.welcome_note()
16        self.user_input()
17
18    class Matching(Introduction):
19        '''This class match the requied pattern'''
20        def __init__(self):
21            super().__init__()
22            self.methods_calling()
23
24        def pattern_matching(self):
25            pattern = ' fox|dog|horse'
26            res = re.findall( pattern,self.user_string)
27            return res
28    obj = Matching()
29    print()
30    print(f'The list of words = {obj.pattern_matching()}')
```

This is a python programm to search some literals strings in a string.  
Enter the String here = The quick brown fox jumps over the lazy dog and horse

The list of words = [' fox', 'dog', 'horse']

**Ques 24 - 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 [38]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to search some literals strings in a string.')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        self.user_string = input('Enter the String here = ')
11        self.word = input('Enter the word you want to search = ')
12        return self.user_string
13
14    def methods_calling(self):
15        '''This method call the method of this class'''
16        self.welcome_note()
17        self.user_input()
18
19 class Matching(Introduction):
20     '''This class match the requied pattern'''
21     def __init__(self):
22         super().__init__()
23         self.methods_calling()
24
25     def pattern_matching(self):
26         pattern = r'\b{}\b'.format(self.word)
27         res = re.search(pattern,self.user_string)
28         if res:
29             print(f'Yes, the word "{self.word}" enter by you exits in string')
30             print(f'The index at which word start = {res.start()}')
31             print(f'The index at which word end = {res.end()-1}')
32         else:
33             print(f'No,the word "{self.word}" enter by you not exits in string')
34
35 obj = Matching()
36 print()
37 obj.pattern_matching()
```

This is a python programm to search some literals strings in a string.  
Enter the String here = Some beautiful Roads can't be discovered without getting lost  
Enter the word you want to search = Roads

Yes, the word "Roads" enter by you exits in string  
The index at which word start = 15  
The index at which word end = 19

## Ques 25 - Write a code to find a common substrings within a string.

Sample text : 'Python exercises, PHP exercises, C# exercises'

Pattern : 'exercises'

**Note:** There are two instances of exercises in the input string.

```
In [3]: 1 import re
2 string = 'Python exercises, PHP exercises, C# exercises'
3 pattern = 'exercises'
4 def matching(p,s):
5     '''This function get all the word which are similar to pattern.'''
6     res = re.findall(p,s)
7     return res
8
9 print(f'Common sub-string in string = {matching(pattern,string)}')
```

Common sub-string in string = ['exercises', 'exercises', 'exercises']

## Ques 26 - Write a program to find the occurrence and position of the substrings within a string.

```
In [17]: 1 import re
2 class Introduction():
3     '''This class is for introduction of programm and take a user input.'''
4     def welcome_note(self):
5         '''This function only print welcomenote.'''
6         print('This is a python programm to find the occurrence and position of the substrings within a string .')
7
8     def user_input(self):
9         '''This method will take input from user.'''
10        self.user_string = input('Enter the String here = ')
11        self.word = input('Enter the word you want to search = ')
12        return self.user_string
13
14    def methods_calling(self):
15        '''This method call the method of this class'''
16        self.welcome_note()
17        self.user_input()
18
19class Matching(Introduction):
20    '''This class match the requied pattern'''
21    def __init__(self):
22        super().__init__()
23        self.methods_calling()
24
25    def pattern_matching(self):
26        pattern = r'\b{}\b'.format(self.word)
27        res = re.finditer(pattern,self.user_string)
28        if res:
29            for item in res:
30                print(f'The index at which word start = {item.start()}')
31                print(f'The index at which word end = {item.end()-1}')
32                print()
33            else:
34                print(f'No,the word "{self.word}" enter by you not exits in string')
35
36obj = Matching()
37print()
38
39obj.pattern_matching()
```

This is a python programm to find the occurrence and position of the substrings within a string .  
Enter the String here = python and data science and python is easy to learn python  
Enter the word you want to search = python

The index at which word start = 0  
The index at which word end = 5

The index at which word start = 28  
The index at which word end = 33

The index at which word start = 52  
The index at which word end = 57

### Ques 27 - Write a code to replace whitespaces with an underscore and vice versa.

```
In [24]: 1 import re
2 string_input = input('Enter your string here = ')
3 pattern1 = r'\s'
4 pattern2 = '[_]'
5 def replacing(p1,p2,s):
6     '''This function convert all the whitespace into underscore and viceverse'''
7     res = re.sub(p1,'$',s)
8     res2= re.sub(p2,' ',res)
9     res_final = re.sub('[$]','_',res2)
10    return res_final
11
12    print(f'String after replacement = {replacing(pattern1,pattern2,string_input)}')
13
```

Enter your string here = pyth\_on a\_n\_d d a t a Sci\_ence  
String after replacement = pyth on\_a n d\_d\_a\_t\_a\_Sci ence

### Ques 28 - How would you remove all whitespaces from a string?

```
In [26]: 1 import re
2 string_input = input('Enter your string here = ')
3 pattern1 = r'\s'
4 def replacing(p1,s):
5     '''This function remove all the whitespace from a string'''
6     res_final = re.sub(p1,'',s)
7     return res_final
8
9 print(f'String after removing all the whitespaces = {replacing(pattern1,string_input)}')
```

Enter your string here = Some beautiful R o a d s can't be discovered without getting lost  
String after removing all the whitespaces = SomebeautifulRoadscan'tbediscoveredwithoutgettinglost

### Ques 29 -Write a Python program to match if two words from a list of words starting with the letter 'P'

```
In [16]: 1 import re
2 string_input = input('Enter yor string here = ').upper()
3 def pattern_matching(string):
4     '''This function find out the words which match by following pattern.'''
5     pattern = r'\bP\w+'
6     res = re.findall(pattern,string)
7     return res
8
9 print(f'The list of words which start with "P" = {pattern_matching(string_input)}')
```

Enter yor string here = pets and python both loved by president of punjab club sping  
The list of words which start with "P" = ['PETS', 'PYTHON', 'PRESIDENT', 'PUNJAB']

### Ques 30 - Write a code to find all words starting with 'a' or 'e' in a given string.

```
In [17]: 1 import re
2 string_input = input('Enter yor string here = ')
3 def pattern_matching(string):
4     '''This function find out the words which match by following pattern.'''
5     pattern = r'\b[ae]\w+'
6     res = re.findall(pattern,string)
7     return res
8
9 print(f'The list of words which start with "a" and "e" = {pattern_matching(string_input)}')
```

Enter yor string here = apple are very good for ear and eyes  
The list of words which start with "a" and "e" = ['apple', 'are', 'ear', 'and', 'eyes']

### Ques 31 - Write a Python program to separate and print the numbers and their position of a given string.

```
In [31]: 1 import re
2 string_input = input('Enter yor string here = ')
3 print()
4 def pattern_matching(string):
5     '''This function find out the words which match by following pattern.'''
6     pattern = '\d{1,10}'
7     res = re.finditer(pattern,string)
8     if res:
9         for i in res:
10             print(f'Number is "{i.group()}" and its position index is "{i.start()}" and end index is "{i.end()}"')
11             print()
12     else:
13         print('String enter by user dont have any number in it.')
14     pattern_matching(string_input)
```

Enter yor string here = python contain 10 chapter and 20 sub chapter and it takes 180 days to complete when classes are taken 4-5 hr daily

Number is "10" and its position index is "15" and end index is"17".

Number is "20" and its position index is "30" and end index is"32".

Number is "180" and its position index is "58" and end index is"61".

Number is "4" and its position index is "102" and end index is"103".

Number is "5" and its position index is "104" and end index is"105".

### Ques 32 - Write a Python program to replace all occurrences of space, comma, or dot with a colon.

```
In [34]: 1 import re
2 string_input = input('Enter yor string here = ')
3 def pattern_matching(string):
4     '''This function find out the words which match by following pattern.'''
5     pattern = '[\s+,.+]'
6     res = re.sub(pattern, ':', string)
7     return res
8
9 print(f'The string after replacement = {pattern_matching(string_input)}')
```

Enter yor string here = pyth,on a.n.d da,ta scie nce  
The string after replacement = pyth:on:a:n:d:da:ta:scie:nce::

**Ques 33 -Write a program to replace maximum 2 occurrences of space, comma, or dot with a colon.**

```
In [35]: 1 import re
2 string_input = input('Enter yor string here = ')
3 def pattern_matching(string):
4     '''This function find out the words which match by following pattern.'''
5     pattern = '[\s,.]'
6     res = re.sub(pattern, ':', string, count = 2)
7     return res
8
9 print(f'The string after replacement = {pattern_matching(string_input)}')
```

Enter yor string here = py,th,on a.n.d da,ta scie nce  
The string after replacement = py:th:on a.n.d da,ta scie nce

**Ques 34 -Write a Python program to find all three, four, five characters long words in a string.**

```
In [13]: 1 import re
2 string_input = input('Enter yor string here = ')
3 def pattern_matching(string):
4     '''This function find out the words which match by following pattern.'''
5     pattern = r'\b[a-zA-Z]{3,5}\b'
6     res = re.findall(pattern, string)
7     return res
8
9 print(f'The List of words with length "3","4" and "5" = {pattern_matching(string_input)}')
```

Enter yor string here = pets and python both loved by president of punjab club sping  
The List of words with length "3","4" and "5" = ['pets', 'and', 'both', 'loved', 'club', 'sping']

**Ques 35 - Write a program to extract values between quotation marks of a string.**

```
In [2]: 1 import re
2 string_input = input('Enter yor string here = ')
3 def pattern_matching(string):
4     '''This function find out the words which match by following pattern.'''
5     pattern = r'"[\w*"]'
6     res = re.findall(pattern, string)
7     res = ' '.join(res)
8     res_final = re.sub('"', '', res).split()
9     return res_final
10
11 print(f'The list of word between quotation marks = {pattern_matching(string_input)}')
```

Enter yor string here = "python" and "data"  
The list of word between quotation marks = ['python', 'data']

**Ques 36 - How would you remove multiple spaces in a string?**

```
In [6]: 1 import re
2 print('We can remove multiple spaces from the string by using substitute method from character class.')
3 print()
4 string_input = input('Enter yor string here = ')
5 def pattern_matching(string):
6     '''This function find out the words which match by following pattern.'''
7     pattern = r'\s+'
8     res_final = re.sub(pattern, ' ', string_input)
9     return res_final
10
11 print(f'The string after removing all the space = {pattern_matching(string_input)}')
```

We can remove multiple spaces from the string by using substitute method from character class.

Enter yor string here = python and data science  
The string after removing all the space = python and data science



In [ ]:

1