Regular Expressions:

- It is a sequence of characters and it is used for pattern matchin g.
- By using regular expressions to extract the data.
- To check the avaialable data is valid for us or not.
- first we need to import the re package.
- import re(regular expression).

In [1]:
```
import re
```

In [5]:
```
#search():It returns the index position of matching first occurence character.
#syntax: re.search('str_pattern','string data')
s1 = "python programming"
print(re.search('r',s1))
print(re.search('p',s1))
print(re.search('i',s1))
print(re.search('z',s1))
```

```
<re.Match object; span=(8, 9), match='r'>
<re.Match object; span=(0, 1), match='p'>
<re.Match object; span=(15, 16), match='i'>
None
```

In [7]:
```
#findall(): It returns the list formmat of all occurences of matching character.
#syntax:re.findall('str_pattren','str_data')
s1 = "python programming"
L1 = re.findall('p',s1)
print(L1)
print(len(L1))
```

```
['p', 'p']
2
```

In [8]:
```
s2="welcome to apssdc ap shgfshdghgap jyyap"
L2 = re.findall('ap',s2)
print(L2)
```

```
['ap', 'ap', 'ap', 'ap']
```

In [12]:
```
#1. To count the charcter frequency in given string.
s3 = "welcome to python programming good evenging students"
ch = input("Enter character!...")
L4 = re.findall(ch,s3)
print(L4)
print(len(L4))
```

```
Enter character!...p
['p', 'p']
2
```

In [17]:
```
# print the names which contains 'u' and 'v' using re.
names = ['sairam','raju','ravi','manu','manjula']
for name in names:
    if re.search('u',name) or re.search('v',name):
        print(name,end=" ")
```

```
raju ravi manu manjula
```

special characters in RE

In [18]:
```
#.(dot):any single character except new line..
s1 = "python programming"
print(re.search('.',s1))
```

```
<re.Match object; span=(0, 1), match='p'>
```

In [26]:
```
print(re.search('.','sairam'))# first character matching
print(re.search('.',''))# No characters in the string
print(re.search('.',' apssdc'))
print(re.search('s.','sairam'))
print(re.search('s..','s airam'))
print(re.search('a...','sairam'))
print(re.search('....','apssdc '))
```

```
<re.Match object; span=(0, 1), match='s'>
None
<re.Match object; span=(0, 1), match=' '>
<re.Match object; span=(0, 2), match='sa'>
<re.Match object; span=(0, 3), match='s a'>
<re.Match object; span=(1, 5), match='aira'>
<re.Match object; span=(0, 4), match='apss'>
```

In [28]:
```
# ^->starts with the character..
print(re.search('^a','apssdc'))
print(re.search('^b','apssdc'))
```

```
<re.Match object; span=(0, 1), match='a'>
None
```

In [30]:
```
# To print the names starts with the 'r' character from the given list of names.
names = ['raju','ravi','apssdc','manju','aadyan','nani','raghu']
for name in names:
    if re.search('^r',name) or re.search('^a',name):
        print(name,end=" ")
```

```
raju ravi apssdc aadyan raghu
```

In [33]:
```
#$->ends with the character.
print(re.search('c$','apssdc'))
print(re.search('k$','apssdc'))
```

```
<re.Match object; span=(5, 6), match='c'>
None
```

In [39]:
```
# To print the names end with 'a' character in given string.
s1="narmada ranga raju raghu mani nani aadya aarya krishna"
for name in s1.split():
    if re.search('a$',name):
        print(name,end=" ")
```

```
narmada ranga aadya aarya krishna
```

In [41]:
```
#\d:->any single digit.
print(re.search('\d','apssdc@123'))
print(re.search('\d','apssdc'))
```

```
<re.Match object; span=(7, 8), match='1'>
None
```

In [48]:
```
novel = "every 1 has a story or 100 stories 123 welcome"
print(re.findall('\d\d\d',novel))
```

```
['100', '123']
```

In [50]:
```
#{min,max}->range
print(re.search('.{3}','apssdc'))
```

```
<re.Match object; span=(0, 3), match='aps'>
```

In [51]:
```
print(re.findall('\d{3}',novel))
```

```
['100', '123']
```

In [52]:
```
#[]->set of characters
print(re.search('[acd]','acdwejrfhew'))
```

```
<re.Match object; span=(0, 1), match='a'>
```

In [55]:
```
s1 = "welcome to apssdc@123 hgsdfgsh 121232 welcome34546"
print(re.findall('[a-z]',s1))# only print alphabets
print("============================")
print(re.findall('[0-9]',s1))
```

```
['w', 'e', 'l', 'c', 'o', 'm', 'e', 't', 'o', 'a', 'p', 's', 's', 'd', 'c',
'h', 'g', 's', 'd', 'f', 'g', 's', 'h', 'w', 'e', 'l', 'c', 'o', 'm', 'e']
============================
['1', '2', '3', '1', '2', '1', '2', '3', '2', '3', '4', '5', '4', '6']
```

In [57]:
```
#[^characters]->except set of characters in given pattern..
print(re.findall('[^a-z]',s1))# except alphabets
print(re.search('[^a]','apssdc'))
```

```
[' ', ' ', '@', '1', '2', '3', ' ', ' ', '1', '2', '1', '2', '3', '2', ' ',
'3', '4', '5', '4', '6']
<re.Match object; span=(1, 2), match='p'>
```

In [58]:
```
#\D->except digits..
s2="welcome to pythonprogramming@12345"
print(re.findall('\D',s2))
```

```
['w', 'e', 'l', 'c', 'o', 'm', 'e', ' ', 't', 'o', ' ', 'p', 'y', 't', 'h',
'o', 'n', 'p', 'r', 'o', 'g', 'r', 'a', 'm', 'm', 'i', 'n', 'g', '@']
```

In [60]:
```
#\s->only space..
s1="welcome to apssdc"
print(re.findall('\s',s1))
print(re.search('\s','apssdc python'))
```

```
[' ', ' ']
<re.Match object; span=(6, 7), match=' '>
```

In [61]:
```
#\S->excepts spaces..
s2="welcome python @123 jghd"
print(re.findall('\S',s2))
```

```
['w', 'e', 'l', 'c', 'o', 'm', 'e', 'p', 'y', 't', 'h', 'o', 'n', '@', '1',
'2', '3', 'j', 'g', 'h', 'd']
```

In [65]:
```
#\w->only single identifier..
print(re.search('\w','abc123'))
print(re.search('\w',' a'))
```

```
<re.Match object; span=(0, 1), match='a'>
<re.Match object; span=(1, 2), match='a'>
```

In [66]:
```
#\W->except idetifier
print(re.search('\W','apssdc abc'))
```

```
<re.Match object; span=(6, 7), match=' '>
```

In [67]:
```
#*(star)->0 or more occurences.
re.search('wel[0-9]*come','welcome')
```

Out[67]:
```
<re.Match object; span=(0, 7), match='welcome'>
```

In [71]:
```
#+(plus)->1 or more occurences..
#atleast one character
print(re.search('wel[0-9]*come','wel567come'))
print(re.search('wel[0-9]+come','welcome'))
print(re.search('wel[0-9]+come','wel3come'))
```

```
<re.Match object; span=(0, 10), match='wel567come'>
None
<re.Match object; span=(0, 8), match='wel3come'>
```

phone number validation:

In [72]:
```
number = ['1234567890','9988776623','7896543210','44542354521','6789023455',
          '8790234567','543535434','3231212134']
for phone in number:
    if re.search('^[6-9]{1}[0-9]{9}',phone):
        print(phone)
```

```
9988776623
7896543210
6789023455
8790234567
```

email validation

In [89]:
```
emails = ['apssdc123@gmail.com','asdferwe@','python@apssdc.info','raju@gmail.com'
          'manjula123@yahoo.com','1234@yahoo','sjdghs@in']
for email in emails:
    if re.search('^[a-z0-9]*[@][a-z]*[.]+[a-z]*',email):
        print(email)
```

```
apssdc123@gmail.com
python@apssdc.info
raju@gmail.com
manjula123@yahoo.com
```

In [ ]:
```
#task1: aadhar number validation.
#task2: password validation.
        1) password lentgh 8 - 15 characters.
        2)1 upper case,1 lowercase,1 digit remaing characters your wish..
```

In [ ]:
```
import re
p = input("Enter password!..")
if re.fullmatch(r'[A-Za-z0-9]{8,15}$',p):
    print('Correct password')
else:
    print('Incorrect password!...')
```

In [ ]:
```

```