Python regex programs:-

1 Python Program to Check if String Contain Only Defined Characters using Regex

```
import re
def check(string,pattern):
    if re.search(pattern,string):
        print("valid string")
    else:
        print("invalid string")

pattern=re.compile('^[1234]+$')

check('2134',pattern)

valid string

check('67',pattern)

invalid string

check('a2',pattern)

invalid string

check('',pattern)

invalid string

import re
string="ThisIsGeeksforGeeks !,123"
```

2 Python program to Count Uppercase, Lowercase, special character and numeric values using Regex

```
uppercase_characters=re.findall(r"[A-Z]",string)
lowercase_characters=re.findall(r"[a-z]",string)
numerical_characters=re.findall(r"[0-9]",string)
special_characters=re.findall(r"[, .!?]",string)

print(f"no of uppercase character {len(uppercase_characters)}")
print(f"no of uppercase character {len(lowercase_characters)}")
print(f"no of uppercase character {len(numerical_characters)}")
print(f"no of uppercase character {len(special_characters)}")

no of uppercase character 0
no of uppercase character 16
```

```
no of uppercase character 5
no of uppercase character 0
```

3 Python Program to find the most occurring number in a string using Regex

```
import re
from collections import Counter

def most_occur_element(word):
    numbers=re.findall(r"[0-9]",word)
    maxm=0
    max_elem=0
    c=Counter(numbers)
    print(c)
    for x in list(c.keys()):
        if c[x]>=maxm:
            maxm=c[x]
            max_elem=int(x)
    return max_elem

word="geek55ofge55eks4abc3dr2"
print(most_occur_element(word))
```

```
Counter({'5': 4, '4': 1, '3': 1, '2': 1})
5
```

Note the difference r"[0-9]+" and r"[0-9]"

```
import re
from collections import Counter

def most_occur_element(word):
    numbers=re.findall(r"[0-9]+",word)
    print(f"numbers={numbers}")
    print(f"length of numbers={len(numbers)}")
    maxm=0  # isme max frequency
    max_elem=0  #isme most occured elemt store karunga
    c=Counter(numbers)
    print(c)
    for x in list(c.keys()):
        print(f"x={x}")
        if c[x]>=maxm:
            maxm=c[x]
            max_elem=int(x)
    return max_elem

word="geek55ofge55eks4abc3dr2"
print(most_occur_element(word))
```

```
numbers=['55', '55', '4', '3', '2']
length of numbers=5
Counter({'55': 2, '4': 1, '3': 1, '2': 1})
x=55
x=4
x=3
x=2
55
```

4 Python Regex to extract maximum numeric value from a string

```
import re
from collections import Counter
def max_value_element(word):
    numbers =re.findall(r"[0-9]+",word)
    max=0
    numbers=map(int,numbers)    # mere sare numbers ko integer me
convert kar rha kykoi numbers string me hai
    for x in numbers:
        if x>max:
            max=int(x)
    return max

word="100klh564abc365bg"
print(max_value_element(word))
```

```
564
```

5. Python Program to put spaces between words starting with capital letters using Regex

```
import re
def put_space:
    numbers=re.findall(r"[A-Z]",word)
    c=Counter(numbers)
    for x in list(c.keys()):
```

6.

```
regex for single string character='^[a-z]$'
regex for multiple character string='^([a-z]).*\1$'  # \1 is used to
check first and last character is same or not

import regex
regex=r"^[a-z]$|^([a-z]).*\1$"
def check(word):
    if (re.search(regex,string)):
        print("valid")
```

```
    else:
        print("Invalid")

sample1="abba"
check(sample1)
```

```
Invalid
```