

## **\D**

Matches any character which is not a decimal digit. This is the opposite of `\d`.

```
>>> import re
>>> str1="python 3.12"
>>> list1=re.findall(r'\D',str1)
>>> print(list1)
['p', 'y', 't', 'h', 'o', 'n', ' ', '.',]
>>> list2=re.findall(r'\d',str1)
>>> print(list2)
['3', '1', '2']
```

## **\s**

Matches characters considered whitespace in the ASCII character set; this is equivalent to `[\t\n\r\f\v]`.

```
>>> str1="python java\noracle\tmysql"
>>> list1=re.split(r'\s',str1)
>>> print(list1)
['python', 'java', 'oracle', 'mysql']
>>> list2=re.findall(r'\s',str1)
>>> print(list2)
[' ', '\n', '\t']
```

## **\S**

Matches any character which is not a whitespace character. This is the opposite of `\s`.

```
>>> str1="python java\noracle\tmysql"
>>> list1=re.findall(r'\S',str1)
>>> print(list1)
```

`['p', 'y', 't', 'h', 'o', 'n', 'j', 'a', 'v', 'a', 'o', 'r', 'a', 'c', 'l', 'e', 'm', 'y', 's', 'q', 'l']`

## **`\w`**

Matches characters considered alphanumeric in the ASCII character set; this is equivalent to `[a-zA-Z0-9_]`.

### **Example**

```
# username validation
```

```
import re
```

```
uname=input("Enter UserName ")
m=re.fullmatch(r'\w{8,15}',uname)
if m!=None:
    print(f'{uname} valid')
else:
    print(f'{uname} invalid')
```

### **Output**

```
Enter UserName naresh123
naresh123 valid
```

```
Enter UserName naresh_123
naresh_123 valid
```

```
Enter UserName naresh_123$
naresh_123$ invalid
```

## **`\W`**

Matches any character which is not a word character. This is the opposite of `\w`

```
>>> str1="nit123_$$%&"
```

```
>>> list1=re.findall(r'\W',str1)
>>> print(list1)
['$', '%', '&']
>>> list2=re.findall(r'\w',str1)
>>> print(list2)
['n', 'i', 't', '1', '2', '3', '_']
```

### **Example:**

```
# Password validation
```

```
import re
```

```
# 4 Alphabets
```

```
# 2 digits
```

```
# 2 special characters
```

```
password=input("Enter Password ")
```

```
list1=re.findall(r'[a-zA-Z]',password)
```

```
list2=re.findall(r'\d',password)
```

```
list3=re.findall(r'\W',password)
```

```
print(len(list1))
```

```
print(len(list2))
```

```
print(len(list3))
```

```
if len(list1)>=4 and len(list2)>=2 and len(list3)>=2:
```

```
    print(f'{password} is valid')
```

```
else:
```

```
    print(f'{password} is invalid')
```

### **Output**

```
Enter Password abcd12$%
```

```
4
```

```
2
```

2

abcd12\$% is valid

### **re.sub(pattern, repl, string, count=0, flags=0)**

Return the string obtained by replacing the leftmost non-overlapping occurrences of pattern in string by the replacement repl. If the pattern isn't found, string is returned unchanged. repl can be a string or a function;

```
>>> str1="python\tjava oracle\tmysql"
>>> str2=re.sub(r'\s',' ',str1)
>>> print(str1)
python\tjava oracle\tmysql
>>> print(str2)
python,java,oracle,mysql
>>> str3=re.sub(r'\s',' ',str1,count=1)
>>> print(str3)
python,java oracle\tmysql
```

### **Networking (socket module)**

Python can be used to develop network enabled applications or software's.

Networking is logical or physical link between two or more devices. Socket module provides functionality for developing network enabled applications.

Advantage of networking is sharing resources. These resources can be hardware or software.

The main objective of socket module is developing client and server programs.

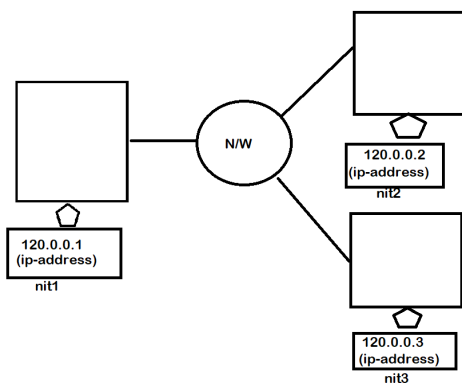
## Basic Concepts of N/W

### What is ip-address?

Every system or device in networking is identified with one unique number called ip-address. This ip-address is given by network people.

### What is hostname?

Host name is wrapper of ip-address.



### What is protocol?

A protocol defines set of rules and regulations for exchanging data or information within networking.

HTTP □ Hyper Text Transfer Protocol

FTP □ File Transfer Protocol

TCP □ Transmission Control Protocol

SMTP □ Simple Mail Transfer Protocol

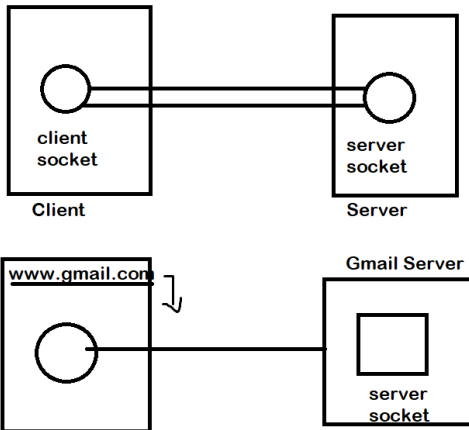
POP □ Post Office Protocol

UDP □ User Datagram Protocol

### What is socket?

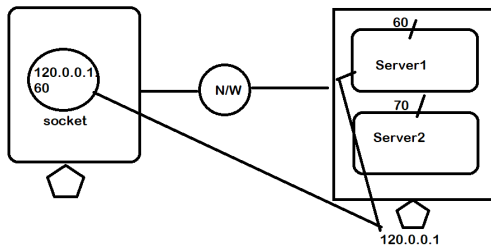
A socket is end-point communication between two programs within network.

Socket is an implementation of client and server program.



## What is portno?

In networking server program is identified with unique number called portno. Portno is an 16bit integer number (0-65535)



“socket” is a default module which comes with python software.

**socket.socket(family=AF\_INET, type=SOCK\_STREAM)**

