Networking in Java

Java is a premier language for network programming. **java.net** package encapsulate large number of classes and interface that provides an easy-to use means to access network resources. Here are some important classes and interfaces of java.net package.

Java Networking Classes

CLASSES	
CacheRequest	CookieHandler
CookieManager	Datagrampacket
Inet Address	ServerSocket
Socket	DatagramSocket
Proxy	URL
URLConnection	

Java Networking Interfaces

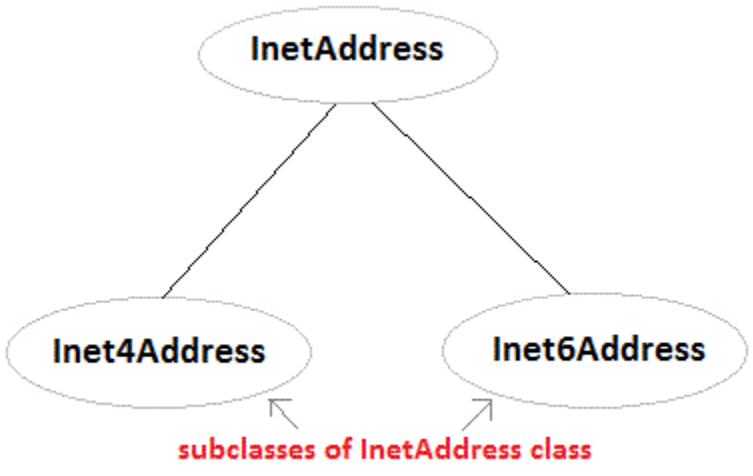
INTERFACES	
CookiePolicy	CookieStore
FileNameMap	SocketOption
InetAddress	ServerSocket
SocketImplFactory	ProtocolFamily

InetAddress

Inet Address encapsulates both numerical IP address and the domain name for that address. Inet address can handle both IPv4 and Ipv6 addresses. Inet Address class has no visible constructor. To create an inet Address object, you have to use **Factory methods**.

Three commonly used Inet Address factory methods are.

1. static *InetAddress* **getLocalHost()** throws **UnknownHostException**
2. static *InetAddress* **getByName** (*String hostname*) throws **UnknownHostException**
3. static *InetAddress[ ]* **getAllByName** (*String hostname*) throws **UnknownHostException**



Example using InetAddress class

```
import java.net.*;

class Demo

{

  public static void main(String[] args) throws UnknownHostException

  {

    InetAddress address = InetAddress.getLocalHost();

    System.out.println(address);

    address = InetAddress.getByName("www.studytonight.com");

    System.out.println(address);

    InetAddress sw[] = InetAddress.getAllByName("www.google.com");

    for(int i=0; i< sw.length; i++)

    {

      System.out.println(sw[i]);

    }

  }

}
```

Copy

```
Welcome-PC/59.161.87.227

www.studytonight.com/208.91.198.55

www.google.com/74.125.236.115

www.google.com/74.125.236.116
```

```
www.google.com/74.125.236.112

www.google.com/74.125.236.113

www.google.com/74.125.236.114

www.google.com/2404:6800:4009:802:0:0:0:1014
```

Socket and ServerSocket Class

Socket is foundation of modern networking, a socket allows single computer to serve many different clients at once. Socket establishes connection through the use of port, which is a numbered socket on a particular machine. Socket communication takes place via a protocol. Socket provides communication mechanism between two computers using TCP. There are two kind of TCP sockets in Java. One is for server and other is for client.

- **ServerSocket** is for servers.
- **Socket** class is for client.

URL class

Java URL Class present in java.net package, deals with URL (Uniform Resource Locator) which uniquely identify or locate resources on internet.

Important Methods of URL class

- **getProtocol() :** Returns protocol of URL
- **getHost() :** Returns hostname(domain name) of URL
- **getPort() :** Returns port number of URL
- **getFile() :** Returns filename of URL

Program using URL class

```
import java.net.*;

class Demo

{

  public static void main(String[] arg) throws MalformedURLException

  {

    URL hp = new URL("http://www.studytonight.com/index");

    System.out.println(hp.getProtocol());

    System.out.println(hp.getFile());
```

```
    }

}
```

Copy

```
http

/index
```