**Network Programming II**

**InetAdress Class**

The java.net.InetAddress class is Java's encapsulation of an IP address. It is used by most of the other networking classes, including Socket, ServerSocket, URL, DatagramSocket, DatagramPacket, and more.

**Example . A Program That Prints the Address of www.ucp.edu.pk**

import java.net.\*;

class Test {

public static void main (String[] args) {

try {InetAddress address = InetAddress.getByName("www.ucp.edu.pk");

System.out.println(address);

}catch (UnknownHostException e)

{System.out.println("Could not find www.ucp.edu.pk"); }

}

}

**Output**

[www.ucp.edu.pk/202.125.140.68](http://www.ucp.edu.pk/202.125.140.68)

**Example . A Program That Prints address of local host**

import java.net.InetAddress;

class Test {

public static void main(String[] args) {

try {

InetAddress me = InetAddress.getLocalHost();

String address = me.getHostAddress();

System.out.println("My address is " + address);

} catch (Exception ex) { ex.printStackTrace(); }

}

}

Output

My Address is 172.17.2.13

**Example: A Program That Prints All the Addresses of www.google.com**

import java.net.\*;

class Test {

public static void main (String[] args) {

try { InetAddress[] addresses = InetAddress.getAllByName("www.google.com");

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

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

}

} catch (UnknownHostException e) {

System.out.println("Could not find www.apple.com"); }

}

}

**Output**

www.google.com/72.14.253.147

www.google.com/72.14.253.99

www.google.com/72.14.253.103

[www.google.com/72.14.253.104](http://www.google.com/72.14.253.104)

**Example: A Program That compare two InetAddresses**

import java.net.InetAddress;

class Test {

public static void main(String args[]) throws Exception {

InetAddress ca = InetAddress.getByName("www.google.ca");

InetAddress com = InetAddress.getByName("www.google.com");

if (ca.equals(com)) {

System.out.println("same");

} else {

System.out.println("not the same");

}

}

}

Ouput

not the same

**Example: A Program That pings the host through isReachable Methos**

import java.net.InetAddress;

class Test {

public static void main(String[] args) throws Exception {

InetAddress address = InetAddress.getByName("172.17.2.13");

boolean reachable = address.isReachable(10000);//10 sec time out

System.out.println("Is host reachable? " + reachable);

}

}

**Example: Check Google is reachable or not**

import java.net.InetAddress;

class Test {

public static void main(String[] argv) throws Exception {

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

System.out.println("Name: " + address.getHostName());

System.out.println("Addr: " + address.getHostAddress());

System.out.println("Reach: " + address.isReachable(3000));

}

}

**Example :Get MAC address of a host: java.net.NetworkInterface.getHardwareAddress().**

import java.net.InetAddress;

import java.net.NetworkInterface;

class Test {

public static void main(String[] args) throws Exception {

InetAddress address = InetAddress.getLocalHost();

NetworkInterface ni = NetworkInterface.getByInetAddress(address);

byte[] mac = ni.getHardwareAddress();

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

System.out.format("%02X%s", mac[i], (i < mac.length - 1) ? "-" : "");

}

}

}

output (MyComputer's 6byte mac address)

30-60-77-12-cd-99

**Example: Print IP address of connected socket client**

import java.net.\*;  
class Test {  
  public static void main(String[] args) throws Exception {  
    ServerSocket server = new ServerSocket(8123);  
    while (true) {  
      Socket sock = server.accept();  
      InetAddress addr = sock.getInetAddress();  
      System.out.println("Connection made to " + addr.getHostName() + " (" +

 addr.getHostAddress()    + ")");  
      Thread.sleep(5000);  
      sock.close();  
    }  
  }  
}

**Example: Detecting Proxy server IP and Port on your network if any**

import java.net.InetSocketAddress;

import java.net.Proxy;

import java.net.ProxySelector;

import java.net.URI;

import java.util.Iterator;

import java.util.List;

class Test {

public static void main(String[] args) throws Exception {

System.setProperty("java.net.useSystemProxies", "true");

List l = ProxySelector.getDefault().select(new URI("http://www.yahoo.com/"));

for (Iterator iter = l.iterator(); iter.hasNext();) {

Proxy proxy = (Proxy) iter.next();

System.out.println("proxy hostname : " + proxy.type());

InetSocketAddress addr = (InetSocketAddress) proxy.address();

if (addr == null) {

System.out.println("No Proxy");

} else {

System.out.println("proxy hostname : " + addr.getHostName());

System.out.println("proxy port : " + addr.getPort());

}

}

}

}

**Example: Extract HTML from web site**

import java.net.\*;

import java.io.\*;

import java.util.\*;

class Test {

public static void main(String[] args) throws Exception {

try {

Socket socket = new Socket("www.google.com",80);

PrintWriter out = new PrintWriter(new BufferedWriter(new OutputStreamWriter(socket.getOutputStream())));

out.println("GET /index.html HTTP/1.0");

out.println();

out.flush();

BufferedReader in = new BufferedReader(new InputStreamReader(socket.getInputStream()));

String inputLine;

int count = 0;

while ((inputLine = in.readLine()) != null) {

count++;

System.out.println(count);

System.out.println(inputLine);

}

in.close();

System.out.println("PRINTING HERE!!!");

} catch (Exception e) {

e.printStackTrace();

}

}

}