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HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

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BÁCH KHOA HÀ NỘI
HANOI UNIVERSITY
OF SCIENCE AND TECHNOLOGY

LẬP TRÌNH ỨNG DỤNG DI ĐỘNG

Mobile Application Programming

ET4710

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CHƯƠNG 9.

Lập trình mạng và kết nối với các dịch vụ Cloud, Web-service, Database

(Network programming and connecting to clouds and webservice and database)

Chương 9

Lập trình mạng và kết nối với các dịch vụ Cloud, Web-service, Database (Network programming and connecting to clouds and webservice and database)

9.1 Kết nối mạng trong thiết bị mobile

(Mobile network programming)

9.2 Kết nối cloud và web-service

(Cloud and Webservice programming)

9.3 Lập trình kết nối cơ sở dữ liệu trên thiết bị di động

(Database connection programming)

Android - Network Connection

- Android lets your application connect to the internet or any other local network and allows you to perform network operations.
- A device can have various types of network connections. This chapter focuses on using either a Wi-Fi or a mobile network connection.

Checking Network Connection

- Before you perform any network operations, you must first check that are you connected to that network or internet e.t.c. For this android provides ConnectivityManager class. You need to instantiate an object of this class by calling getSystemService() method. Its syntax is given below:

```
ConnectivityManager check = (ConnectivityManager)
this.context.getSystemService(Context.CONNECTIVITY_SERVICE);
```

Checking Network Connection

- Once you instantiate the object of ConnectivityManager class, you can use getAllNetworkInfo method to get the information of all the networks. This method returns an array of NetworkInfo. So you have to receive it like this.

```
NetworkInfo[] info = check.getAllNetworkInfo();
```

- The last thing you need to do is to check Connected State of the network. Its syntax is given below

```
for (int i = 0; i<info.length; i++){ if (info[i].getState() ==
NetworkInfo.State.CONNECTED){ Toast.makeText(context, "Internet is
connected”, Toast.LENGTH_SHORT).show(); } }
```

Checking Network Connection

- Apart from this connected states, there are other states a network can achieve. They are listed below:

No.	State
1	Connecting
2	Disconnected
3	Disconnecting
4	Suspended
5	Unknown

Performing Network Operations

- After checking that you are connected to the internet, you can perform any network operation. Here we are fetching the html of a website from a url.
- Android provides HttpURLConnection and URL class to handle these operations. You need to instantiate an object of URL class by providing the link of website. Its syntax is as follows −

```
String link = "http://www.google.com";
URL url = new URL(link);
```

Performing Network Operations

- After that you need to call openConnection method of url class and receive it in a HttpURLConnection object. After that you need to call the connect method of HttpURLConnection class.

```
HttpURLConnection conn = (HttpURLConnection) url.openConnection();
conn.connect();
```

Performing Network Operations

- And the last thing you need to do is to fetch the HTML from the website. For this you will use **InputStream** and **BufferedReader** class. Its syntax is given below:

```
InputStream is = conn.getInputStream();
BufferedReader reader = new BufferedReader(new InputStreamReader(is,
"UTF-8"));
String webPage = "",data="";
while ((data = reader.readLine()) != null){
        webPage += data + "\n";
}
```

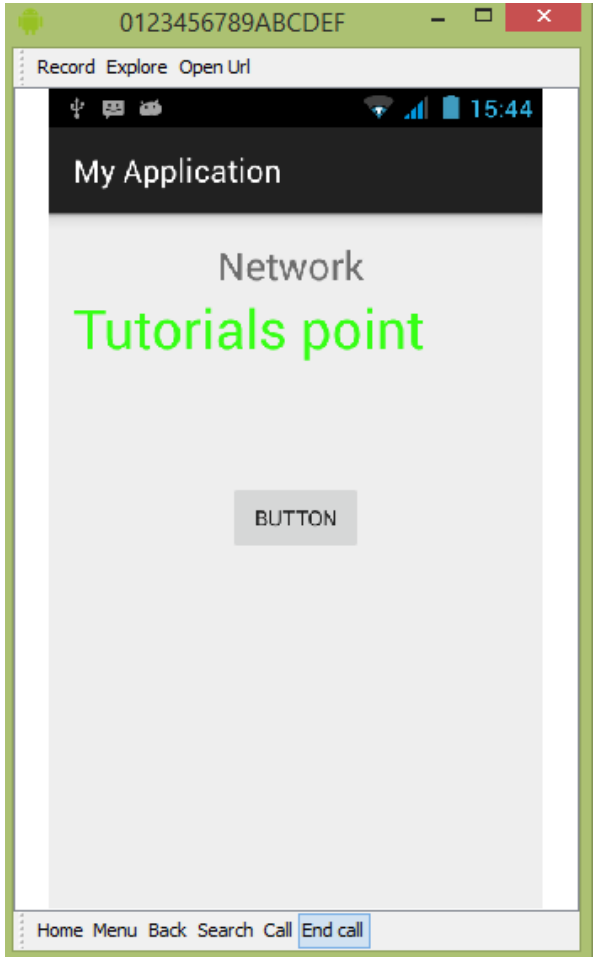
Performing Network Operations

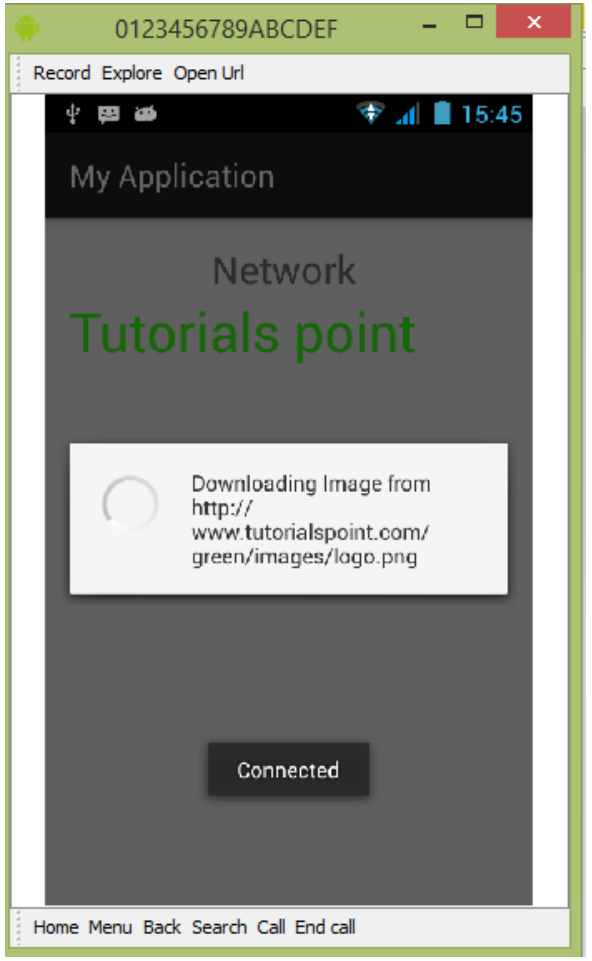
- Apart from this connect method, there are other methods available in HttpURLConnection class. They are listed below:

No.	Method & Description
1	**disconnect()** This method releases this connection so that its resources may be either reused or closed
2	**getRequestMethod()** This method returns the request method which will be used to make the request to the remote HTTP server
3	**getResponseCode()** This method returns response code returned by the remote HTTP server
4	**setRequestMethod(String method)** This method Sets the request command which will be sent to the remote HTTP server
5	**usingProxy()** This method returns whether this connection uses a proxy server or not

Lập trình mạng và kết nối … Network programming and connecting …

Example





Mobile Application demonstrates the use of HttpURLConnection class to download an image from a given web page

https://www.tutorialspoint.com/android/android_network_connection.htm

Lập trình mạng và kết nối … Network programming and connecting …

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THANK YOU !

Lập trình ứng dụng di động

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