Android Basic Training

Networking

Jun 6, 2017

Networking. Premissions

```
<uses-permission
 android:name="android.permission.INTERNET" />
<uses-permission android:name=
"android.permission.ACCESS_NETWORK_STATE" />
```

Networking. Manage Network Connection

```
final ConnectivityManager connectivityManager = (ConnectivityManager)
 context.getSystemService(Context.CONNECTIVITY_SERVICE);

final NetworkInfo networkInfo = connectivityManager.getActiveNetworkInfo();

if (networkInfo != null) {

   //no internet connection

}

if (networkInfo.getType() == ConnectivityManager.TYPE_WIFI &&
 networkInfo.isConnected()) {

   //connected to wi-fi

} else if (networkInfo.getType() == ConnectivityManager.TYPE_MOBILE &&
 networkInfo.isConnected()) {

   //connected to wi-fi  }
```

Networking. Connectivity Change

1 Explicit boadcast:

```
final IntentFilter filter = new IntentFilter();
filter.addAction("android.net.conn.CONNECTIVITY_CHANGE");
registerReceiver(new ConnectivityReceiver(), filter);
```

2 Job Scheduling

3 GcmNetworkManager

Networking. Connectivity Change

Job Scheduler:

```
JobScheduler js = (JobScheduler)
 context.getSystemService(Context.JOB_SCHEDULER_SER
 VICE);
JobInfo job = new JobInfo.Builder(MY_BACKGROUND_JOB,
        new ComponentName(context, MyJobService.class))
.setRequiredNetworkType(JobInfo.NETWORK_TYPE_UNME
 TERED)
 .setRequiresCharging(true)
 .build();
  js.schedule(job);
```

Networking. Data Usage

1 Detect if connection is metered or unmetered

2 Detect if Data Saver is on and app is in whitelist

3 Use ***PreferenceActivity*** to handle data usage in your app

Networking. Connecting

```
final URL url = new URL("exampleurl.com");
final HttpsURLConnection connection = (HttpsURLConnection)
  url.openConnection();
connection.setReadTimeout(5000);
connection.setConnectTimeout(5000);
connection.setRequestMethod("GET");
connection.setDoInput(true);
connection.connect();
final int resonseCode = connection.getResponseCode();
if (resonseCode != HttpsURLConnection.HTTP_OK) {
   //handle an error, throw exception
}
inputStream = connection.getInputStream();
if (inputStream != null) {
   //read response
}
```

Networking. Read Input Stream

```
if (inputStream != null) {
StringBuffer stringBuffer = new StringBuffer();
try {
   inputStream = new BufferedInputStream(connection.getInputStream());
   BufferedReader reader = new BufferedReader(new
  InputStreamReader(inputStream));
   String inputLine = "";
   while ((inputLine = reader.readLine()) != null) {
      stringBuffer.append(inputLine);
   }
   result = stringBuffer.toString();
}
catch (Exception e) {
//handle an exception
} finally {  //close inputStream }
```

Networking. JSON Parsing

```
{
  "users": [
    {
      "id": "007",
      "name": "James Bond",
      "email": "james.bond@MI6.com",
      "address": "London",
      "gender": "male",
      "phone": {
        "mobile": "+91 0000000000",
        "home": "00 000000"
      },
      "weapon": "Walther PPK"
    },
  ] }
```

Networking. JSON Parsing

```
final JSONObject object = new JSONObject(result);
final JSONArray jsonArray = object.getJSONArray("users");
if (jsonArray != null && jsonArray.length() > 0) {
   for (int i = 0; i < jsonArray.length(); i++) {
       JSONObject userObj = jsonArray.getJSONObject(i);
       User user = new User();
       user.name = userObj.getString("name");
       user.email = userObj.getString("email");
       user.address = userObj.getString("address");
       user.gender = userObj.getString("gender");
       user.weapon = userObj.getString("weapon");
       JSONObject phoneObj = userObj.getJSONObject("phone");
       Phone phone = new Phone();
       phone.mobile = phoneObj.getString("mobile");
       phone.home = phoneObj.getString("home");
       user.phone = phone;  }}
```

Networking. JSON Parsing

Google GSON

https://github.com/google/gson

```
final Gson gson = new GsonBuilder().create();
final User[] users = gson.fromJson(reader, User[].class);
```

Networking. UI thread

Task

http://ip.jsontest.com/?callback=showMyIP

Сделать запрос на данный url используя HttpsURLConnection, пропарсить респонс и вывести на экрна IP из респонса

Ссылки для самостоятельного изучения

https://developer.android.com/training/basics/network-ops/connecting.html
https://developer.android.com/training/basics/network-ops/managing.html
https://developer.android.com/training/basics/network-ops/data-saver.html