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THE APPROACH TO THE INTERACTION
OF ANDROID APPLICATIONS TO THE DATABASE WEBSITE DATA

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Internet technology has become an integral part of our daily lives. They are developing every day more and more, covering different aspects of our lives: social networks, a variety of applications, calendars, reminders, monitoring magazines, websites, etc. Previously, users could work with Internet resources only through personal computers or laptops, but with the development of smart phones and tablets, everything you need is at your fingertips 24 hours a day. Most devices based on the Android operating system.

Usingthe Internet, anyone can visit a variety of sites and register thereon request. And an important indicator of the "modern" web-site is the ability to support its mobile version or application. But from this raises the question, how to synchronize data base of website and mobile applications.

Most web sites are written in PHP and work with the MySQL database and a mobile application can be developed in Java development environment through Android Studio. And in order to synchronize the Web site data from a mobile application you can use a bundle of data: from MySQL through JSON objects in Android Studio.

The solution of the problem. Very often there is a situation when you need to create a mobile application for developed website. Basically, mobile applications, which synchronized with the web sites, need user's authentication and minimal, but sufficient data to work with, because characteristics of a smartphone is lower than personal computers or laptops. To do this, the designer needs to consider a functional part of the application, its interface and method of receiving data from the database. Therefore, this article describes how to connect MySQL database via PHP JSON file requests using Volley library .

RPHP (PHP: Hypertext Preprocessor - «PHP: Hypertext Preprocessor", originally Personal Home Page Tools - «Tools for creating personal web pages") - scripting general-purpose language, intensively used for web application development. Today it is supported by the overwhelming majority of hosting providers andit is one of the leaders among the languages that are used to create dynamic Web sites [1].

MySQL - free relational database management system. Development and support for MySQL, Oracle provides, won the right to the trademark, together with the absorbed Sun Microsystems, which had previously acquired the Swedish company MySQL AB. The product is distributed as under the GNU General Public License, as well as under its own commercial license [2].

JSON (English JavaScript Object Notation.) - Text format data exchange, based in JavaScript. Like many other text formats, JSON is easy for people to read. JSON format may be more appropriate for the serialization of complex structures because of its brevity, if we compare with XML. If we talk about Web applications, in this manner it is appropriate to the problems of data exchange both between the browser and the server (the AJAX), and between the servers themselves (program, the HTTP interface).

JSON format can be easily deserialized built-in function eval (), because it is a subset of JavaScript syntax. Beside it is possible to insert JavaScript-bodied functions. In the language of PHP since version 5.2.0, JSON support is included in the kernel as a function json_decode () and json_encode (), which are converted JSON data types themselves to the appropriate PHP type, and vice versa [3].

Volley is an HTTP library, which makes network sharing Android applications easier and, most importantly, faster. Volley is available for use through the open AOSP repository.

Volley Library offers the following advantages:
– Automatic planning of network requests.
– Multiple parallel network connections.
– Transparent caching on the disk and in memory of the responses using a standard HTTP cache coherency.
– Support requests priorities.
– API is for the cancellation request. You can cancel a single request, or you can set the block or region requests to cancel.
– Easy to configure, for example, to retry attempt and delays.
– A strict procedure that allows you to fill in the user interface of the data easily and correctly received from the network asynchronously.
– Tools for debugging and trace.

This library can be easily integrated with any protocols, and comes with support for raw strings, images and JSON [4].

To implement the interaction of the Android application and web site, you must connect com.mcxiaoke.volley library: library: 1.0.19 in Android Studio in build.grable file. After the library will be connected, there will be available two classes for work and RequestQueue Request and then you must connect use of the Internet in AndroidManifest.xml. RequestQueue is used to send network requests. This class can be created at any time, but usually it creates during startup and it is used as a Singleton. Request: contains all necessary parts to build a Web API call. For example: which method to use (GET or POST), the request data, response listener, error listener.

As an example we can take a way to authenticate of the website's user through mobile application to gainaccess to your account information.

First it is necessary to create a .phpfile to connect to a database. and we need to prescribe functional receiving data therein from the selected database and display them in a JSON format. Subsequently, the Android app will refer to this file to connect to the website, send and receive data via the URL registered in the Java application code.

When we fill out the entering fields of login/password and sending them by request method as a response user receives Json object with the notification of successful or erroneous jsonObject.get () authorization.

When we process POST-request it is necessary to remember that analysis of parameters is not automatic, as a result of clear exit method protected Map <String, String>getParams (throws AuthFailureError).

After successful authentication, the system refers to the database directly from the user ID in a similar way, providing access to the account. Beside, this library provides transparent disk cache, and cache memory.

Methods of solving problems. As a model of a mobile application architecture and web site it is better to use a model user-shell database administrator. In this architecture, one can make the conversion of parts of the model and changes of other parts are not so global.

Each part of the model has its own characteristics that define the subject area, which may be reflected in the GUI, i.e, in the shell.

The user implements some methods for sending and receiving data. Part of architecture as a database administrator manages the entire contents of the content.

Conclusion. As a conclusion we can say that for synchronization a website and mobile applications with Android system is convenient to use a bundle of operating system data: MySQL database, PHP file and Json objects. From the Android app as the connector is better to use Volley library. It will be able to directly connect to the .php file with the database connection settings and allows direct exchange of data between the mobile app and website. Beside, this method makes it easy to navigate in the program code, which significantly simplifies its further modernization, functional expansion and correction of errors appeared in the development.

Architecture of the applications user-shell-DB administrator will enable to make the modernization of one of the parts of the model, which in turn do not lead to the global changes in other parts.

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