Backend Server for Walk Your City Android Application

Walk your city mobile application is part of a movement by City Fabric Inc. that aims to encourage people to walk to walkable distances rather than driving or via other modes of transportations. This is achieved by creating awareness about nearby places and how long it would take a person to walk to a place of interest. The mobile application is developed in android to show the users a list of near-by destinations that might interest him. It also allows the user to get the directions to these locations. The data related to these destinations need to be stored in a location (online) such that the instances of the application installed on various mobile devices can fetch this data and view an updated list of destinations from time to time.

The web server also provides an easy to use User Interface to the admin of this mobile application (staff from City Fabric Inc). This allows them to add, remove and edit the destinations list stored in the database and hence easily carry out changes in the list without firing insert or update queries on the database.

Software Specs:

Linux Operating System (Cent OS 5.4 (32 bit))

Apache 2.2.3 web Server

Mysql database server 5.0.95

PHP v5.3 (**must be 5.2+**)

All the technologies used are available freely under open source licenses.

Currently the server is hosted on a Cent OS image at Virtual Computing Lab (VCL) reservation for NC State University as a proof of concept, but can be done so with any other hosting services.

(Refer useful links section at the end of this document for set up instructions/guide)
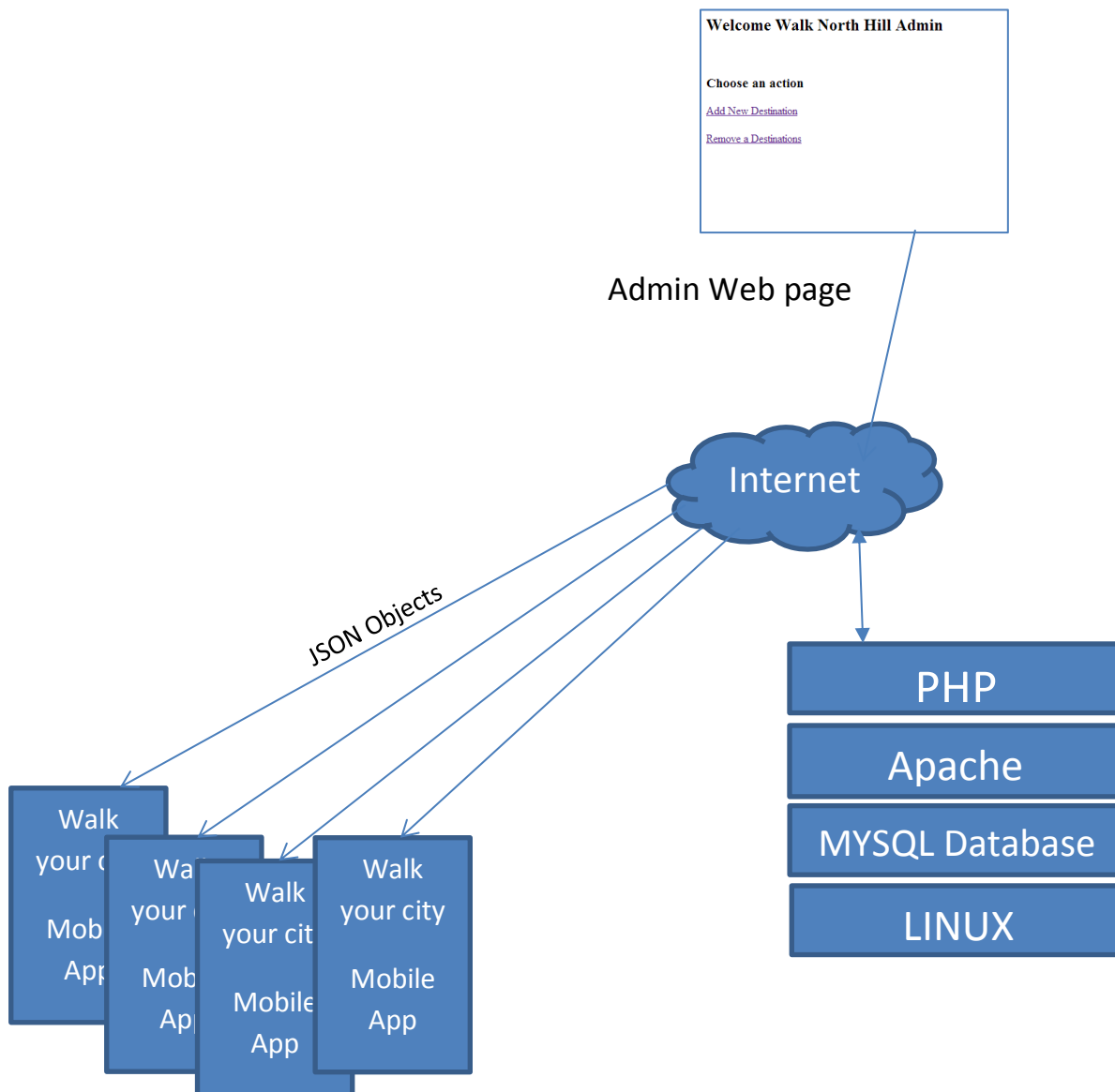
Working

The list of destinations is maintained in a MySQL database hosted on a server. An API written in PHP is hosted here which is called by the mobile application. On receiving the request, via the API, the web service queries the database and fetches the list of all destinations. This list is encoded as a JSON object and then returned to the application. Application decodes this JSON object, stores it in the mobile device in local database at the device and displays it on the user screen.

Web application hosted on the server provides a GUI to the administrators of the mobile application at City Fabrics Inc. This application is PHP based and by means of web forms, it allows the admin to change data in the MySQL database holding the data related to the list of the destinations.

The PHP API was created to provide a layer of security for the database. By opening the database access only to the application on the server, we restrict access to it to the outside world which otherwise would have made it vulnerable to malicious attacks.

Another security feature is authorizing admins with user name and password to ensure security of data from unauthorized manipulation.

Architecture

Welcome Walk North Hill Admin

Choose an action

Add New Destination

Remove a Destinations

Admin Web page

Internet

JSON Objects

Walk your city Mobile App

Walk your city Mobile App

Walk your city Mobile App

Walk your city Mobile App

PHP

Apache

MYSQL Database

LINUX

Installation Guide:

- Install Apache web server
- Install Mysql Server
- Install PHP
- Put files from /var_html at Git to /var/www/html/ folder
- Change the IP in the application code in android for the new Server IP

Useful links to setup server environment:

Install the LAMP stack on Cent OS [https://www.digitalocean.com/community/articles/how-to-install-linux-apache-mysql-php-lamp-stack-on-centos-6]

Upgrading to PHP 5.3 from lower versions [http://www.rackspace.com/knowledge_center/article/how-to-installupgrade-php-53-for-centos-5x]