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CREATION OF MAPPING WEB-SERVER USING SOCKETS AND THE LIBRARY SHAPEFILE

Web-cartography is one of the most useful applications on the Internet, because it is easy to find a specific address or route with its help. You only have to open a website or download a ready-made solution to your mobile device. The information for end-users of the web-resource is provided by mapping service, which in its turn interacts with geo-server that provides the necessary map or its part.

At present the geo-server is being developed that will provide the user with the information about highways of Zhytomyr, will be able to find and solve the problem of finding the optimal path (total traveling salesman problem and its modifications).

Up for now, several modules have already been written, which are responsible for certain features of the software: TCP / IP server [1] that provides information via protocol *http*, the module for solving the general problem of the traveling salesman, and the modules to interact with the *shapefile* [2] (.dbf and .shp files) .

TCP / IP server has been written in Win sockets that send information to web-browser. The user addresses the server and receives in return a map or an error message if the request was wrong. Schematic inquiry looks as follows *http: // IP addres /*. In the future, using the service No-IP the server will be assigned a domain name.

Shapefile-file is the main part of the service that stores different types of geometric objects: points (polipoints), lines (polylines), landfills and other objects. Although the term *shapefile* is most often used, it is not just one file, but a set of files with the same name but different extensions. The basis of the format is three mandatory files: .shp, .shx and .dbf.

- *shp* is the main file. *shp* file contains the information about geometric objects. The file consists of fixed-length header and one or more variable-length records. Each entry of variable length includes the header and the content.

- *dbf* is the file, where attributive information of geometric objects described in *SHP* - file is written. It represents a database in format dBase II.

It is possible to compare this software with existing software with open source code (GeoServer, Geozilla World, World Wind Server, MapGuide Open Source, and others.) which are similar to the developed modules for mapping server, but have less features and potential.
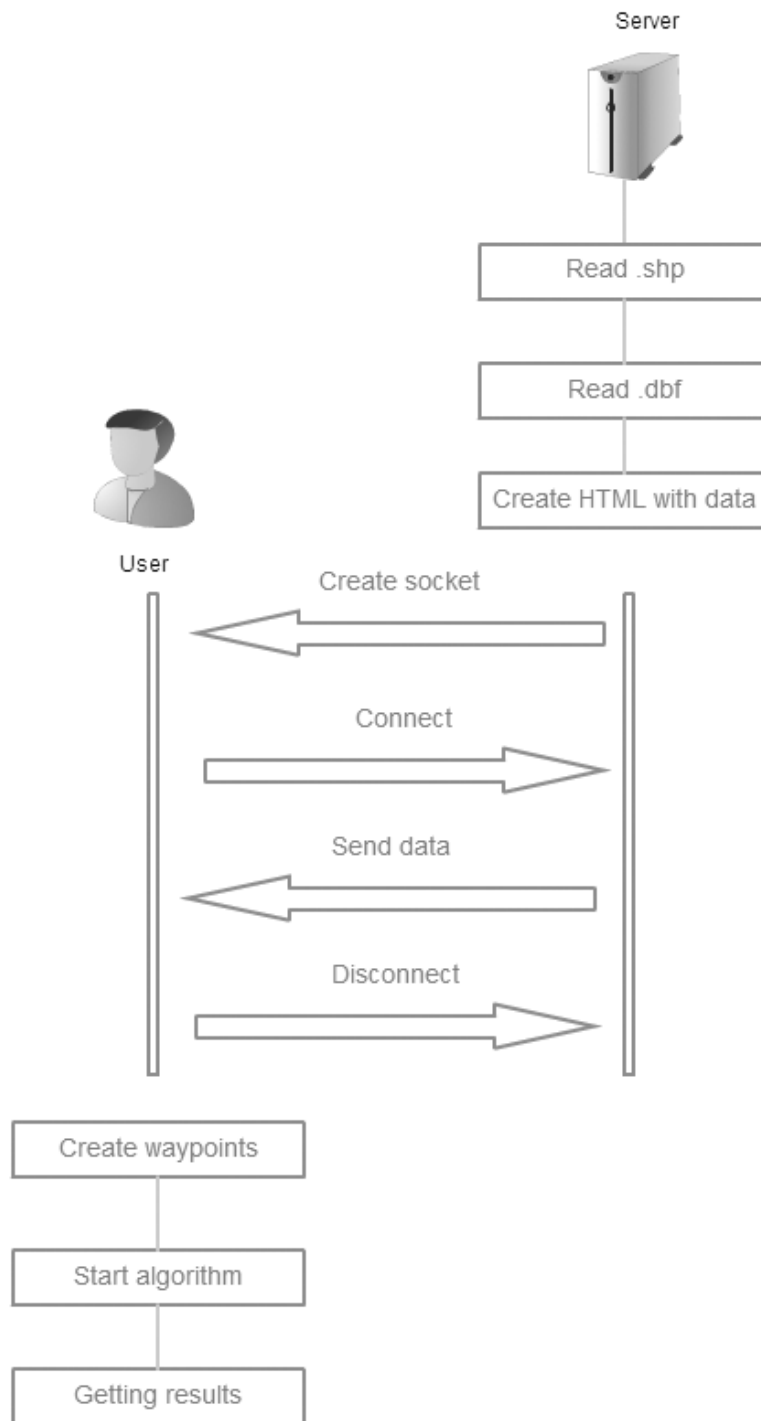
Figure 1. Sequence Diagrams

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2. Shapefile C Library [Electronic resource] — Access mode. — http://shapelib.maptools.org/ (Date of treatment: 01.03.2015).