Web-mapping of prominent personalities of the institute of geodesy of Lviv Polytechnic National University

*R. Sossa, Y. Holubinka, A. Petrov, (Lviv Polytechnic National University)

SUMMARY

Interactive web maps are one of the essential components of modern web resources and have extensive opportunities for the displaying of large arrays of different information. Visualization of these data on the traditional maps has several significant restrictions. We have developed an interactive web map of prominent personalities of Institute of geodesy of Lviv Polytechnic National University. For this purpose, we have processed the selection principles of prominent personalities. By the time parameters, we have included into the list of personalities corresponding employees of the geodetic chairs, that have been functioned in Polytechnic since the day of the founding of geodetic faculty. We have included following categories: 1) deans of the Faculty of Geodesy and directors of the Institute of Geodesy; 2) heads of the chairs; 3) prominent scientists; 4) prominent graduates. The processing results have been transferred into the tables and exported to *.csv format, which is frequently used to transfer data between different platforms. As follows, data has been exported to the universal format, which can be used for the import of primary attributive information into web services as well as to web libraries. The processed methodic and technology of the development of interactive maps can be applied for the development of appropriate web resources of other scientific-educational institutes of the Lviv Polytechnic National University.
Introduction

Lviv is the most influential centre of geodetic education, wherein the walls of Polytechnic the higher geodetic education in Ukraine has been started, and well known Lviv scientific geodetic school has been established. Modern Institute of Geodesy of the Lviv Polytechnic National University has been founded 24 of January 1945 when in the Lviv polytechnic institute was created the only at that moment in Ukraine geodetic faculty. However, the origins of the geodetic education in Lviv polytechnic reach the middle of the XIX century when in 1844 the first geodetic lectures were started, and in 1871 herein began to work first in Ukraine chair of geodetic and spherical astronomy.

Personalities make history. Scientific geodetic school of the Lviv polytechnic have been recognized in consequence of the scientific activities of prominent scientists. The pride of the Institute of geodesy is the successes of its graduates in scientific and production spheres, in political and public activities.

The cartographic method is the most demonstrative one for the reflection of the activities of prominent scientists and graduates of the Institute. The visualization of such kind of data on the traditional maps has several significant limitations (map format, complications related to the placement of large texts and illustrations, etc.). Web maps have completely different opportunities for the visualization of large arrays of varying information and are one of the essential components of modern web resources.

Method and Theory

In the conducted researches, we have processed methodic and technology of the development of an interactive map of the prominent personalities of Lviv Polytechnic National University. We have developed the classification of the prominent personalities, conducted designing of appropriate database and created logical and physical data models, and developed an interactive map of prominent personalities of the Lviv Polytechnic National University.

The aim of our study is the development of an interactive web map of prominent personalities of the Lviv Polytechnic National University.

One of the first tasks that we have sated in front of us was the processing of the principles of selection of prominent personalities of the Institute of geodesy. First of all, it was necessary to determine the time parameters of prominent personalities inclusion. The Institute (faculty) was organized in 1945. Herewith we took in to account the circumstance that firs chair of the geodetic profile in Polytechnic was founded in 1871, and it's activities as well as the activities of later created other geodetic chairs became the forerunner of the Lviv Scientific Geodetic School. That is why we made an informed decision to include to the list of prominent personalities employees of the geodetic chairs, who have been worked before 1945 and have matched to the selection criteria’s.

Criteria’s of the selection of prominent personalities included their merits before the state, achievement’s in scientific, educational, and development spheres, in political and public activities. We have included following categories: 1) deans of the Faculty of Geodesy and directors of the Institute of Geodesy; 2) heads of the chairs (including the chair that have existed before the establishment of independent geodetic faculty); 3) prominent scientists; 4) prominent graduates.

The situation was more complicated with the selection of prominent scientists and graduates. With this purpose, we have processed unique selection criteria’s. These were as follows:

- founders of scientific schools;
- academicians and Corresponding Members of the National Academy of Sciences of Ukraine and National Academies of Sciences;
- acting members of foreign Academies of Sciences;
- acting members of public academies of sciences;
• doctors of sciences, professors, awarded high state awards;
• winners of state awards;
• honorary doctors of other higher educational institutions.

To the categories of prominent graduates we’ve included the following criteria’s:
• prominent scientists;
• heads of leading companies, institutions and organizations;
• prominent organizations of the development;
• politicians and public figures;
• awarded by high state awards.

The information for interactive map development has been collected from open sources, as well as internet resources. The selection has been made with the participation of all chair of the Institute of geodesy.

The common means for the development of the interactive map are cartographic web-services (Google Maps, ArcGIS Online (Story Maps) and cartographic web libraries (Leaflet, Open Layers, ArcGIS Web Mapping, Google API). That is why, during the development of an interactive map, we have predicted the ability to start the products on different platforms (web services & web libraries).

Logical and physical modelling were performed sequentially. The results of the information processing have been collected in the tabular format according to the following criteria’s:
• Full Name;
• Date of birth;
• Place of birth;
• Date of death;
• Burial place;
• Graduation year;
• Main achievements.

Collected tabular data have been imported to the *.csv format. Format of Comma-Separated Values (CSV) is used for transferring of tabular data between different platforms. As follows, data have been exported to a universal format, which can be used for the import of primary attribute information into web services and web libraries.

The fig. 1-4 displays fragments of the created interactive maps “Prominent personalities of the Institute of geodesy of Lviv Polytechnic National University”.

Figure 1. Fragment of an interactive map "Prominent personalities of the Institute of Geodesy of Lviv Polytechnic National University". Heads of departments"
Figure 2. Fragment of an interactive map "Prominent personalities of the Institute of Geodesy of Lviv Polytechnic National University". Deans of Geodetic Faculty and directors of the Institute of Geodesy"

Figure 3. Fragment of an interactive map "Prominent personalities of the Institute of Geodesy of Lviv Polytechnic National University". Outstanding scientists"

Figure 4. Fragment of an interactive map "Prominent personalities of the Institute of Geodesy of Lviv Polytechnic National University". Outstanding graduates"
Conclusions

Based on the analysis of the activities of prominent personalities of the Institute of Geodesy of Lviv Polytechnic National University, conducted using open sources and with the participation of all chairs of the institute the following databases have been developed: 1) deans of the Faculty of Geodesy and directors of the Institute of Geodesy; 2) heads of the chairs; 3) prominent scientists; 4) prominent graduates. This allowed developing an interactive map “Prominent personalities of the Institute of geodesy”, which can be permanently appended by new information and will be published on the institute web portal.

The processed methodic and technology of the development of interactive maps can be applied for the development of appropriate web resources of other scientific-educational institutes of the Lviv Polytechnic National University.

References


