SURVEYING STUDENTS' OPINION USING GIS WEB APP

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Abstract: In the paper is emphasized a GIS Web App that had been used having an educational and managerial purpose, for retrieving the students' proposals for Faculty of Geodesy, Bucharest. These applications proved to be very useful in collecting and analyzing students' opinion about the educational process and staff. It had been used a GeoForm to submit the students' score for the faculty and a Summary Viewer app to see the others entries.

Keywords: GIS Web App, ArcGIS Online, Map Viewer, ArcGIS for Developers, GeoForm

1. Introduction

In present the link between students and teachers is made through multiple ways as elearning platforms, e-mail, social media and so on. At the Faculty of Geodesy had been made multiple trials to enhance collaboration and assure feedback between students and teachers, like e-learning platform. [1] Nowadays is the moment of Web Apps, developed through GIS programs or programming languages.

According with [4], crowdsourcing is the process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, especially an online community. Crowdsourcing has often been used in the past as a competition to discover a solution.

In this regard, in July 2016, in the Faculty of Geodesy, TUCEB, it had been developed a Web App, consisted in an online survey, in the purpose of identifying the students' opinion about it, strong points, weak points, proposals for enhancement, etc., for discovering the best solutions to implement in the institution.

Multiplatform or single platform, the app can be built to run on all devices including iOS, Android, Windows, OS X, and Linux, templates making it quick and easy. [5] With AppStudio, there can be converted the web maps into consumer-friendly mobile apps and publish them to popular app stores. There are two licensing models for AppStudio [6]: Basic and Standard. AppStudio Basic is free and allows to build apps from templates that can be published to the Apple and Google app stores. AppStudio Standard builds on this functionality by allowing us to create custom apps, but it requires a yearly subscription.

2. Case Study

For developing the application has been used ArcGIS Online platform. It has been created a GeoForm to submit the students' score for the faculty and a Summary Viewer app to see the others entries.

This GeoForm and Summary Viewer app were generated using the same feature service and web map. It is created a feature service through the developer site, added it to a web map, and used it to create a GeoForm.

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Fig. 2. Establishing Relevant Questions

In figure 3 is presented the designing of the hosted feature layer as a collection of geographic data in the form of points, lines, or polygons that supports vector querying, visualization, and editing.

Feature layers are added to the Map Viewer in ArcGIS Online. Web maps themselves should not be shared with people who are not involved in the map-making process. The mechanism for sharing or collecting geographic information is represented by Web Apps, or Geo Apps.

SURVEY ABOUT OUR FAC	CULTY		
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Fig. 3. Designing the Hosted Feature Layer for Application in ArcGIS for Developers

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Compare Maps/Layers		1 15 - AL	Ann sum
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Fig. 4. Creating a Web App for Collecting Data

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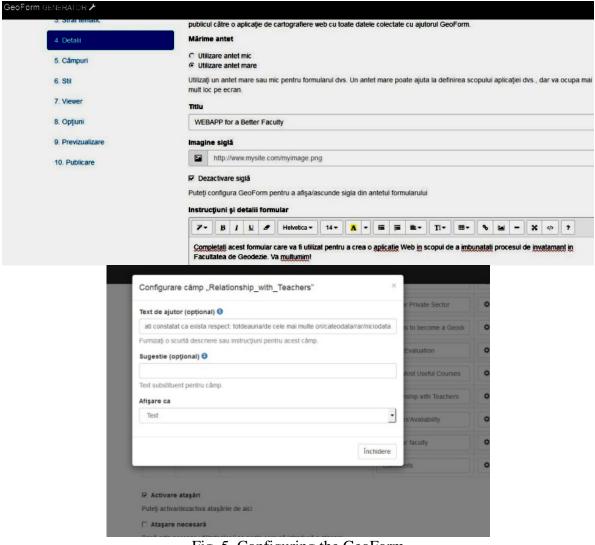
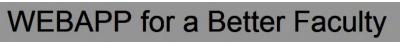


Fig. 5. Configuring the GeoForm

In figure 6 is emphasized the sharing operation. This is a crowdsourcing app, so it needs to be accessible to the public.

Succ	ess! Element salvat	×	
Ser	viciul dvs. GeoForm a fost actualizat și publicat!		
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Fig. 6. Link to the GeoForm (http://arcg.is/2aCZzHE)



Completati acest formular care va fi utilizat pentru a crea o aplicatie Web in scopul de a imbunatati procesul de invatamant in Facultatea de Geodezie. Va multumim!

1. Introdu	
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Fig. 7. Web App GeoForm

By default, the feature services and web maps are private. When the settings of a web map are updated for sharing, it will be received a question about whether the sharing settings for the feature services in that web map will be updated.

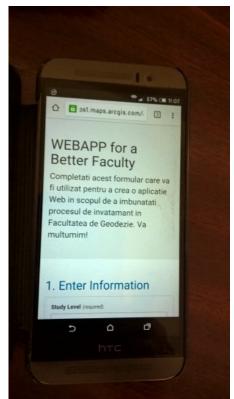


Fig. 8. Web App Form on HTC One M9 Android Phone

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Fig. 9. Map as a Base for Exploring/Summarize the Results

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Collect/Edit Data	SER		
Compare Maps/Layers			
Explore/Summarize Data	Elevation Profile	Filter	Finder
Map Social Media			
Provide Local Information	Andream State Stat		
Route/Get Directions		C. LINK	
Showcase a Map			
	Impact Summary	Summary Viewer	Time Aware

Fig. 10. Designing a Web App for Exploring/Summarize the Results

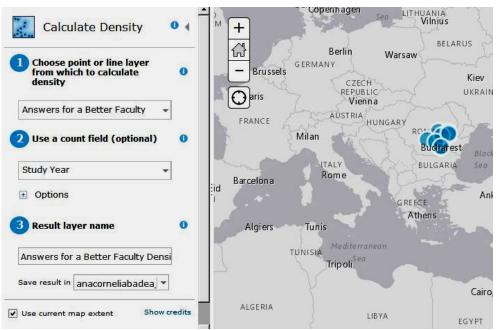


Fig. 11. Analyzing Data: Density

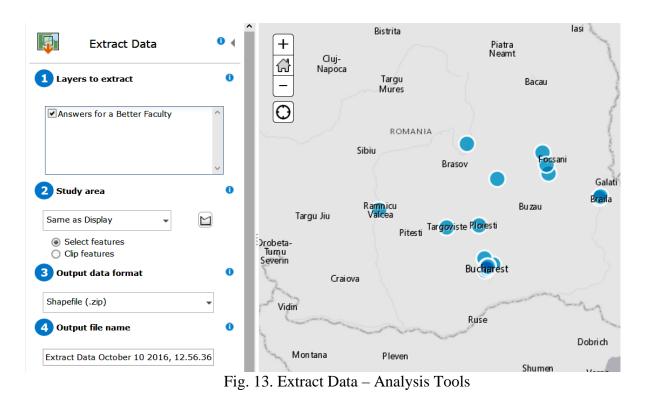
The Summary Viewer allows us to view the number of features that are within the map extent and also the summary statistics for particular values.

In our application we have the count and the average score for all of the points (students' scores about the faculty) within the map extent. (figure 12) This is a good possibility to explore data for different geographic areas by panning and zooming. This application was created using the same feature layer and web map that the GeoForm was built from.

Using the same elements for collecting and displaying app from a single feature layer, any new data from the collection app is added to the display app in real time. As observation, this workflow is a good approach only if the collected data does not need to be vetted before it is made public.



Fig. 12. Preview of Summary Viewer Application – September, 2016



In figure 15 is a graphical representation of the rating, made in ArcGIS Pro.

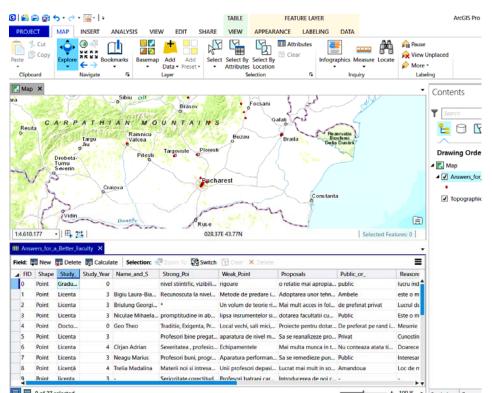


Fig. 14. Analyzing Data in ArcGIS Pro

3. Conclusions

GIS Web App had been used having an educational and managerial purpose, for retrieving the students' proposals for our faculty. These applications proved to be very useful in collecting and analyzing students' opinion about the educational process and staff. It needs also to be highlighted the potential of a workflow that collects and publishes data through the same feature service.

As main conclusion, we made an analysis related to or faculty (table 1), based on students' answers and proposals.

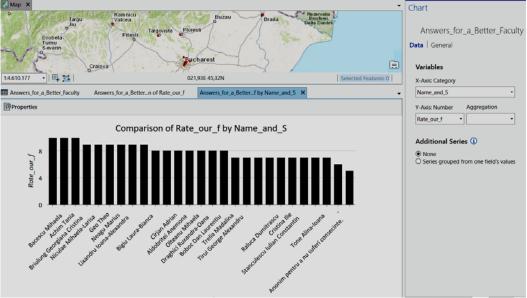


Fig. 15. Graphic of Answers by Given Rate

Strong Points	Weak Points	Proposals
- admission based only on the	- overloaded	- technical specialized camps
documents	curricula	- longer practice period
- teachers	- small	- WiFi network for students
- faculty reputation	classrooms	- projectors in all the classrooms
- seriousness	- too short	- interactive courses
- professionalism	practice period	- upgrading faculty website
- close college homes		- closer monitoring by teachers of
- access to specialized		exam cheating
equipment		-

Table 1 – Analysis and Main Proposals

4. References

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