ABSTRACT

Geographic information system (GIS) which is a computer-based tool for mapping and analyzing events on the earth, allows researchers to explore and analyze data by location. By using this advances in database management tool this study is suggesting an alternative approach to let the decision makers to analyze students’ performances if they are kept in such a system. In our context mathematics performances of fourth graders will be mentioned. It is aimed to combine the results of observations about students’ performances by researchers into a Geographic Information System (GIS) by which a related person will be able to access these performances of students from different school locations by a simple click. Then they can put their decisions if they are poor. Those observations may point out a change in class teaching methods, for example. So, it can provide several feedbacks to decision makers to improve and/or making a better plan for the education system.

INTRODUCTION

In the following paragraphs you will find a simple demonstration of a Geographic Information System (GIS) by which some student performances from CANKOY & TUT, are graphically pictured so decision makers can collect ideas for making decisions to improve or to redesign the current educational system and also to message the class teachers to correct their teaching styles/methods. But it is meaningful to give a simple introduction about a GIS solution.
A geographic information system (GIS), or geographical information system, is any system that captures, stores, analyzes, manages, and presents data that are linked to location. It is a computer-based tool for mapping and analyzing events on the earth, allows researchers to explore and analyze data by location. There are several software packages that perform these mentioned tasks, for example ARCGIS by ESRI. To obtain a GIS solution for a project you need only the following five steps. First we need to set a general topic for the project. While, it is usually easy to generate ideas, they have to be supported by attainable data. Second stage is to formulate a specific question. Once a researchable topic is identified, we will generate a specific research question, by choosing from an array of questions in brainstorming sessions with the team members. The research question has to be focused, defined, and answerable, to help us narrow down the data requirements, in a timely manner. This approach will lead to a reliable result at the final stages of the project. Third is to develop the methodology. Were the the research question narrows down the scope of the research, the methodology provides a framework to address the main problem set forth by the research question. Moreover, the major steps involved, in the process will be vividly articulated. Further, a sequence of analysis steps will formulate the methodology. In this regard parameters and equations will specify the data we need to collect in the next step. Next, finding the data. Whearas, in previous steps we emphasized on finding a researchable question, the data collection process, should be cost effective too. Cost effectiveness will be determined in comparison to our available research funds. Finally, writing the proposal. Once previous steps have been done, the proposal nearly writes itself. In this step we should notice to the relevant proposal guidelines and follow them carefully. It's usually recommended to follow the fairly standard outline below. The introduction, is a short overview of the general problem & why it is important and mentions the overall goals of the project. Objectives define the specific objectives to be accomplished or products to be created. It's better to be short and presented in a list. In the methodology section we should explain the rationale behind the methodology by listing the major steps and defining the unique aspects. The data sources section lists the data layers and the sources. The work plan section, lists the major tasks and the estimated completion dates. The budget section, specifies the exact amount of funds dedicated to the research process, and provides measures to keep the spending within the confines of the funding.

A GIS SOLUTION IN EDUCATION

A research on mathematical performances of fourth graders in North Cyprus was performed and some important results were depicted by CANKOY & TUT. That results was showing that students who spent more time on test taking skills performed better, especially in routine mathematics items, than did students who spent less time on test taking skills. There was no difference observed in test results from nonroutine story problems. It was also indicating that spending too much time on test taking skills led to memorize procedures and cuing on surface attributes of a problem.

The following GIS solution is to depict some of these results by graphs attached to some hypothetical locations to give an idea to the audiences and you the authors in education. We are mainly expected some feedbacks and valuable comments while creating a solution by inserting these real data to real location so that government authorities can give important decisions on the current education system in North Cyprus.

Create Waypoint:

The process of sketching the polygons and assigning the GIS point using the GPS device was by creating new maps on the device and walk around the buildings that we have added to our maps. The creation was done by creating name for each building e.g. Information technology and storing them in the device.
Create polygon:

Using Google Maps, we created new specified maps by drawing and creating polygons of the buildings and save each maps exclusively. The process of drawing polygons is as follow:

2. Searching one of our waypoint’s longitude and latitude on search maps
3. Finding our location on map
4. Selecting “MYMAPS”
5. Selecting “CREATE A NEW MAP”
6. Filling the “TITLE” and “DESCRIPTION” blank
7. Checking one of the ratio’s button for “PRIVACY”
8. On the right side we selected the “DRAW A LINE” then we drew plan of the department.
9. By Adding a place mark we specified the special angles.
10. By “DRAW A LINE ALONG A ROAD” we have shown the roads.
11. At the left side clicking on “DONE” button
12. Clicking on “Save” button.

Import polygon to ArcGis:

13. On the right side of the page, by selecting “LINK” we copied address link from “PASTE LINK IN EMAIL OR IM BOX”
14. We added “GOOGLE TOOLS” by downloading it from the following web page:
http://code.google.com/p/emcode/wiki/GPSOnTheCheap to ArcCatalog
To insert that polygon we had drawn in Google map to ArcGIS.
- Notice that for steps 9 and 10 we filled “TITLE” and “DESCRIPTION”.
15. We opened ArcCatalog
16. We selected the Arc Toolbar Window
17. From Arc Toolbox window, we selected “EmCODE.org Google Tools” and by double clicking on “Google Maps My Maps to ArcGIS “After new window appeared we pasted the link that we had copied at step 13 in “GOOGLE MAP LINK” box and at the OUTPUT we selected the folder to save the layers that we have downloaded from Google maps.
18. We opened the ArcGisMap, and then at the toolbar by selecting ADD DATA icon we selected all layers that we downloaded, from the folder that we saved.

19. Imported polygon, exactly allocated to the XY points (longitude and latitude of our waypoints that we inserted before)

20. At the left side on display window by selecting or deselecting, checkbox you can show or hide the layers.
REFERENCES

ARCGIS, en.wikipedia.org/wiki/GIS