Development of geographic information system based on website in the field of education

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Abstract. The purpose of this study is to obtain information on the development of Geographic Information System (GIS) with various methods in GIS, namely ArcView and ARCGIS and Website-based in the world of education that can be accessed anywhere during the internet connection. The technique used in this paper is Study Literature, using examine international and national journals published in 2015 - 2019. The results of this study are information about the use of GIS in the field of education with various benefits and constraints.

1. Introduction
Geographic Information System (GIS) or Mapping and Geography-Based Information System is a management tool in the form of information with the help of computers related to the mapping system of funds analysis of events on earth. By utilizing this GIS can provide information and as a tool (process) decision making in education such as Equality and access to education and improving the quality of education [1].

The use of GIS applications is currently growing not only in the number of applications but also increased from the diversity of applications with the technology of presenting data in spatial form, raster data in various methods contained in GIS, namely the ArcView and ArcGIS ways. In its use and application in web-based education, School Data, mapping Education quality analysis [2].

By knowing what GIS is and the benefits it applies, it can be concluded that GIS can provide information on data and decision making in the field of education with various methods available in GIS, namely by serving in spatial, mapping, and analysis. And also, the application of GIS in education can improve the quality of education. In its use, GIS can be presented in a web-based.

2. Method
A systematic literature review is used to identify several relevant journals published from 2015 to 2019. With the keywords, Understanding GIS in education, namely understanding GIS in general, utilization, and role in education, GIS development is what components are contained in GIS and Methodology in GIS the extent to which the use and application in GIS are developing to date. In reviewing the journal by analyzing which consists of abstracts, results and observations, and conclusions.

3. Results
The application of GIS-based multi criteria decision analysis consists of six steps: setting goals, determining criteria and constraints, standardizing rules, determining weight coefficients, aggregation criteria and validation [3]. Using a Geographic Information System (GIS) platform to make online
monitoring. A system for displaying real-time operational data that is measured at various network points. The network with all its assets will be shown on a geographical map [4,5].

In the development of the Web and the expansion of the Internet provides two main capabilities that can significantly assist geoscience experts. First, the Web allows visual interaction with data. By setting up a Web Server, clients can produce maps. Because maps and charts are published on the Internet, other clients can see this update, helping to speed up the evaluation process. Second, because of the almost ubiquitous nature of the Internet, geospatial data can be widely accessed.

GIS applications in WebGIS that can be accessed online via the internet/web as a communication medium for distributing, publishing, integrating, communicating, and providing information in the form of text, digital maps [6].

Special GIS programs such as "ArcView & ArcInfo", or "MapInfo" are one of the developments in GIS in presenting data in the form of maps in the world of education. On the other hand, Web GIS does not require the same resources as other programs. Powerful computers, extensive training, and expensive site licenses are not necessary for GIS solutions in all locations [7]. The application of GIS in education is related to the new student admission system (PPDB).

Those who apply zoning that schools are regulated must give priority to prospective students who are in the closest radius. To make it easier for the relevant agencies to obtain information on the nearest school GIS has the ability to process data in providing information on the location or location of the school [8]. In presenting data in the use of this application and so on, it is described in the following table 1.

Table 1. Presentation of data design of new student admission systems zoning pathway with a mobile based Geographical Information System (GIS) based on the process.

| The usefulness | Time | Benefits | Disadvantages |
|---------------|------|----------|---------------|
| White Box     | 3 months | Overall data collection Making application in coding GIS-based PPDB System | 1. Structured Code 2. Analysis phase |
| Black Box     | 1 month | Application Testing For testing the final | global application stage |

4. Discussion
In computer science and GIS, data technology can be integrated with other supporting applications to obtain data on a larger scale [9]. Several other studies mention that the development of GIS technology in education still has weaknesses [10-13]. With the development of web-based GIS, several strategies have been put forward to provide successful implementation of its development. Figure 1 shows the web-based GIS development cycle described in 8 main activities, starting with needs analysis and ending with the ongoing use and maintenance of web-based GIS [7]. Figure 1 is Web GIS Development Cycle.
5. Conclusion
The development of ArcView and ArcInfo GIS can provide more interactive information in the form of map modeling and can be integrated with other applications and can help also in the education sector information in mapping school information in its web-based application.

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