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GIS APPLICATION

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Abstract – The purpose of this paper is to provide introduction of Geographical information system and how GIS aid in research work with a varieties of functions and features.In addition, GIS has several opportunities for research suggestions including GIS management, organizational impacts, collaborative issues, evaluations of decision- making effectiveness, and societal impacts in both developed and developing countries'.

Introduction-

A Geographic Information System (GIS) is a computer based system that analysis and display geographical referenced information. It uses data that is attached to a unique location.

GIS designed to capture, store, manipulate, analyse, manage, and present all types of geographical data. The key word to Geographical Information System (GIS) is Geography -it means that some parcel of the data is spatial. In other words can says that data is in some way related to locations on the earth surface and non-spatial data that relate to attribute data. when link all data in to one frame provide authentic information.

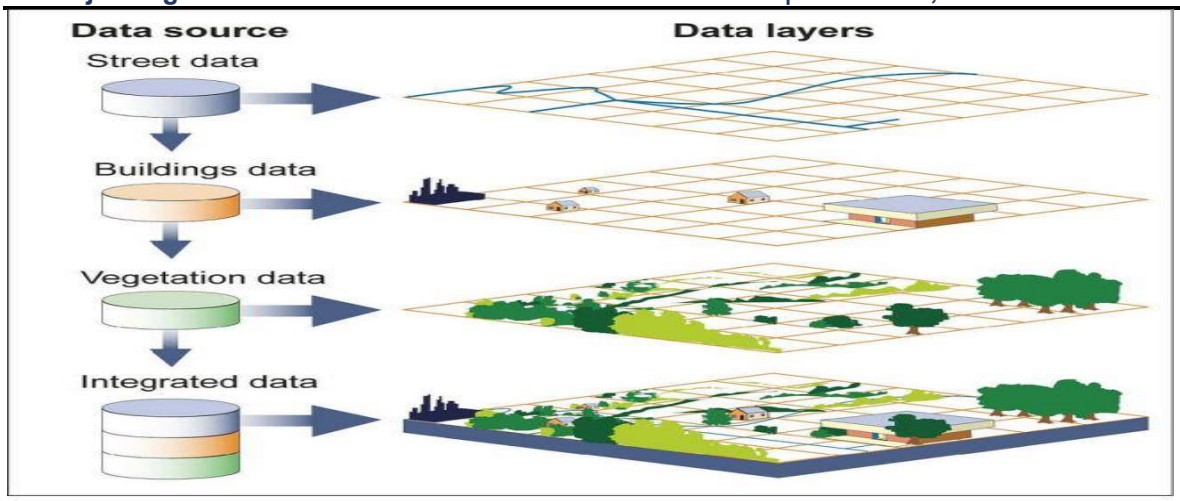
GIS uses two type of data –

Spatial Data

Non Spatial Data

For An example of this would be schools. The actual location of the schools is the spatial data. Additional data such as the school name, level of education taught, student capacity would make up the attribute data.

Many different types of information can be compared and contrasted using GIS. The system can include data about people, such as population, income, or education level. It can include information about the landscape, such as the location of streams, different kinds of vegetation, and different kinds of soil. It can include information about the sites of factories, farms, and schools, or storm drains, roads, and electric power line.



(Source GAO) above data structure picture shows different layers of data and how we can marge them to utilize map as per requirement

Data Capture –

Data Formats

GIS applications include both hardware and software systems. These applications may include cartographic data, photographic data, digital data, or data in spreadsheets.

Cartographic data are already in map form, and included such information location of rivers, roads, hills, and valleys etc. It may also include survey data and mapping information that can be directly entered into a GIS

Photographic interpretation is a major part of GIS. Photo interpretation involves analyzing aerial photographs and assessing the features that appear in the photograph.

Digital data can also be entered into GIS. For an example-different kind of information collected by satellites that show land use and land cover of an area.

Remote sensing provides another tool that can be integrated with GIS. Remote sensing includes images and other form of data collection system like satellites, balloons, and drones.

Finally, GIS can also include data in table or spreadsheet form, such as demographics details. It can range from different age group, sex-ratio,density, income and other information's. of population to analyze the data.
GIS technology allows, all different types of information, no matter their source or original format or to be overlaid on top of one another on a single map. GIS uses location as the key index variable to related all these justly unrelated data. All putting information data into GIS is called data capture. Data that are already in digital form, such as most tables and images taken by satellites and simply be uploaded into GIS. First maps however, must first be scanned or converted to digital format.

Format of GIS- Here are two major types of GIS formats are-

1Raster

2 Vector

Raster formats are grids of cells or pixels. Raster formats are useful for storing GIS data that vary, such as elevation or satellite imagery.

Vector formats are polygons that use points (called nodes) and lines. Vector formats are useful for storing GIS data with firm borders, such as school districts or streets.

Summary-

Finally, GIS is more than just software. It can be used as tool in both problem solving and decision making processes, as well as for visualization of data in a spatial environment. Geo-spatial data can be analysed to determine the location of features and relationships to other features.

References -

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