Topic no 1: Introduction to GIS

GIS, a technology and information handling strategy:

G stands for geographic, so we know that GIS has something to do with geography. it implies that locations of the data items are known, or can be calculated, in terms of Geographic coordinates (Latitude, Longitude).

I stands for information, so we know that GIS has something to do with information, namely geographic information. it implies that the data in a GIS are organized to yield useful knowledge, often as coloured maps and images, but also as statistical graphics, tables, and various on-screen responses to interactive queries.

S stands for system, so we know that GIS is an integrated system of geography and information tied together. it implies that a GIS is made up from several inter-related and linked components with different functions. Thus, GIS have functional capabilities for data capture, input, manipulation, transformation, visualization, combinations, query, analysis, modelling and output.

History of GIS:

When we come across a topic called civilizations, we get to know that the people then were equally good at planning things, they used to make road maps and paintings or any other type of artwork that consisted at least a small information based on the geography . It can be granaries, entertainment spots or any other place, we can just say GIS is as old as history.

Definition of GIS:

A Basic definition of GIS

"A system for capturing, storing, checking, integrating, manipulating, analyzing and displaying data which are spatially referenced to the Earth".

This is normally considered to involve a spatially referenced computer database and appropriate applications software.

What makes GIS so special?

- GIS handles SPATIAL information – Information referenced by its location in space.
- GIS makes connections between activities based on spatial proximity.
- An Evidence to show GIS is quite old London cholera epidemic 1854 As per their mapping the red spots were the infected spots and places of death , the dots indicate the water wells.

Historical Background:

This technology has developed from:

1. Digital cartography and CAD
2. Data Base Management System

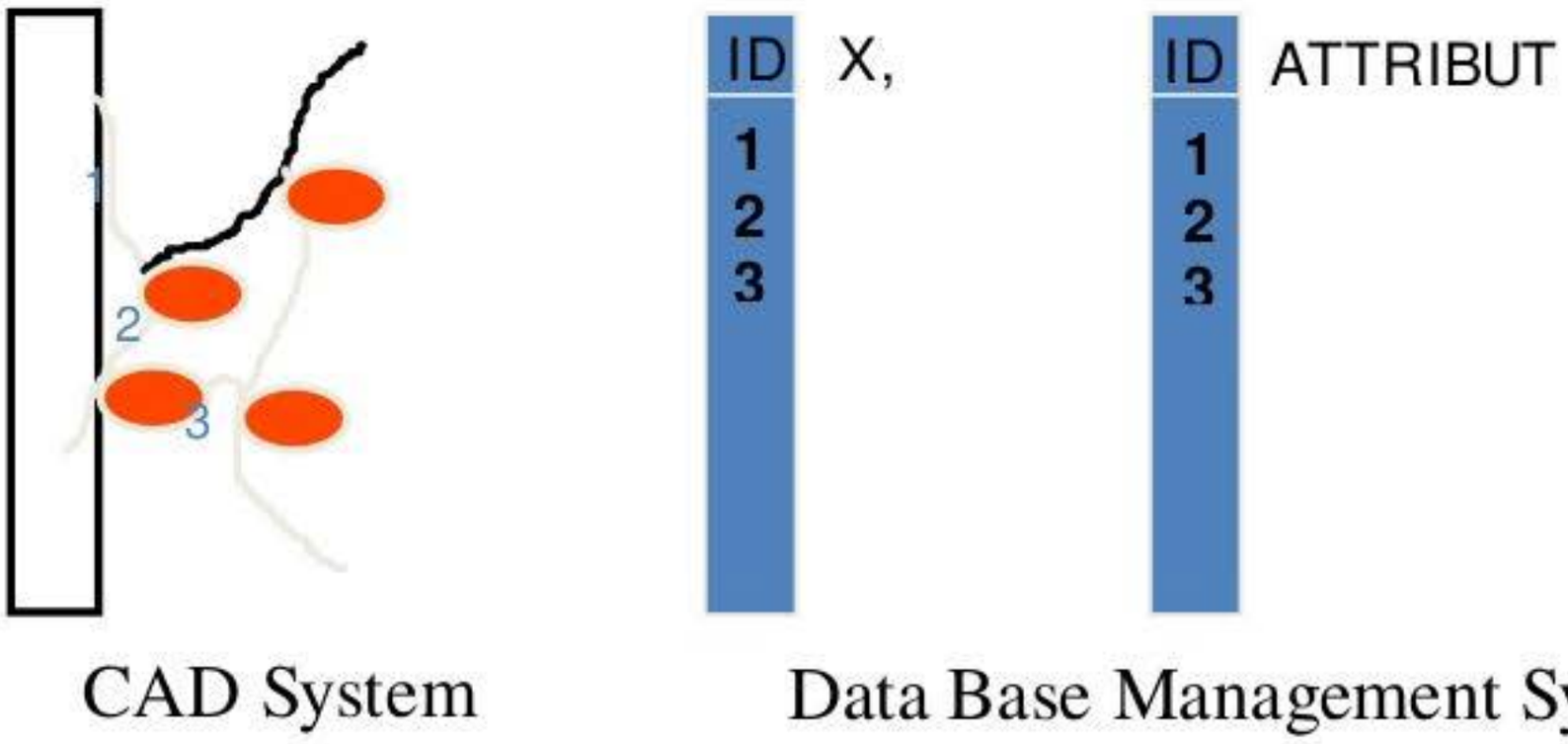

Fig: No: 01 to show the digital cartography and CAD relates to the Data Base Menagement system.

Conclusion:

GIS has proved to be a really useful application, its evolution with the changing times has been totally progressive . With the changes in the latest hardware's and the software's GIS will be used for the best of its purposes…!

Applications of GIS:

Applications of GIS generally fulfill the five M's of GIS:

1.Mapping 2. Measurement

3. Monitoring 4. Modeling

5. Management

Applications of GIS in different disciplines are explained below:

Political Science:

a) Analysis of election results

b) Predictive Modeling

Real Estate:

a) Neighborhood Land Prices

b) Traffic Impact Analysis

Business:

a) Demographic Analysis

b) Site Selection

c) Market penetration

Health care:

a) Epidemiology

b) Needs Analysis

Education Administration:

a) Enrollment Projections

b) School Bus Routing

Urban Planning And Management:

a) Zoning, Subdivision Planning

b) Economic Development

c) Emergency Response

d) Code Enforcement

e) Tax Assessment

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General Application of GIS in the field of City and Regional Planning

a) Monitoring land use change

b) Assessing the impact of urban settlements

c) Simulation of processes in the urban and natural environment

SCOPE & IMPORTANCE

The many important benefits in using GIS in urban planning include;

Improved mapping – better access to maps, improved map currency, more effective thematic mapping, and reduced storage cost; Greater efficiency in retrieval of information; Faster and more extensive access to the types of geographical information important to planning and the ability to explore a wider range of 'what if' scenarios; Improved analysis; Better communication to the public and staff; Improved quality of services, for example speedier access to information for planning application processing. GIS finds a vital role in the field of Urban Planning. The features of GIS which makes it important in the Urban Planning are,

a) Multi-source data can be entered and integrated;

b) Data consistency can be maintained;

c) Data updating can be easily undertaken; and

d) Flexible data storage and retrieval can be achieved.

Management and planning of urban space requires spatially accurate and timely information on land use and changing pattern. Monitoring provides the planners and decision-makers with required information about the current state of development and the nature of changes that have occurred. Geographical Information system (GIS) provides vital tools which can be applied in the analysis at the district and as well as at the city level.