Understanding Geographic Information System (GIS) software

This Presentation to be

Submitted to Dr - Bager Ramadan

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Goals and Objectives

- **To understand the GIS functions.**
- **To know the tools that are using in GIS software.**

- **To see how computer represent geography, attributes, features and it's linking.**

Contents

- **What Makes Up a GIS**
- **Why Geography?**
- **How Maps Present Geographic Attributes**
- **How Maps Convey Spatial Relationships**
- **Using Computers To Represent Geography**
- **Linking Attributes to Features-The Georelational Model**
- **Organizing Geographic Information**
- **Geographic Data Sets**
- **Raster Geoprocessing**
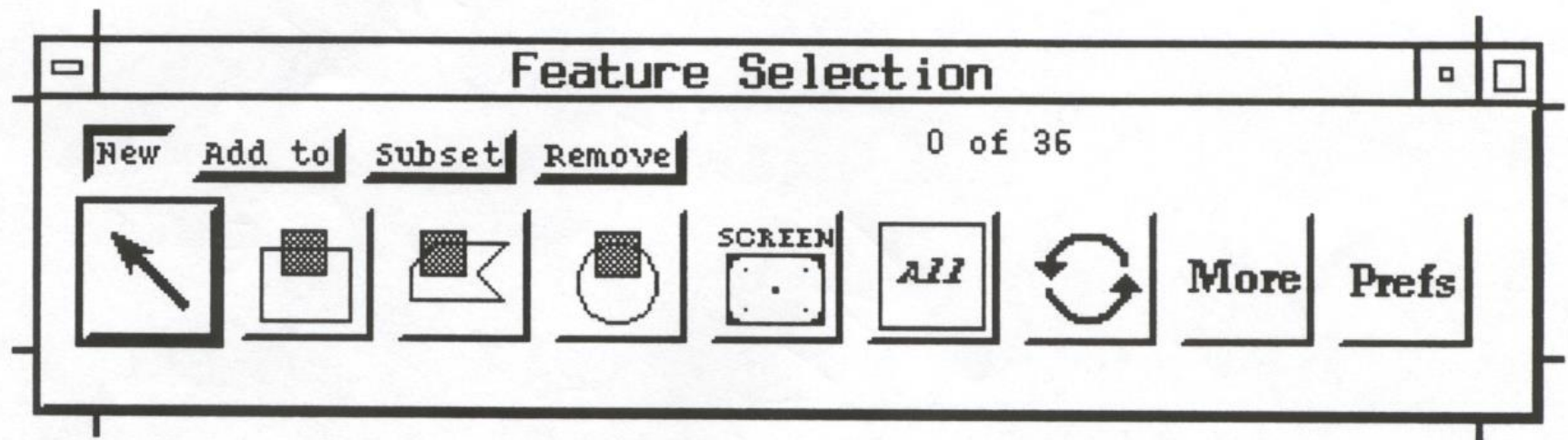- **Trends in GIS Software Technology**
- **Where Next?**

- **What Makes Up a GIS**
  - **Make a fully functional geoprocessing system.**
  - **Good GIS providers support clients with more than just technology**
  - **Tool used for the client's success**

  Five parts of a GIS
  1- applications

2- people

3- data

4- hardware   5-software-describes that vendor's reliability

- **Why Geography?**

  To help you design the most appropriate geographic information representation and maximize storage and analysis, this article will describe GIS concepts and models for storing geographic information
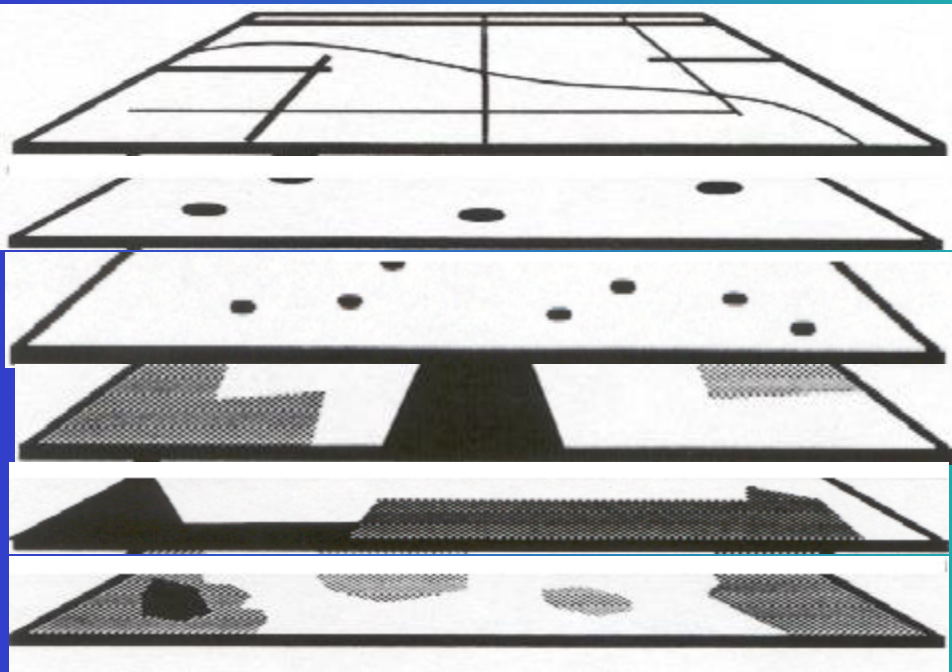
- **How Maps Convey Spatial Relationships**
  Points
  Lines
  Polygons

- **How Maps Present Geographic Attributes**

- **Roads**

- **Mosque, buildings**

- **Crime site**

- **Health dis**
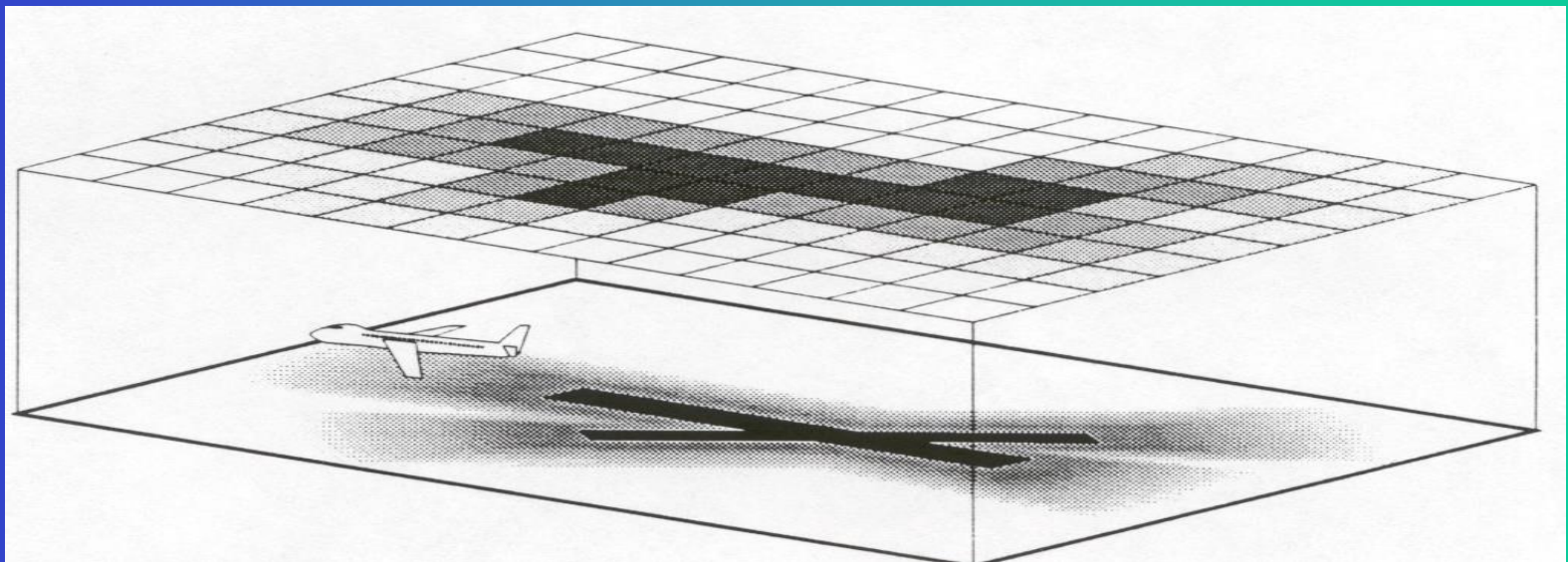
Zip codes

- **Land use**

- **Using Computers to Represent Geography**

  The Vector Data Model

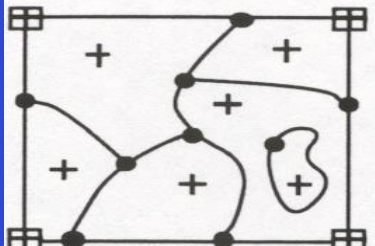 **The Arc-Node Data Structure**

  Topology
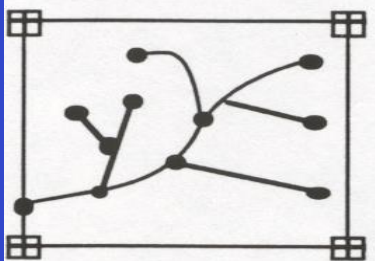
  The Raster Data Model

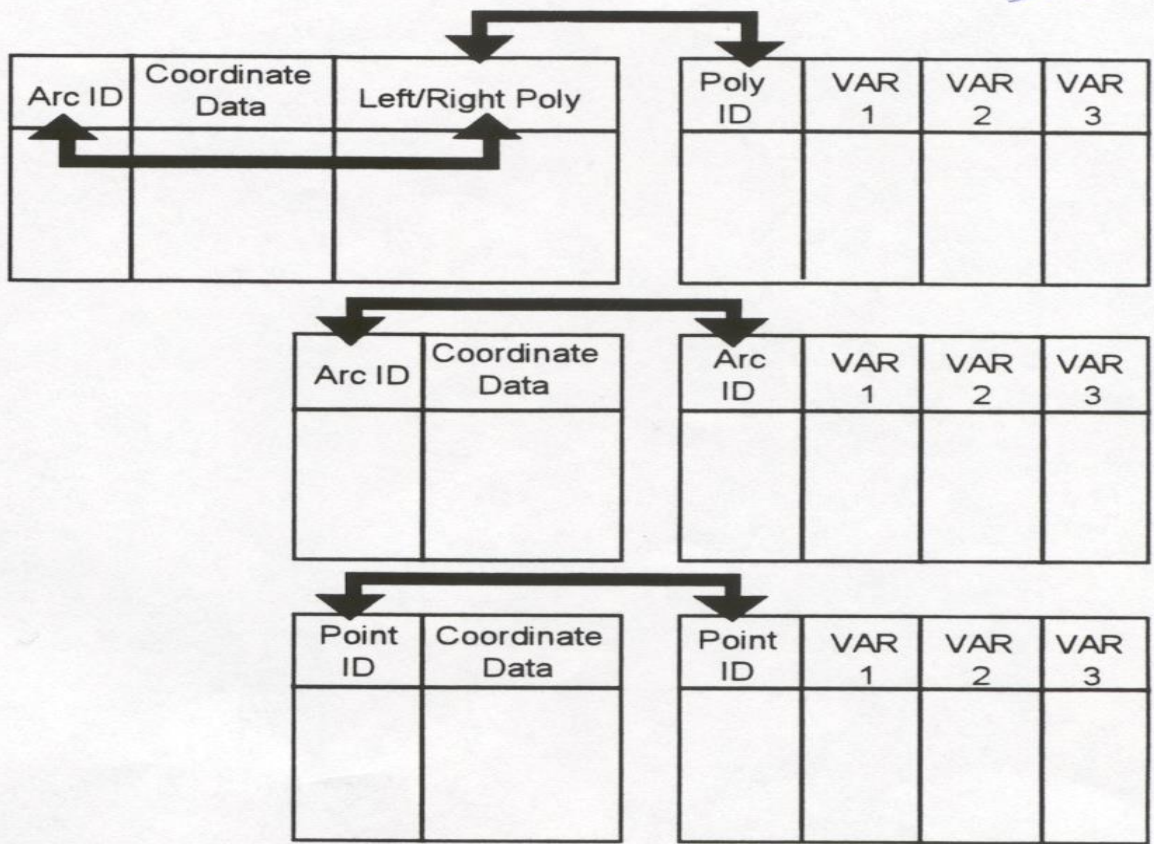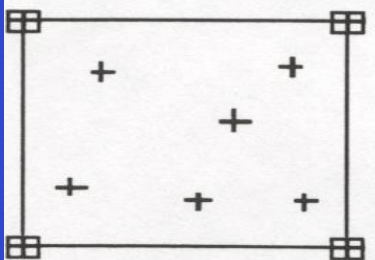# Linking Attributes to Features - The Georelational Model

Points

Lines

Polygons

- **Organizing Geographic Information**

  classification

  Data models (node, points, arcs, polygon,cells.etc)

  Thematic grouping of features and their attributes

  Data representation to be used (vector, raster,and TIN)

- **Geographic Data Sets**

  Coverage

  Coverage Feature Classes

  Coverage Uses

  Managing Multiple Coverages

- **Raster Geoprocessing**

   The grid geographic data set is the raster- or cell-based equivalent of a coverage in GIS software. It is the primary data structure used by ARC GRID™ software;

Trends in GIS Software Technology

Technological Advances

- The dropping prices of computer hardware, new developments in workstation and network architecture, advances in graphical user interface (GUI), the move toward an instrumental universe, and the adoption of new industry standards give GIS more power and versatility to solve problems.

- Recent advances in desktop computer technology have brought sophisticated software within the reach of many more people. GIS vendors are developing new geoprocessing tools designed to take full advantage of the latest technology and to bring sophisticated GIS capabilities to your desktop.

Maturation of Technology

   GISs are continuing to solve very simple problems but are increasingly also being expected to solve more complex problems.

- **Where Next?**

  - Many o f society's problems addressed with the technology will be solved with more useful data

  - The tremendous sources of data available

  - For people to use a GIS on a particular application