

Introduction to ArcView

PART A

NPS Introduction to GIS: Lecture 2

Based on NINC, ESRI and Other Sources

Learning Objective

- To provide an introduction to the ArcView desktop GIS software package
- To help the user understand the terminology used.

What is ArcView GIS?

- It is a desktop Geographic Information System – a data base that links information to location (i.e., the what to where).
- The Arcview user interface consists of windows that present information in different ways. Rows of menus, buttons, and tools at the top of the main application window allow the user to view and perform analytical operations on the data in the database.

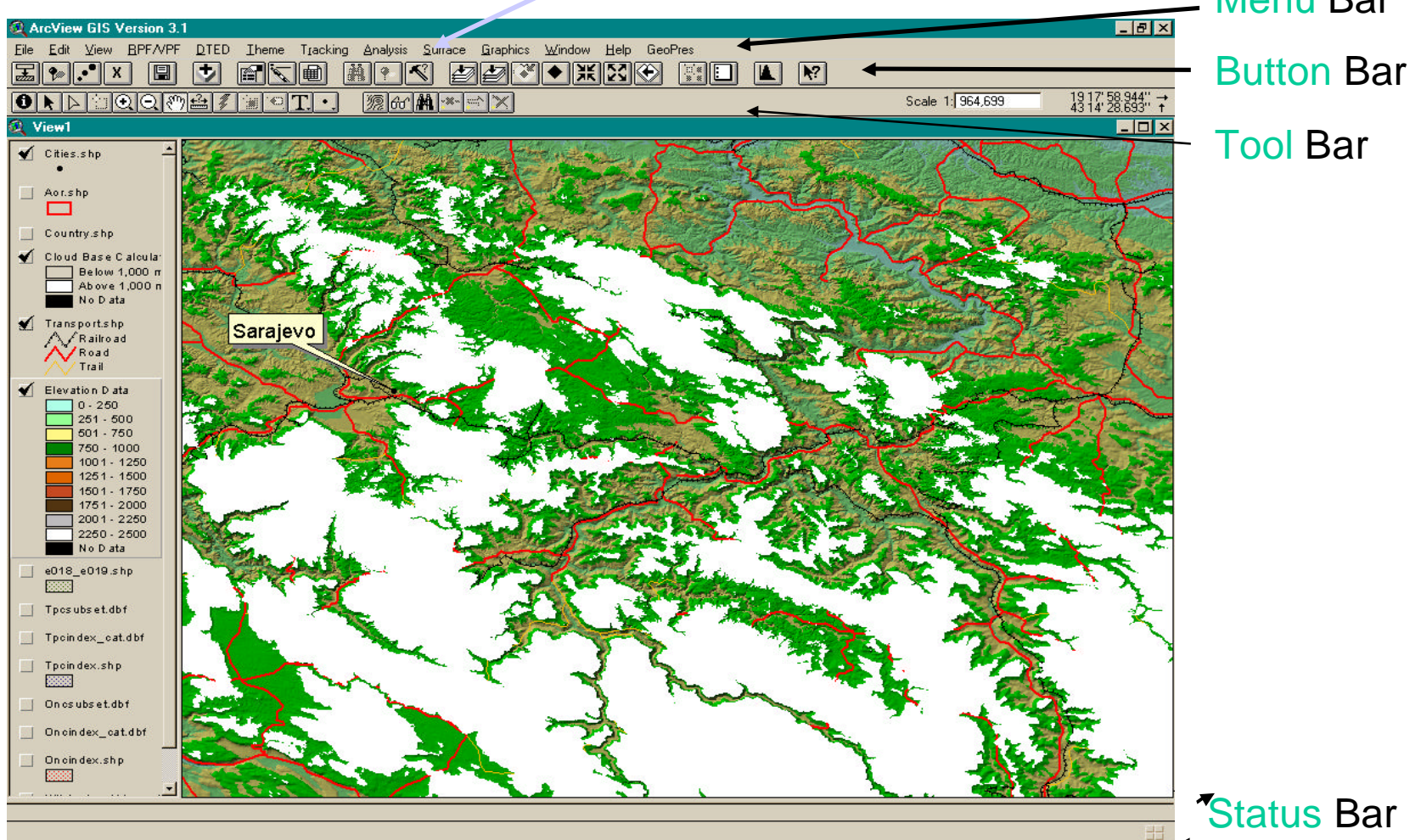
Vector GIS Software



- **ArcView** was initially developed as a *data viewer*.
- Graphical User Interface & Open Source accessibility quickly won popularity
- Current version is *very robust*; however, it still *does not* rival Arc/Info's capabilities
- Entirely window driven (no command line)

Menus, Buttons & Tools

Located at the top of the main application window. Also known as the **Graphical User Interface (GUI)**



Detailed Overview

- Documents / Projects
 - Views
 - Tables
 - Charts
 - Layouts
 - Scripts
- Map Projections
- ArcView Extensions

ArcView Projects

ArcView *projects* are used to organize and store a collection of associated documents that work together during an ArcView session.

Project information is stored in a *project file*. (.apr)

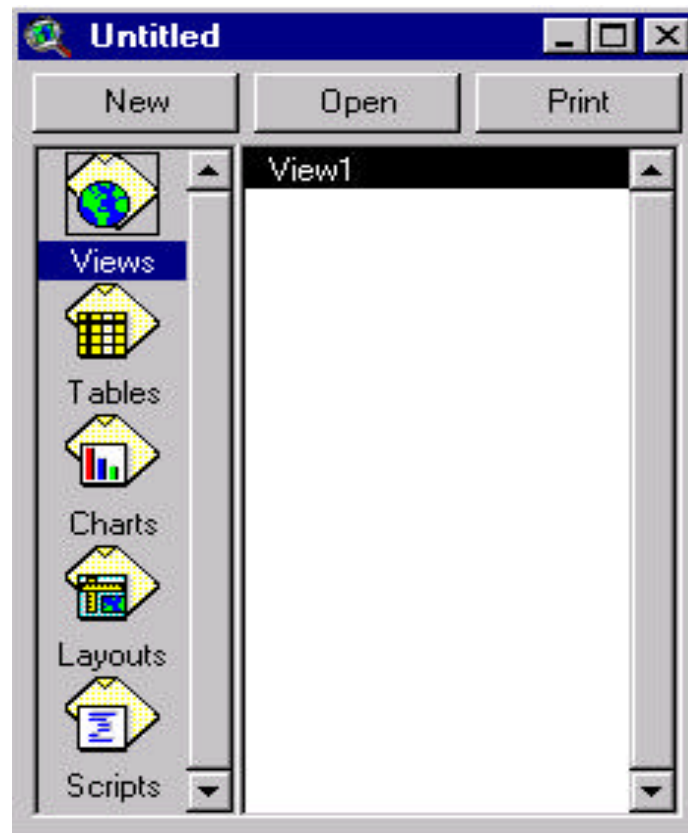
The *project window* displays the names of all project documents.

ArcView Documents

At the start of an ArcView session, the main GIS window contains an untitled Project window.
Used to **add/manage** documents in a project.

Document Type

- Views
- Tables
- Charts
- Layouts
- Scripts



Each project can have one or more documents of each type (e.g. tables)

Views

- Display *collections* of geographic data files (*themes*), that cover the same geographic area
- Provides an interactive map display
- Contains a *Table of Contents*.

Note: Each theme in the Table of Contents has a check box next to its name. If the box is checked, the theme is displayed. If it is not checked, the theme is not displayed. The user controls the theme displays – simply check or uncheck the box.

Conceptual Overview

In ArcView geographic *features* can be:

- **Points**
- **Lines**
- **Polygons**

These features are stored in a database along with their *feature attributes* (i.e., descriptive information). These attributes are displayed in a spreadsheet format, called a Table.

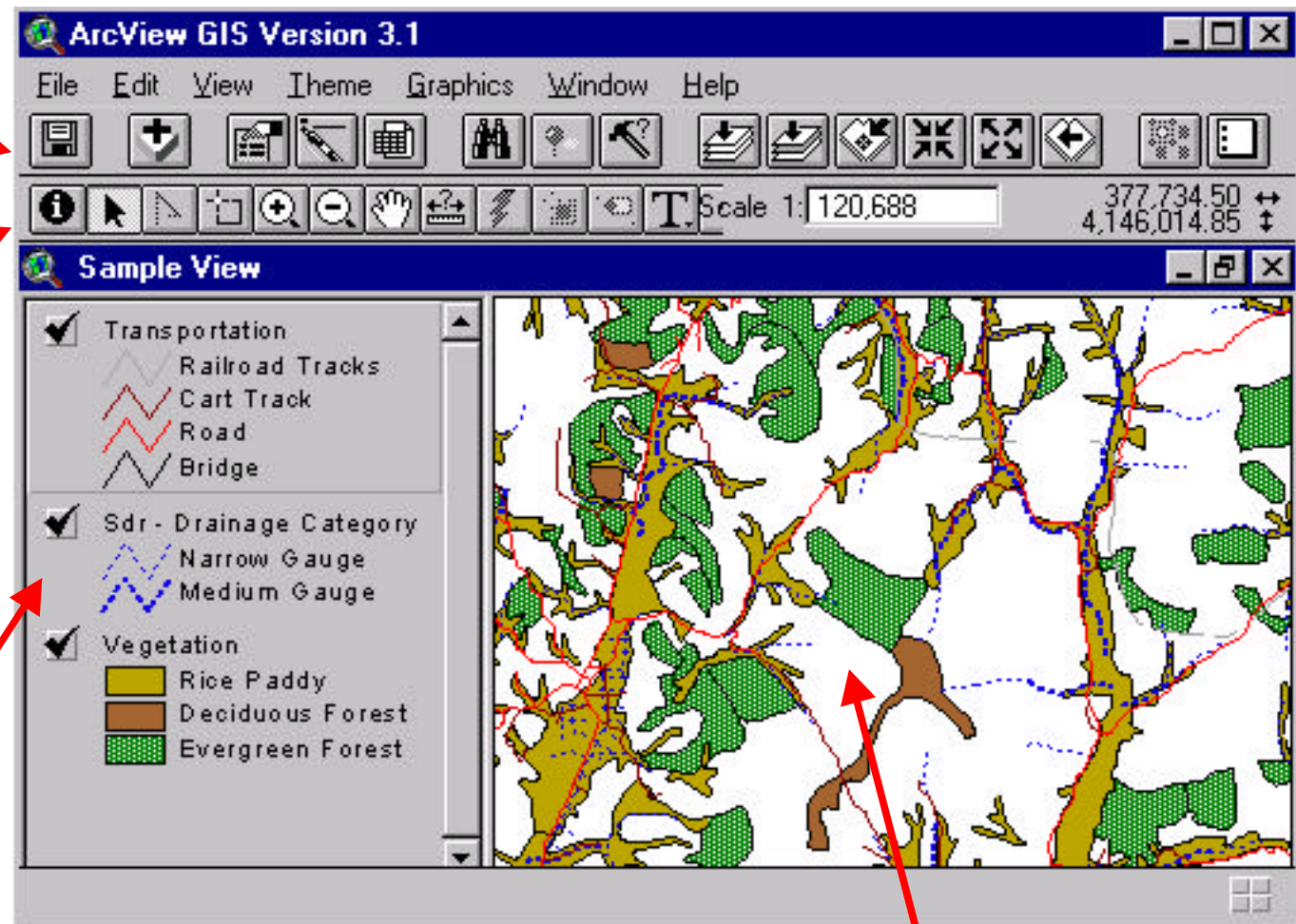
A GIS links sets of features (with their attributes), and manages them in units called *themes*. Themes are displayed as *views*.

View Example

Buttons

Tools

Legend
(Table of
Contents)

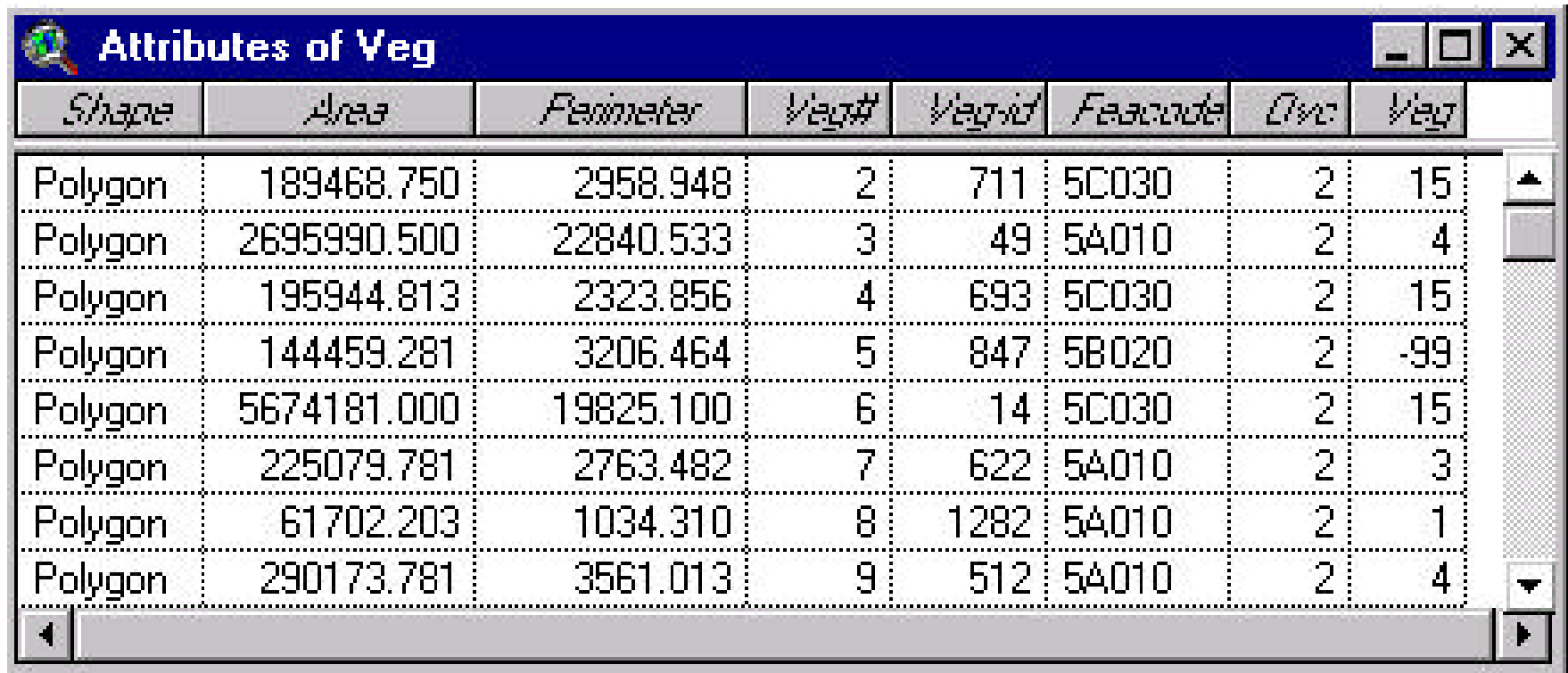


Map Display

Tables

- Display tabular information in a spreadsheet type format
- Formats data into *records* (rows) and *fields* (columns).
- Each record represents a single feature and each field a single attribute for that feature.
- Tables can be edited to add, change, or delete records and fields.

Table Example



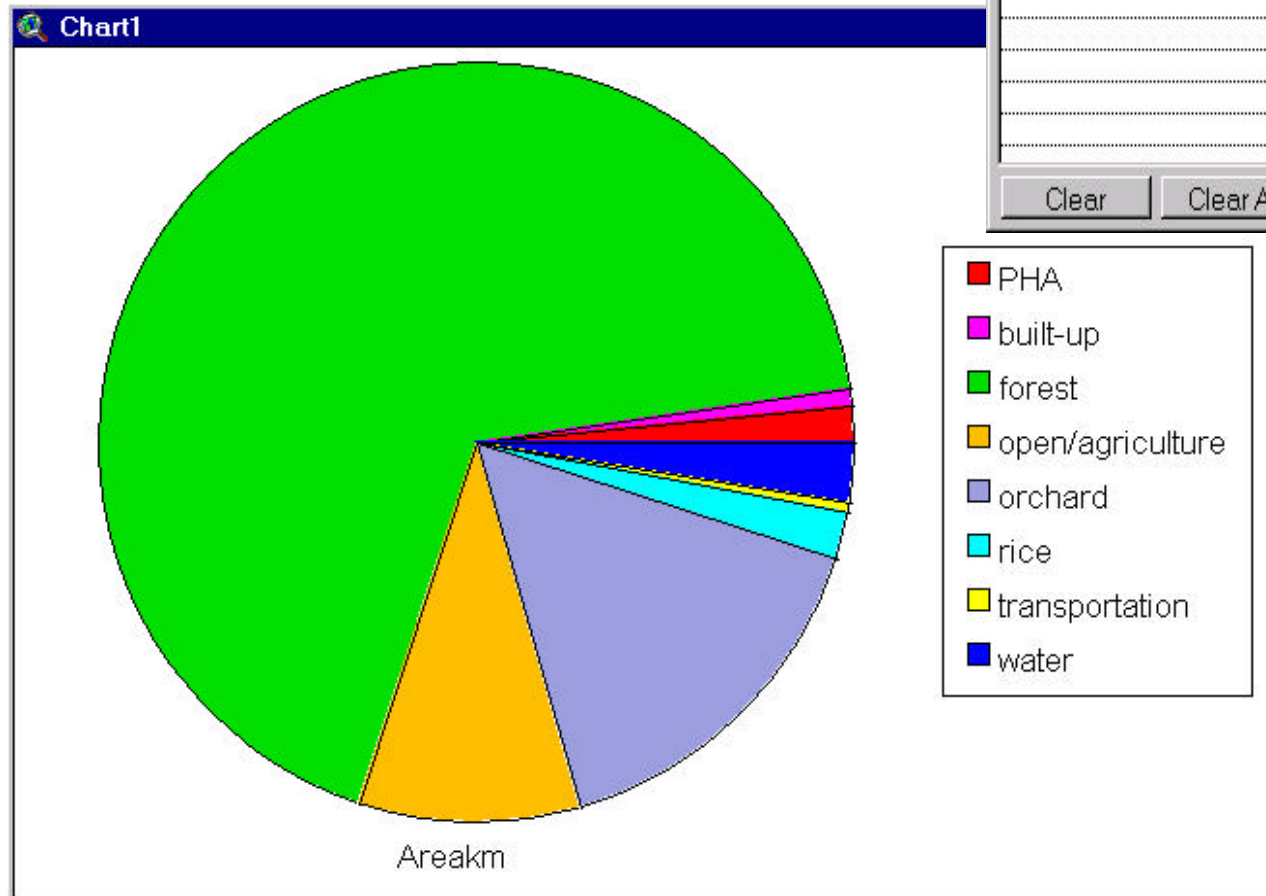
The image shows a screenshot of a software window titled "Attributes of Veg". The window contains a table with 8 columns: Shape, Area, Perimeter, Veg#, Veg-id, Feature, Div, and Veg. The table lists 8 rows of polygon data. The window has a standard Windows-style title bar with minimize, maximize, and close buttons. A vertical scrollbar is on the right side of the table, and a horizontal scrollbar is at the bottom.

<i>Shape</i>	<i>Area</i>	<i>Perimeter</i>	<i>Veg#</i>	<i>Veg-id</i>	<i>Feature</i>	<i>Div</i>	<i>Veg</i>
Polygon	189468.750	2958.948	2	711	5C030	2	15
Polygon	2695990.500	22840.533	3	49	5A010	2	4
Polygon	195944.813	2323.856	4	693	5C030	2	15
Polygon	144459.281	3206.464	5	847	5B020	2	-99
Polygon	5674181.000	19825.100	6	14	5C030	2	15
Polygon	225079.781	2763.482	7	622	5A010	2	3
Polygon	61702.203	1034.310	8	1282	5A010	2	1
Polygon	290173.781	3561.013	9	512	5A010	2	4

Charts

- Provide a visual representation of a table
- Graphically summarize information in tables
- Allow you to interactively query tables
- ArcView supports area, bar, column, line, pie and x,y scatter charts.

Chart Example



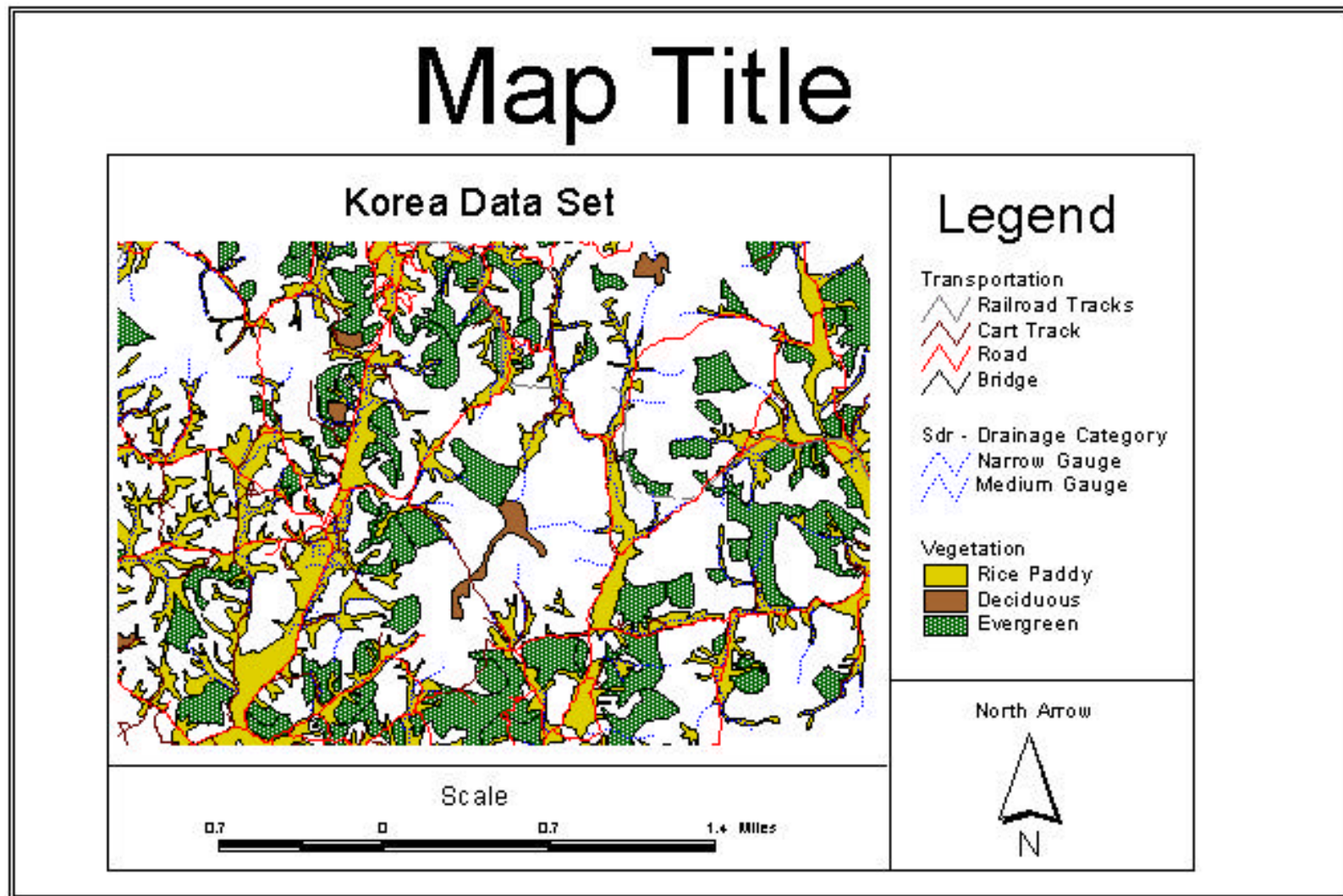
Identify Results	
1: Chart1 - open/agricul	
Shape	Polygon
Lctype	open/agriculture
Count	14
Sum_area	6155350.0000
Arealm	6.1554
Imagery	D:\Thailand\imag
Clear Clear All	

Layouts

- Documents on which you can arrange views, tables, charts and images as graphic elements.
- Used to compile a product (map) for printing and exporting.

Note: Cartographic map components such as neatlines, north arrows, scale bars and legends can be placed on layouts.

Layout Example

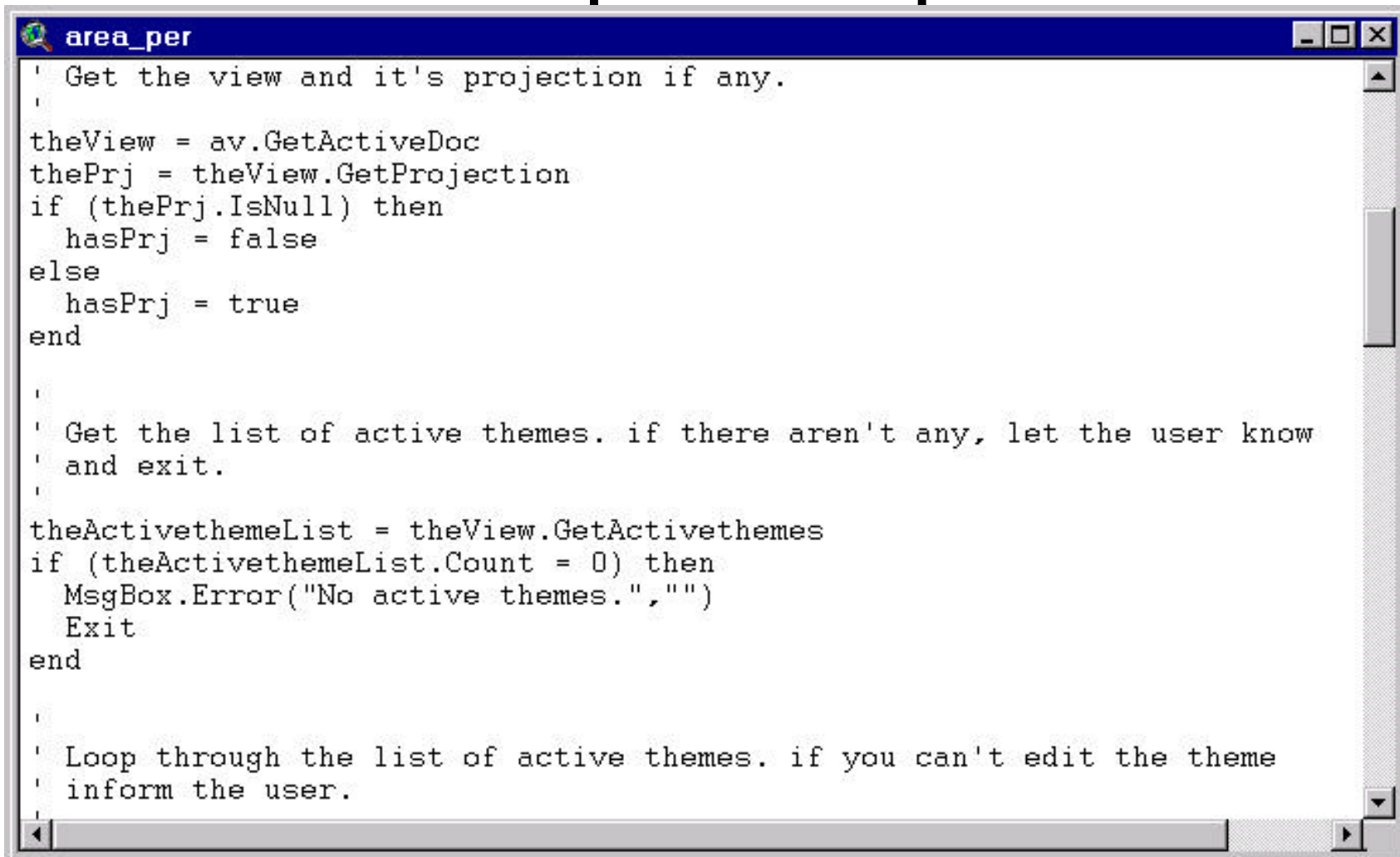


Scripts

- Used to customize almost any aspect of the standard ArcView interface
- Written using the Avenue application development language

Note: Avenue code is written in a Script editor document. The script editor allows you to create, modify, compile, execute, and debug Avenue script.

Script Example



```
' Get the view and it's projection if any.
'
theView = av.GetActiveDoc
thePrj = theView.GetProjection
if (thePrj.IsNull) then
    hasPrj = false
else
    hasPrj = true
end

'
' Get the list of active themes. if there aren't any, let the user know
' and exit.
'
theActivethemeList = theView.GetActivethemes
if (theActivethemeList.Count = 0) then
    MsgBox.Error("No active themes.", "")
    Exit
end

'
' Loop through the list of active themes. if you can't edit the theme
' inform the user.
```