EXAMPLE 5 - Relative Cultural Analysis Priorities, Grant County, Washington:

Specialist's Request

A page-sized photo ready map for handouts, and a wall map for discussion.

You will need a theme that has Grant County, Washington to define the display area.

From OAESIS, you will need the {COMPOSIT} and {CULTURPR} tables. As the {COMPOSIT} table has nearly a quarter of a million records, you may want to subset it up front by selecting only those records where the field [stand] is within the range of E0000 through EZZZZ.

Some computations are going to be conducted to rate each [stand] for "Relative Priority". The legend will then be a scale of those Relative Priority ratings. In theory, the scale can go from 0.0 through 100.0. For this subset, it will probably have quite a few 0.0s, and a range of values from 0.1 through about 3.1. We won't know for sure until you build the theme. Assign colors in the legend to reflect an increasing gradient.

1. Assuming you have selected out the "E" series of [stands] as a subset of the {COMPOSIT} table, the first step is to link or join the {CULTURPR} table by matching the [symbol] fields such that the result is a subset of {COMPOSIT} with the [priority] field and value added from {CULTURPR}.

2. Next, the "Relative Priority" needs to be calculated for each record in the subset of {COMPOSIT}. One way to do this would be to add a "fixed" decimal field (let's call it [relpr]) with 1 digit to the right of the decimal and make the following calculations:

   Where [priority] is L, [relpr]=(composition*.01)/100
   Where [priority] is M, [relpr]=(composition*1)/100
   Where [priority] is H, [relpr]=(composition*10)/100
   Where [priority] is V, [relpr]=(composition*100)/100

   These formulas can be reduced, but are shown in full to portray the weighting system used.

3. The next step is to accumulate the total [relpr] for each [stand].

4. The [relpr] field then provides the "Relative Priority" item for the legend.

EXAMPLE 5 - Solution:

In Example 5, we will use ArcView to create a map from the OAESIS GIS coverage and Informix database. ArcView is a good tool for displaying data and making on-screen queries. Cartographically, it is rather limited and usually is it better to use Arcplot to create presentation graphics.

Remember that we must do a bit of UNIX setup before starting ArcView with an Informix connection:

```
$ export SQLEXEC=$INFORMIXDIR/lib/sqlrm
$ arcview &
```

Once the program is started, highlight the project window, usually with the header 'Untitled'. Select the 'SQL Connect' from the 'Project' pull-down menu. This will bring up the 'SQL Connect' menu.
Use the pull-down to find 'Informix' and press 'connect'. Enter Oaesis as shown below:

Once ArcView is connected to Informix, any queries entered will be turned into ArcView data tables. The following query will create a table called `ex5_query` with the [stand], [composition], and [priority] fields from the database. Notice that the search is delimited to find only those stands that start with the letter 'E' - only Spokane data is needed for this example. Also notice the box at the bottom to set the name of the table created. If not filled in, the program will create a table with a default name. Press 'Query' to execute the SQL statement.
The new table should appear after several seconds. Click in its border to make it active. Notice that the menu bar above changes to show buttons and tools for tables. To sort the table on the [stand] field, click on column header. Use the button that looks like a half pyramid made of horizontal lines to sort the table on this field. Notice that there are several records for each stand.

Before we can add the new field we need, a copy of the table must be made as ArcView will not allow you to edit the format of a table made with SQL queries. With the table still highlighted, press 'Export' under the 'File' menu. Export the table as a dBASE file called ex5.dbf. Using the project window with 'Tables' highlighted, press 'Add' to bring up the menu for adding a table. This will let you add the table that was just exported to a .dBASE format. Close the ex5_query table to avoid confusion.

Under the 'Table' menu, press 'Start Editing'. This will allow you to make changes to the format of the table. Under 'Edit', pick 'Add Field':

Your table now has a new field that we can use to store the results of the calculations:
Use the button with the hammer on it to bring up the query builder. This way we can select records based on the value in [priority], and apply the appropriate calculation with the field calculator:

Once you are done entering the equations for each value of [priority], use the appropriate tool, or the 'Select All' option under the 'Edit' menu to select all of the records in the table. Click on the [stand] column name to highlight that field for our summary. Click on the 'Summary Table' button next to the 'Field Calculator'. Use this tool to make a new table called ex5sum.dbf. Select the [relpr] field and summarize by 'Sum'. Hit 'add' so this will be in the new table. Hit 'OK' to create the table.
This creates the table to link to the geographic data. Create a new view and add the **grant_11** and **oaesis** GIS themes using the button with the heavy 'plus' sign. This will start the menu to add themes to the view:

Use the legend editor to set colors to your preference by double-clicking on the legend entry for the view:
After editing the legends, make the \texttt{grant\_11} coverage active. Select the polygon with one of the selection tools. It should turn yellow (the default selection highlight color). Now, make the \texttt{oaesis} coverage active. Under the ‘Theme’ menu, press ‘Select By Theme’. The dialog box will let you select \texttt{oaesis} polygons where they touch selected \texttt{grant\_11} polygons. When done selecting, put these selected \texttt{oaesis} polygons into a new shape file called \texttt{grant\_oaesis.shp}:

Under the ‘Edit’ menu, press ‘Cut Theme’ to remove \texttt{oaesis} from the view. Use the add button to add the \texttt{grant\_oaesis.shp} shape file that you just created to the view. If it is does not show through the \texttt{grant\_11} theme, grab the legend entry and slide it to the top of the list alongside the view screen. This establishes the order of drawing. With the \texttt{grant\_oaesis.shp} theme selected, press ‘Table’ under the ‘Theme’ menu. This will create a table from the coverage’s attributes. Highlight the [stand] column name with the mouse, and do the same for the table we made earlier called \texttt{ex5sum.dbf}. As you recall, this table has the total relative priority value ([relpr]) by [stand]. With the Attributes of \texttt{Grant\_oaesis.shp} table highlighted (click on it), press ‘Join’ under the ‘Table’ menu. This will join the summary table attributes to the Attributes of \texttt{Grant\_oaesis.shp} table.
Once you have completed this, use the legend editor to symbolize the various values. Pick the [Sum_reipr] field in the pick box as the value to symbolize, then, click on 'values'. Use the color menus and 'Classify', 'Ramp', and 'Random' buttons to create an appropriate legend. Finally, ArcView needs to know the projection and units of the coverages we are using. Only then can we make a map, or layout in ArcView with a barscale. With the view active, click on 'Properties' under the 'View' menu. Pick 'meters' under both 'Map Units' and 'Distance Units':

Now, use the project window to create a new layout. This should show a fresh drawing screen with a reference point grid. Under the 'Layout' menu, pick 'Page Setup' to alter the pagesize. Once you have done that, use the right three buttons on the bottom row to add components of the map. The button with the 'T' allows you to add text. Pick 'Show Symbol Palette' under 'Window' to alter the text. The button with the dot in the center (to the right of the Text button), lets you add basic graphic shapes such as boxes, circle, dots, etc. Hold the button down to pick the type of shape. The right button allows you to add map elements such as a copy of what is in your view window, barscales, north arrows, etc.

When you are done, use 'Export' under the 'File' menu to save the map as a postscript file. Do not use the 'Print' option! This will not let you make a large map!