

## GPS & GIS UNIT

# VISUALIZATIONS

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### Introduction:

In computer science a "visualization" is a reference to a number of different techniques that are used for creating images, diagrams, or animations to communicate a message. The purpose of visualization is to make clear (illuminate) patterns in the data that might otherwise go unnoticed. GIS Maps are one type of visualization that uses data that has GPS coordinates. There are other types of visualizations.

*Note: Don't confuse visualizations with simulations! Visualization does NOT generate any new data.*

### Getting Started with "Many Eyes":

Many Eyes is a community web site hosted by IBM that supports a range of different types of data visualizations. You can create visualizations using your own data or data available on the Many Eyes site. You can view visualizations uploaded by others, and you can upload your own visualizations. This lab will focus on exploring the types of visualizations available through Many Eyes.

1. First, go to the web site: <http://manyeyes.alphaworks.ibm.com/manyeyes/>
  - a. You will see there are three main sections to the site (look at the upper left corner of the page):
    - i. Explore
    - ii. Participate
    - iii. Learn more

*NOTE: We will start with explore and learn more—reading about and looking at what's there—and then move on to participate—creating your own visualizations.*

2. Second, take a look at the "featured visualizations" on the main page. Try clicking on some of them and exploring the options that they present.
3. Click on the Visualizations link in the Explore section on the left side of the screen.



- a.
- b. In the page that is displayed choose "SORT BY RATING" and look at some of the more popular visualizations.

## Types of Visualizations:

You can use Many Eyes to create a variety of different types of visualizations.

1. Click on the "Visualization types" link in the "Learn More" section.

**Learn more**

Quick start

**Visualization types**

- a.
  - b. The following types of visualizations are available:
    - i. **Network Diagrams, Scatter-plots and Matrix Charts**  
To help show relationships among data points
    - ii. **Bar Charts, Block Histograms and Bubble Charts**  
To help you compare a set of values
    - iii. **Line Graphs and Stack Graphs**  
To help you track rises and falls over time
    - iv. **Pie Charts and Treemaps**  
To help you see the parts of a whole
    - v. **Word Trees, Tag Clouds and Phrase Nets**  
To help you analyze text
    - vi. **Geographic Maps**  
To help you overlay data values on a map of a geographic region (e.g., a country)
2. You can study information about each type by clicking on the appropriate category tag.

## Data Sets:

All visualizations are created using data-sets. There are many preloaded data-sets that you can use to create visualizations.

1. Click on the "Data sets" link in the "Explore" section.

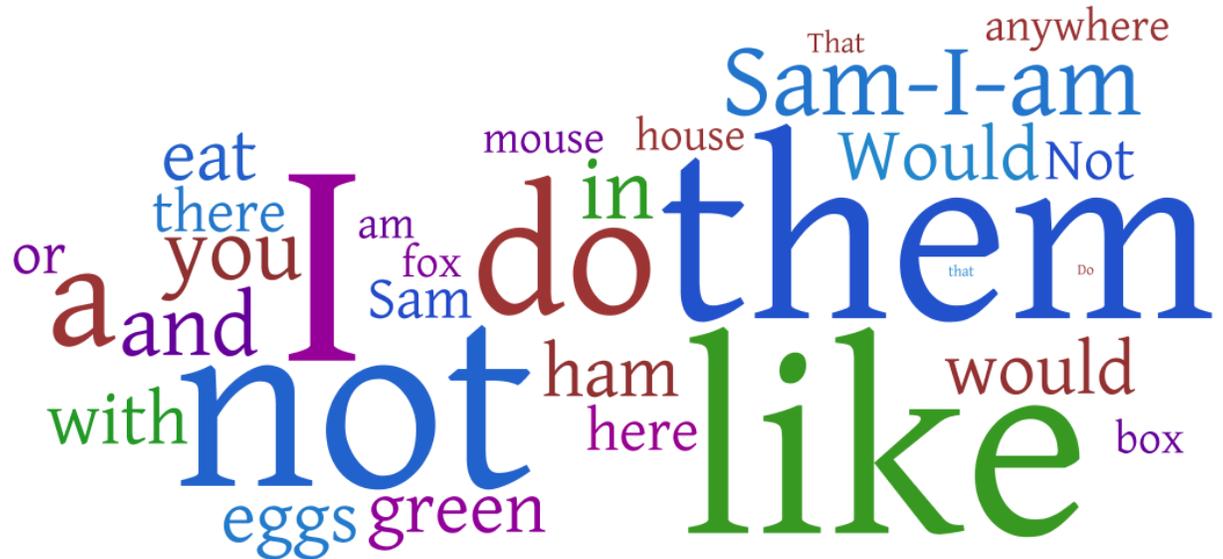
**Explore**

Visualizations

**Data sets**

- a.
2. **In the search bar that appears in the top right of the screen type in "Seuss" and then hit the search button.**
  3. Look for the data set titled: [The text to Green Eggs and Ham by Dr. Seuss](#) and click the Visualize button for that dataset entry.
  4. Choose the "Word Cloud Generator" visualization option by clicking on that picture link.
  5. In the Java Visualization window that appears, change the following settings:
    - a. Layout -> Horizontal

- b. Language -> Do Not Remove Common Words
6. You should have a visualization that looks something like the one shown below, which details ALL of the words in the Dr. Seuss story "Green Eggs and Ham" with the size of the word indicating the frequency of the occurrence of that word in the text.



7.

### Visualizations (creating something of your own):

All visualizations are created using data-sets. There are many preloaded data-sets that you can use to create visualizations.

1. The main part of this lab involves creating visualizations yourself. Search the datasets with the keyword "OIL" and look for the following dataset [Oil Consumption bbl per day](#) in order to get started.
2. Click on the visualize button and create a "Geographic" (World Map) visualization of the Oil Consumption data.
3. Search for other datasets and try and create at least one visualization from each of the available categories:
  - a. Analyze a text
  - b. Compare a set of values
  - c. See relationships among data points
  - d. See the parts of a whole

- e. See the world
  - f. Track rises and falls over time
4. Save some pictures!
- a. If you are using a Mac, then it is easy to save the pictures you create. From the Finder, double-click on Applications and then Utilities. In the Utilities folder, you'll find an application called Grab. Double-click on the Grab icon to start it up. Grab will let you save a portion of the screen or a whole window. Use the Capture menu to grab what you want. Then use the File - Save option to save what you grabbed. Note that Grab only saves images in TIFF format.

### **On-line references**

Many Eyes: <http://manyeyes.alphaworks.ibm.com/manyeyes/>