



What is Improvise?

Like spreadsheets created in Microsoft Excel, each example visualization is not a piece of standalone software, but rather one particular document created in a general-purpose desktop application program called *Improvise*. *Improvise* is an information visualization builder and browser that has been used to create numerous visualizations of diverse data sets. More information on *Improvise* can be found on the web at

<http://www.cs.ou.edu/~weaver/improvise/>

Installing Java

Improvise runs as a cross-platform Java program rather than as a platform-specific binary executable program. The included version of *Improvise* requires Java 8 to run. If you need to install Java on your system, I recommend using Oracle's distribution of Java SE 8u201 located at

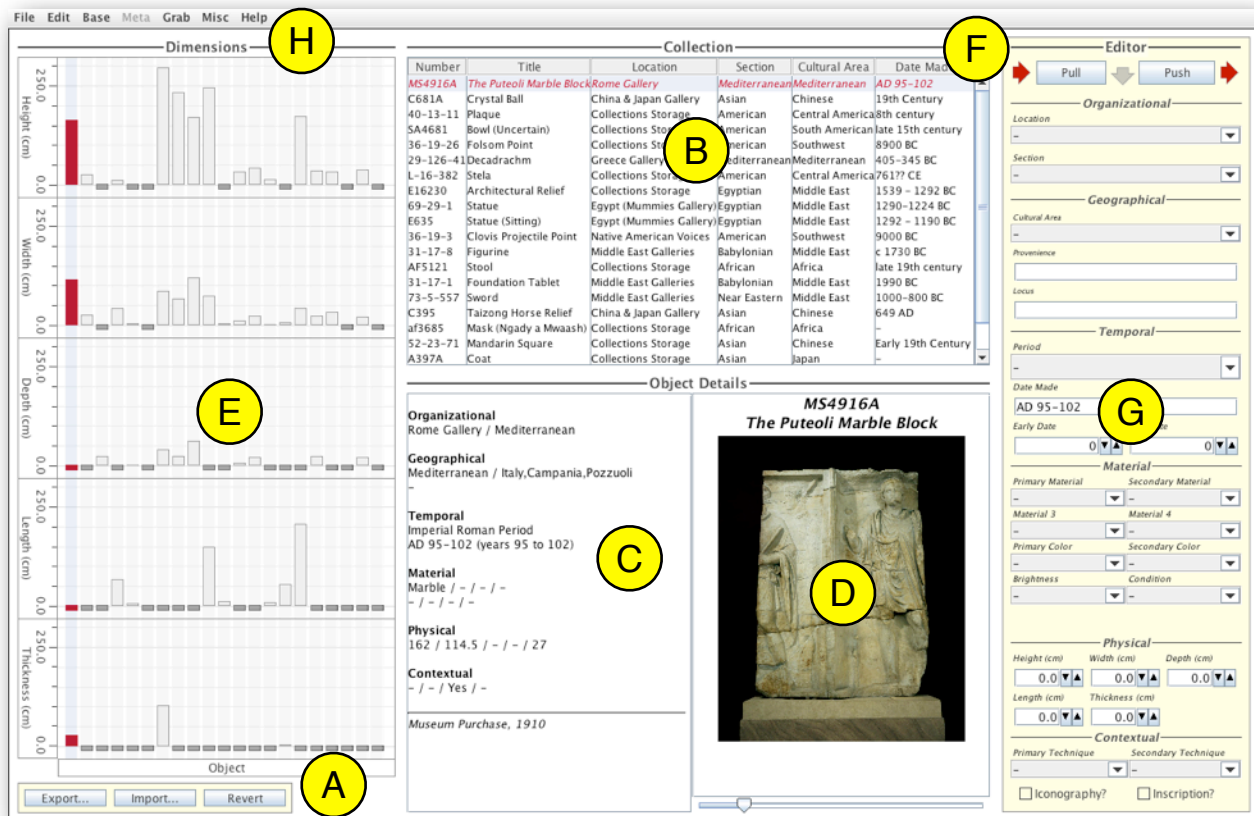
<https://www.oracle.com/technetwork/java/javase/downloads/index.html>

Launching Improvise

On most systems, you can simply double-click the `improvise.jar` file to run *Improvise*. A splash screen will appear, followed by a empty visualization window.

Loading the Visualization

The `visualization` folder contains the `collection.viz` file and a `data` folder. To load the visualization, choose the `File/Open...` menu item in the menu bar of any open visualization window. A file chooser will appear. Navigate to the `visualization` folder and select `collection.viz`. The visualization will appear in a new window shortly.



Touring the Layout

The visualization is designed for browsing and editing the metadata of physical objects in a museum collection. The data has 30 metadata attributes describing a wide variety of organizational, geographical, temporal, material, physical, and contextual dimensions of information. A photograph of each object is also included. All data and images come from the University of Pennsylvania Museum of Archaeology and Anthropology.

The layout of visualization consists of seven major areas:

- A. Buttons for exporting, importing, and loading/restoring collection metadata. Click the [Export...](#) button to save a copy of the metadata, including your edits, as a comma-separated values (CSV) file. Click the [Import...](#) button to load a previously saved metadata file. Click the [Revert](#) button to load/restore the original, provided metadata. *Clicking [Revert](#) should be your first step whenever you (re)open the visualization.*
- B. A table listing several prominent metadata attributes for objects in the collection. At any given time only one object is selected. It is highlighted in red.
- C. A pane showing additional information about the currently selected item. Most of its metadata attributes are displayed. A dash ('-') indicates a metadata attribute that does not have a data value assigned to it.
- D. A pane showing a photograph of the object, beneath its number and title. Use the slider below the image to zoom.

- E. Bar charts displaying the physical dimensions of all objects in the collection. The currently selected object is highlighted in red. Each bar sits in a vertical column; this bar can be clicked to turn on a secondary, light blue highlighting. Shift-click to select multiple objects. This secondary selection is shown in light blue in the table (B).
- F. Buttons for accessing and modifying the metadata of the currently selected object. To edit an object, first click the **Pull** button to fill the controls in the editor pane with its metadata. Second, manipulate the controls to make desired changes to metadata values. Third, click the **Push** button to actually update the metadata for the object. All data changes will be reflected throughout the visualization (B), (C), (E).
- G. Controls for editing metadata. There is a control for most metadata attributes. The type of control corresponds to the metadata type: popup menus for categories, text fields for names/labels, spinners for numbers, and checkboxes for boolean attributes.
- H. A menu bar for accessing a variety of *Improvise* features. The **File** menu contains the usual **Quit** menu item. In the **Grab** menu, use the first **Capture PNG** menu item to take a screenshot of the visualization (or use your system's screen capture utility). Most other menu features are for *building* visualizations, which you won't be doing.

Warning! The editor fields do not automatically update when a new object is selected. It is possible (and expected) to use the **Pull** and **Push** buttons independently. This allows one to carry over some or all previously entered data values to other objects. However, the most likely path for editing data will usually follow the steps described above (F).

How you move between and interact with the various areas of the visualization is largely up to you. Be encouraged to explore and try things. As you work, please keep in mind that *Improvise* is lab-grown software. If you encounter any bugs, try restarting *Improvise* and reload the visualization. Your instructor can contact me if more serious issues arise.

Editing the Metadata

In this exercise, you will gain experience using a variety of the visualization's features to edit the metadata of objects in the collection. Some tasks will involve making prescribed edits. Others will involve recording your own observations and interpretations of objects, as seen in photographs. The tasks within each set can be done in any order; however, all tasks in the prescribed set should be completed before doing any of the observation/interpretation tasks. Start fresh by clicking **Revert**. The prescribed tasks are as follows:

1. *Correct*. Correct the **Date Made** attribute of item **Number 40-13-11** to reflect the values of its **Early Date** and **Late Date** attributes.
2. *Format*. Capitalize "Century" in the **Date Made** attribute of all pertinent objects.
3. *Update*. Five objects are in the **Asian Section**. Update the **Location** of those in **Collections Storage** to **China & Japan Gallery** to reflect recent gallery updates.
4. *Extend*. Edit item **Number 69-29-1** to add **Pigment** as its **Secondary Material**, **Brown** as its **Primary Color**, and **Damaged** as its **Condition**.
5. *Switch*. Modify the two **Statues** in the **Egypt (Mummies Gallery) Location** to both use either **Depth** or **Length** attribute to record the front-to-back distance of the object.

After performing the tasks 1–5, take a screenshot of the visualization and save it as [tasks1.png](#). Export your edited data as [data1.csv](#) (remembering to select CSV as the format on the right side of the file chooser).

The observation and interpretation tasks are as follows:

6. Examine the photograph of object [Number 29-126-41](#). Estimate its physical dimensions and enter them as a suitable combination of [Height](#), [Width](#), [Depth](#), [Length](#), and [Thickness](#).
7. Examine the two [Statues](#) in the [Egyptian Section](#). Edit each of them to record your impressions of the eight Material and four Contextual attributes.
8. Examine the photograph of object with the [Title Coat](#). Edit any or all of its attributes to reflect your own observations and interpretations.
9. Browse the photographs of the collection. Modify the [Locations](#) of objects to put the ones you would like to see together into [My Ideal Gallery](#).
10. Find a new, obvious data entry or formatting error in the metadata, and correct it.

After performing tasks 6–10, take a screenshot of the visualization and save it as [tasks2.png](#). Export your edited data as [data2.csv](#). Take into account your general approach and the specific interactions you performed to accomplish each task when you evaluate your experience in Part II. Also describe the error you found for task 10.