

[DRAFT] Structural Modeling Project General Modeling Software Application [DRAFT]
Strict Order – One Object Per Class
10-18-2016

Introduction:

This document provides a quick introduction and complete overview of a simple system structuring problem. The selected structuring problem is taken from Appendix 2 of 'The Handbook of Interactive Management', section A2.2.1 of the Handbook of Interactive Management. A digital copy of the Handbook is located at:

<http://demosophia.com/wp-content/uploads/2012/09/Handbook-of-Interactive-Management.pdf>

This problem, in Appendix 2, is associated with the DOMODEL command of the GSM ISM software. In the example presented here, the Strict Order – One Object Per Class web application approach will be used to demonstrate the problem solution. The 'is heavier than' (IHT) natural language system structuring relationship is used in this case. The weight of an object is determined by a gravity force field that interacts with the mass of each object. This is viewed as a global structuring relationship with the following logical properties:

- irreflexive
- asymmetric
- transitive.

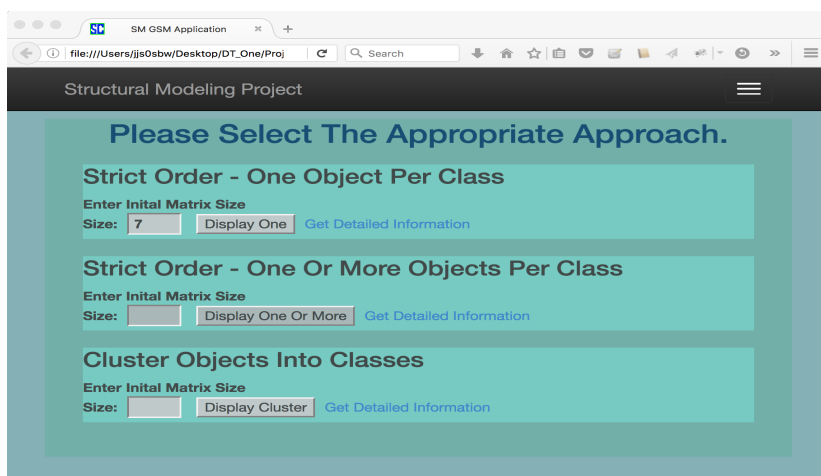
No two objects weight the same, so only one object in each weight class and one path through the system structure. There will be no clusters because there is only one element per class.

Step One:

Enter the number 7 into the size text box in the Strict Order – One Object Per Class section of the SM GSM Application.

Step Two:

Press the “Display One” button.



The screenshot shows a web browser window titled "SM GSM Application". The address bar shows a local file path. The page content is titled "Structural Modeling Project" and features a dark header with a menu icon. The main content area has a light blue background and contains three distinct sections, each with a title, a label "Enter Initial Matrix Size", a text input field for "Size", and a button. The first section is "Strict Order - One Object Per Class" with the "Size" field containing the number "7" and a "Display One" button. The second section is "Strict Order - One Or More Objects Per Class" with an empty "Size" field and a "Display One Or More" button. The third section is "Cluster Objects Into Classes" with an empty "Size" field and a "Display Cluster" button. Each section also includes a "Get Detailed Information" link.

Step Three:

Begin to gather empirical information about the objects of interest. The empirical sampling proceeds in a structured fashion starting at the top with object one (1) and moving down through the objects of interest in a measured fashion. This is the manual algorithm approach.

Is 1 heavier than 2? No (Do not enter anything in the application interface.)

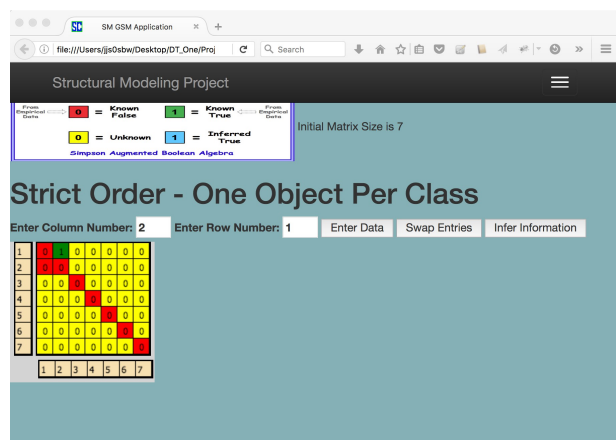
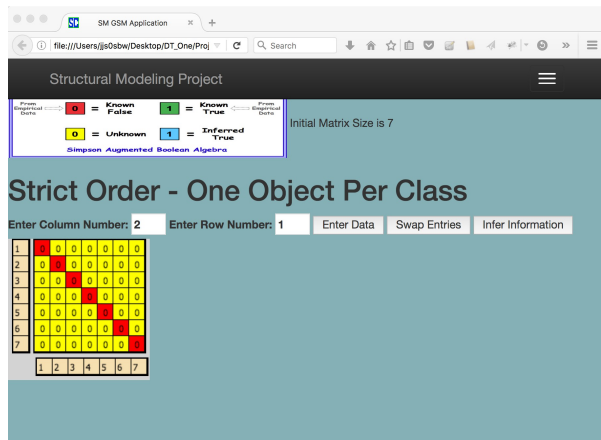
Is 2 heavier than 1? Yes

Step Four:

Enter the number 2 in the “Enter Column Number” text input box. Enter the number 1 in the “Enter Row Number” text input box.

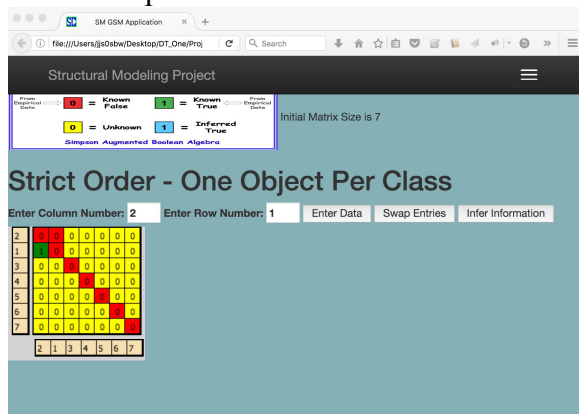
Step Five:

Press the “Enter Data” button.



Step Six:

Press the “Swap Entries” button.



Step Seven:

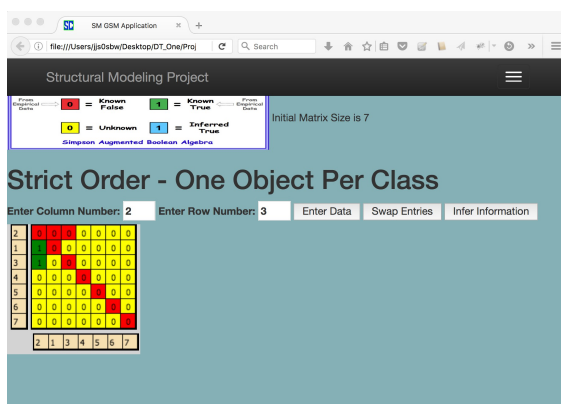
Is 2 heavier than 3? Yes

Step Eight:

Enter the number 2 in the “Enter Column Number” text input box. Enter the number 3 in the “Enter Row Number” text input box.

Step Nine:

Press the “Enter Data” button.



Step Ten:

Is 1 heavier than 3? No (Do not enter anything in the application interface.)

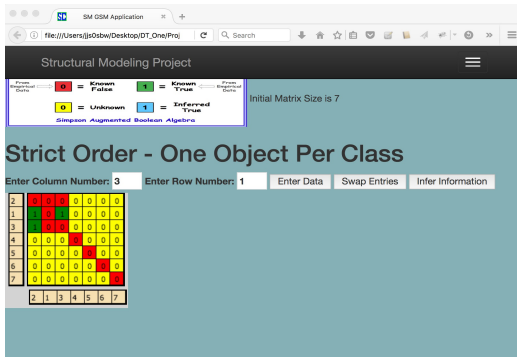
Is 3 heavier than 1? Yes

Step Eleven:

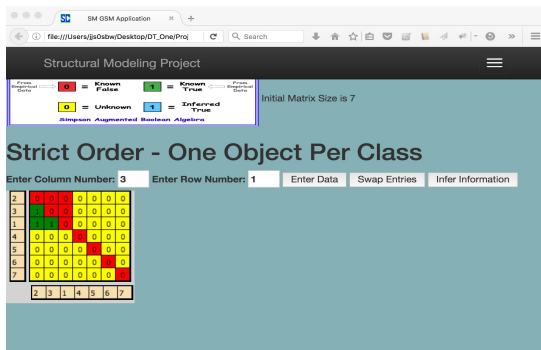
Enter the number 3 in the “Enter Column Number” text input box. Enter the number 1 in the “Enter Row Number” text input box.

Step Twelve:

Press the “Enter Data” button.

**Step Thirteen:**

Press the “Swap Entries” button.

**Step Fourteen:**

Is 3 heavier than 4? No (Do not enter anything in the application interface.)

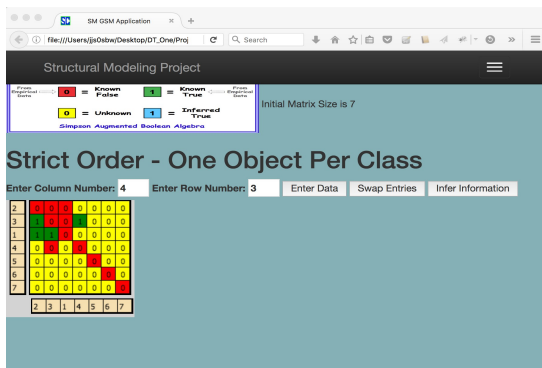
Is 4 heavier than 3? Yes

Step Fifteen:

Enter the number 4 in the “Enter Column Number” text input box. Enter the number 3 in the “Enter Row Number” text input box.

Step Sixteen:

Press the “Enter Data” button.



Step Seventeen:

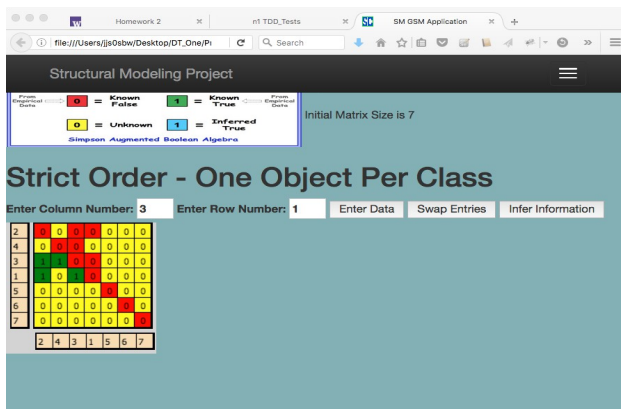
Press the “Swap Entries” button.

Step Eighteen:

Enter the number 3 in the “Enter Column Number” text input box. Enter the number 1 in the “Enter Row Number” text input box.

Step Nineteen:

Press the “Swap Entries” button.



Step Twenty:

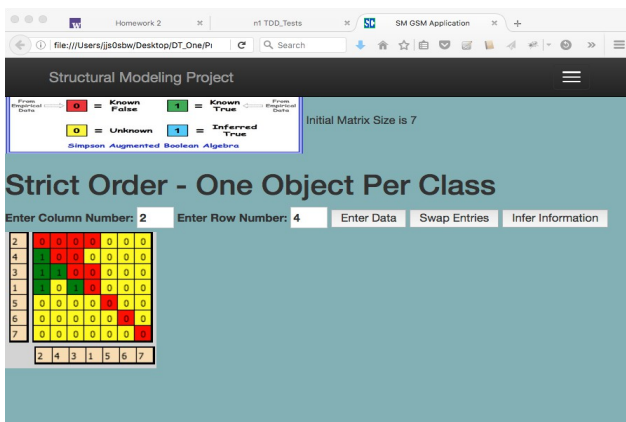
Is 2 heavier than 4? Yes

Step Twenty One:

Enter the number 2 in the “Enter Column Number” text input box. Enter the number 4 in the “Enter Row Number” text input box.

Step Twenty Two:

Press the “Enter Data” button.



Step Twenty Three:

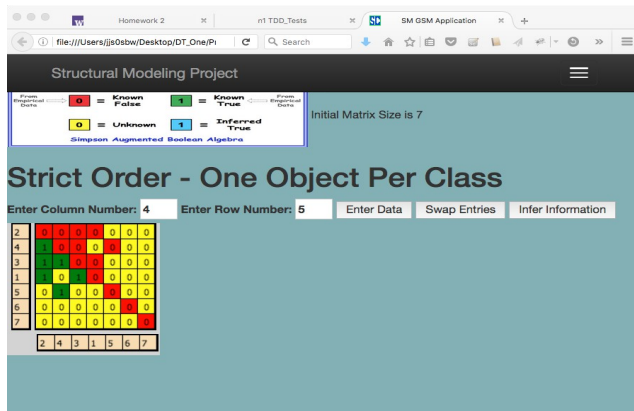
Is 4 heavier than 5? Yes

Step Twenty Four:

Enter the number 4 in the “Enter Column Number” text input box. Enter the number 5 in the “Enter Row Number” text input box.

Step Twenty Six:

Press the “Enter Data” button.

**Step Twenty Seven:**

Is 3 heavier than 5? No (Do not enter anything in the application interface.)

Is 5 heavier than 1? Yes

Step Twenty Eight:

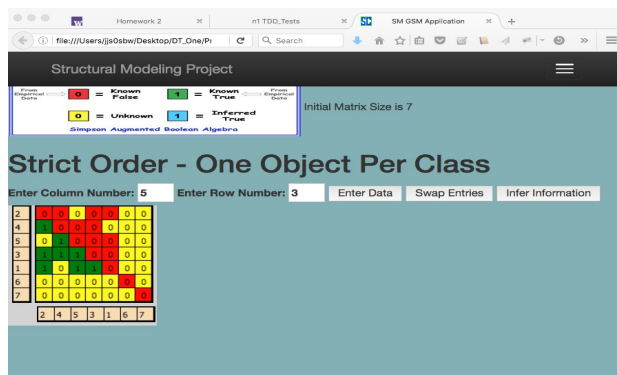
Enter the number 5 in the “Enter Column Number” text input box. Enter the number 1 in the “Enter Row Number” text input box.

Step Twenty Nine:

Press the “Enter Data” button.

Step Thirty:

Press the “Swap Entries” button.

**Step Thirty One:**

Is 5 heavier than 3? Yes

Step Thirty Two:

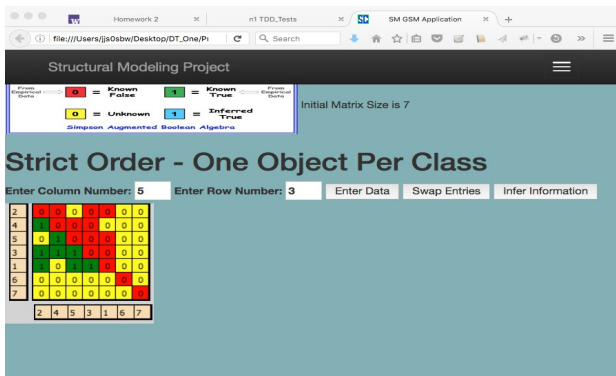
Enter the number 5 in the “Enter Column Number” text input box. Enter the number 3 in the “Enter Row Number” text input box.

Step Thirty Three:

Press the “Enter Data” button.

Step Thirty Four:

Press the “Swap Entries” button.



Step Thirty Five:

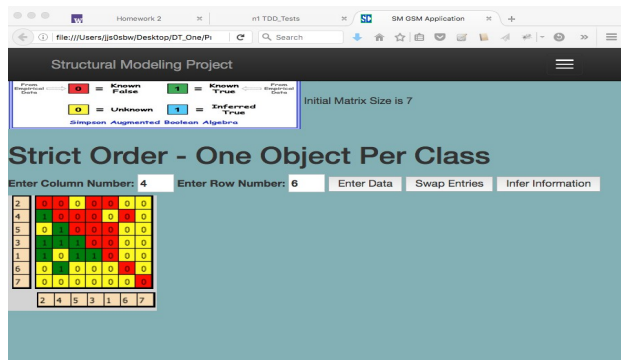
Is 4 heavier than 6? Yes

Step Thirty Six:

Enter the number 4 in the “Enter Column Number” text input box. Enter the number 6 in the “Enter Row Number” text input box.

Step Thirty Seven:

Press the “Enter Data” button.



Step Thirty Eight:

Is 3 heavier than 6? No (Do not enter anything in the application interface.)

Is 6 heavier than 3? Yes

Step Thirty Nine:

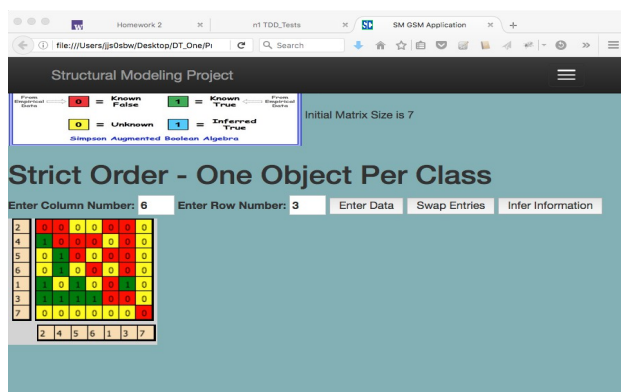
Enter the number 6 in the “Enter Column Number” text input box. Enter the number 3 in the “Enter Row Number” text input box.

Step Forty:

Press the “Enter Data” button.

Step Forty One:

Press the “Swap Entries” button.

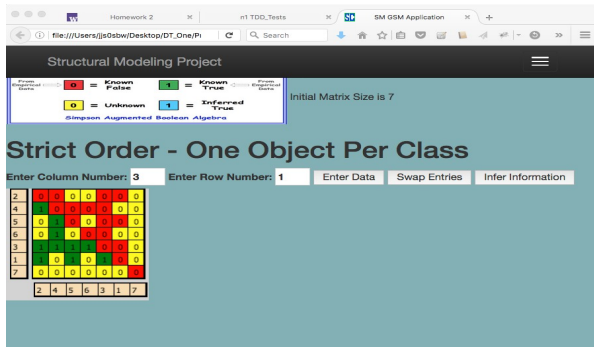


Step Forty Two:

Enter the number 3 in the “Enter Column Number” text input box. Enter the number 1 in the “Enter Row Number” text input box.

Step Forty Three:

Press the “Swap Entries” button.

**Step Forty Four:**

Is 5 heavier than 6? No (Do not enter anything in the application interface.)

Is 6 heavier than 5? Yes

Step Forty Five:

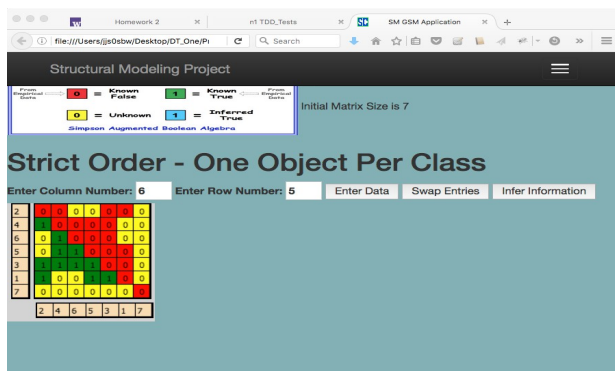
Enter the number 6 in the “Enter Column Number” text input box. Enter the number 5 in the “Enter Row Number” text input box.

Step Forty Six:

Press the “Enter Data” button.

Step Forty Seven:

Press the “Swap Entries” button.

**Step Forty Eight:**

Is 6 heavier than 7? No (Do not enter anything in the application interface.)

Is 7 heavier than 5? Yes

Step Forty Nine:

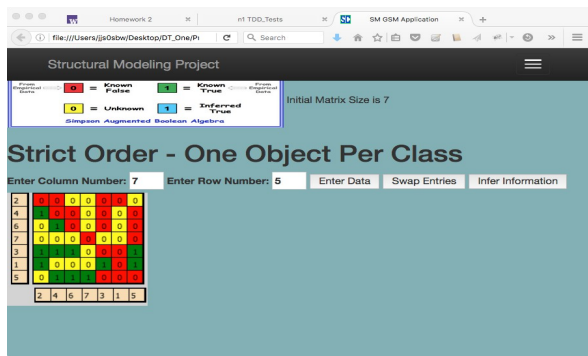
Enter the number 7 in the “Enter Column Number” text input box. Enter the number 5 in the “Enter Row Number” text input box.

Step Fifty:

Press the “Enter Data” button.

Step Fifty One:

Press the “Swap Entries” button.

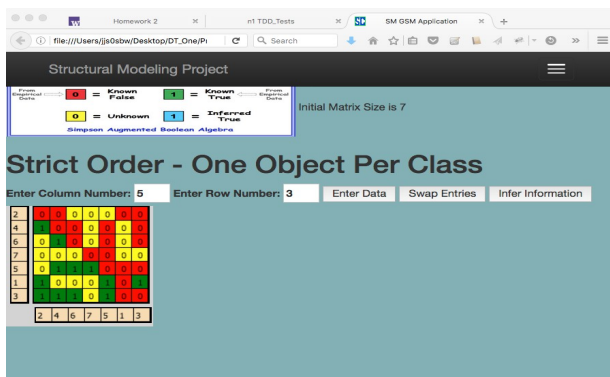


Step Fifty Two:

Enter the number 5 in the “Enter Column Number” text input box. Enter the number 3 in the “Enter Row Number” text input box.

Step Fifty Three:

Press the “Swap Entries” button.

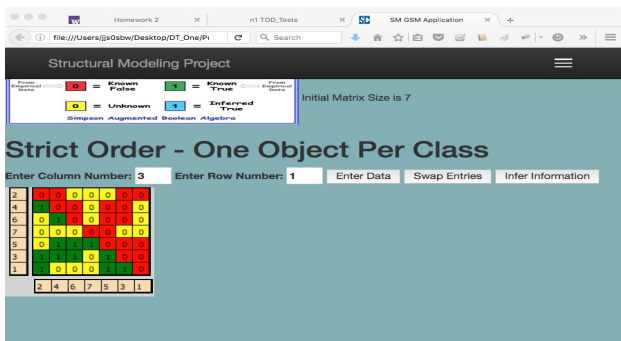


Step Fifty Four:

Enter the number 3 in the “Enter Column Number” text input box. Enter the number 1 in the “Enter Row Number” text input box.

Step Fifty Five:

Press the “Swap Entries” button.



Step Fifty Six:

Is 7 heavier than 4? Yes

Step Fifty Seven:

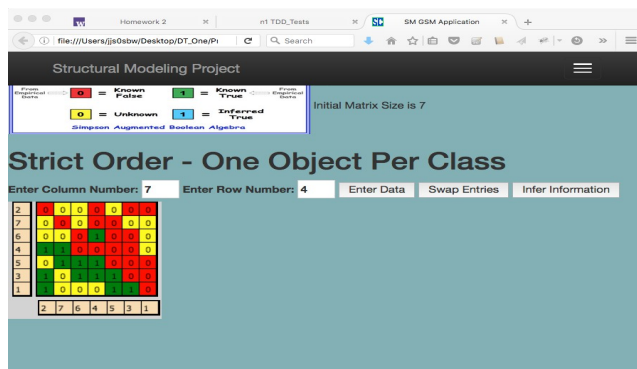
Enter the number 7 in the “Enter Column Number” text input box. Enter the number 4 in the “Enter Row Number” text input box.

Step Fifty Eight:

Press the “Enter Data” button.

Step Fifty Nine:

Press the “Swap Entries” button.

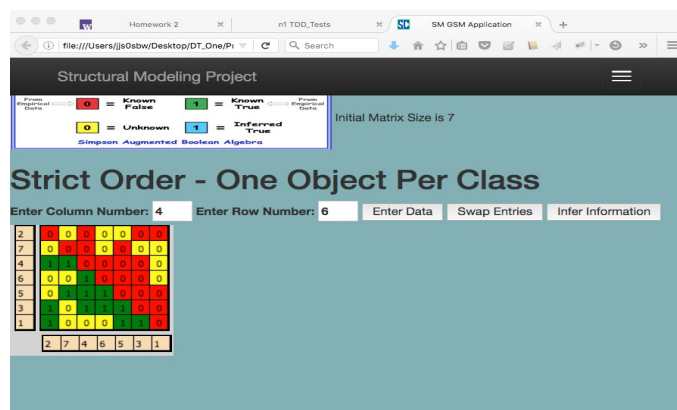


Step Sixty:

Enter the number 4 in the “Enter Column Number” text input box. Enter the number 6 in the “Enter Row Number” text input box.

Step Sixty One:

Press the “Swap Entries” button.



Step Sixty Two:

Is 2 heavier than 7? No (Do not enter anything in the application interface.)

Is 7 heavier than 2? Yes

Step Sixty Three:

Enter the number 7 in the “Enter Column Number” text input box. Enter the number 2 in the “Enter Row Number” text input box.

Step Sixty Four:

Press the “Enter Data” button.

Step Sixty Five:

Press the “Swap Entries” button.

Process Complete.