Excel for Tracking & Data Management

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Data Services

http://dataservices.gmu.edu/workshops/excel
Agenda

1. Excel Table Objects
2. Pivot Tables
3. Merging
4. Data Management
5. Formatting

Datafile:
http://dataservices.gmu.edu/files/
Understanding Data Tables
Is your Table ready for Excel?

1. No blank rows or columns
2. All column have a unique descriptor in the 1st row
3. No extra values
Keyboard Shortcuts

To select entire rows, columns, or data tables

Rows = Shift

Columns = Ctrl

Shift + Ctrl + Space → Select all data
Create an Excel Table

1. Click in the Data
2. Click Table
3. Change the Name
4. Change the Style
Why Create an Excel Table Object?

Automatically...

- adds new rows and columns
- fills formulas to the whole column
- adds the table to the Data Model

If you have trouble with other features, **Convert [back] to Range**

If you don’t like the every-other-row highlighting, uncheck **Banded Rows**
Pivot Tables

Summarizing Information
Create a Pivot Table

Insert **PivotTable**

**OR**

Summarize with **PivotTable**

Check Data Source then click **OK**
Step 1: Values

For basic counting, choose a **non-numeric** value that has **no missing values** like a Name or ID and drag it to the **Values** box.
Step 2: Rows

Drag a Grouping Variable to Rows

Use the filter box to find variables of interest
ex. Type “region”

Drag AGENT_GREATER_REGION to the Rows area, or click it’s checkbox

Then, drag it again (e.g., do it twice)
Percentages

Right click the last column and choose
Show Values As ... % of Column Total
Number Format

Right Click the Percent Column and choose **Number Format**
Change it to **Percentage** with 0 Decimal places and click **OK**
Grouping of Dates

Drag Region **out** of the Rows area
Drag STUDY_START_DATE to **Rows**

Click the +’s to Expand

Right-Click any date and click **Group**

Choose just **Months** and **Years**. Click to **select** or **deselect**. Click **OK**
Automatic Grouping of Values

Right Click on a Value and choose "Group..."
Specify the groupings and click OK
Multiple Variables in Rows

- pclass
- gender

- gender
- pclass
## Report Layouts

### Compact

<table>
<thead>
<tr>
<th>Row Labels</th>
<th># Passengers</th>
<th># Survived</th>
<th>% Survived</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Class</td>
<td>323</td>
<td>200</td>
<td>62%</td>
</tr>
<tr>
<td>female</td>
<td>144</td>
<td>139</td>
<td>97%</td>
</tr>
<tr>
<td>male</td>
<td>179</td>
<td>61</td>
<td>34%</td>
</tr>
<tr>
<td>2nd Class</td>
<td>277</td>
<td>119</td>
<td>43%</td>
</tr>
<tr>
<td>female</td>
<td>106</td>
<td>94</td>
<td>89%</td>
</tr>
<tr>
<td>male</td>
<td>171</td>
<td>25</td>
<td>15%</td>
</tr>
<tr>
<td>3rd Class</td>
<td>709</td>
<td>181</td>
<td>26%</td>
</tr>
<tr>
<td>female</td>
<td>216</td>
<td>106</td>
<td>49%</td>
</tr>
<tr>
<td>male</td>
<td>493</td>
<td>75</td>
<td>15%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1309</td>
<td>500</td>
<td>38%</td>
</tr>
</tbody>
</table>

### Outline

<table>
<thead>
<tr>
<th>pclass</th>
<th>gender</th>
<th># Passengers</th>
<th># Survived</th>
<th>% Survived</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Class</td>
<td>female</td>
<td>144</td>
<td>139</td>
<td>97%</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>179</td>
<td>61</td>
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</tr>
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</tr>
<tr>
<td></td>
<td></td>
<td>493</td>
<td>75</td>
<td>15%</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td>1309</td>
<td>500</td>
<td>38%</td>
</tr>
</tbody>
</table>

### Tabular

<table>
<thead>
<tr>
<th>pclass</th>
<th>gender</th>
<th># Passengers</th>
<th># Survived</th>
<th>% Survived</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Class</td>
<td>female</td>
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<tr>
<td></td>
<td></td>
<td>493</td>
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<td>15%</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td>1309</td>
<td>500</td>
<td>38%</td>
</tr>
</tbody>
</table>
### Totals

<table>
<thead>
<tr>
<th>pclass</th>
<th>gender</th>
<th># Passengers</th>
<th># Survived</th>
<th>% Survived</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Class</td>
<td>female</td>
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<td>200</td>
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<tr>
<td>3rd Class</td>
<td></td>
<td>493</td>
<td>75</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td><strong>1309</strong></td>
<td><strong>500</strong></td>
<td><strong>38%</strong></td>
</tr>
</tbody>
</table>

### Grand Totals

- Off for Rows and Columns
- On for Rows and Columns
- On for Rows Only
- On for Columns Only

### Subtotals

<table>
<thead>
<tr>
<th>pclass</th>
<th>gender</th>
<th># Passengers</th>
<th># Survived</th>
<th>% Survived</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Class</td>
<td>female</td>
<td>144</td>
<td>139</td>
<td>97%</td>
</tr>
<tr>
<td>1st Class</td>
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<td>179</td>
<td>61</td>
<td>34%</td>
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<tr>
<td>2nd Class</td>
<td>female</td>
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<tr>
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<td>male</td>
<td>171</td>
<td>25</td>
<td>15%</td>
</tr>
<tr>
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<td>female</td>
<td>216</td>
<td>106</td>
<td>49%</td>
</tr>
<tr>
<td>3rd Class</td>
<td>male</td>
<td>493</td>
<td>75</td>
<td>15%</td>
</tr>
</tbody>
</table>

- Do Not Show Subtotals
- Show all Subtotals at Bottom of Group
- Show all Subtotals at Top of Group
Merging for Pivot Tables

Click back to the Data Sheet
Auto-Merge with Pivot Tables

1. Click inside your table then Insert a **Pivot Table**
2. Choose **Use an external data source & Choose Connection**...
3. Click **Browse for Files...** *(bottom left)*
4. Select the file with related tables and click **Open**
5. Accept the default table by clicking **OK**
Create a Connection

6. Choose the new **Connection** and click **Open**
7. **Check** Add this data to the Data Model
8. **Click OK**
In the Pivot Table Fields Box, click **ALL**

Click the **Arrows** to see your variables

As before, drag AID to **Values**
Add the Relationship

Drag a grouping variable from the *other* table to **Rows**
e.g., AGENT_GREATER_REGION

For Excel 2016:
In the warning, click **Auto-Detect**
Upon success, click **Close**
Modify the Relationship

On the **Data Tab**, you can also click **Relationships**.

Match by **AGENT_SUB_REGION**

Put the “smaller” table on the **bottom**, for which the matching column has **unique values**
Create More Pivot Tables

When making more Pivot Tables, choose

Use this workbook’s Data Model
Adding New Rows or Columns

When your data is an Excel Table Object, new rows and columns right next to existing data are automatically included.

Try adding a new row.

To update your pivot table after making changes, click Refresh.
Merging Manually
Preparing to Merge Manually

1. Find or Make a Spot for the **New Column**
   - Since it will otherwise be hard to find, insert a new column next to AGENT_SUB_REGION
   - Right click the column letter and choose Insert

2. **Open the file** with the other table
   - Or, make note of which sheet it is on

3. **Identify** the column in each table to match on

4. Click in the **1st data row** of your new column (2nd row)
Formula to Merge

=VLOOKUP( id_cell , id_data_region , data_col#, 0 )

=INDEX( data_column , MATCH( id_cell , id_column , 0 ) )

<table>
<thead>
<tr>
<th>#</th>
<th>Type</th>
<th>then Click the...</th>
<th>in the...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>=INDEX(</td>
<td>column you want</td>
<td>other table</td>
</tr>
<tr>
<td>2</td>
<td>, MATCH(</td>
<td>cell with the id</td>
<td>same table, same row</td>
</tr>
<tr>
<td>3</td>
<td>,</td>
<td>column with ids</td>
<td>other table</td>
</tr>
<tr>
<td>4</td>
<td>, 0 )</td>
<td>(press Enter)</td>
<td></td>
</tr>
</tbody>
</table>
Duplicate a Column in an Excel Table Object

1. **Insert** new column, if needed
   Right click the column letter
   Choose Insert

2. **Copy** only from inside the table
   Press Ctrl-Space-Space to select column and header
   Press Ctrl-C to copy

3. **Paste** the data
   Click the letter above the column
   Right click and choose Paste *Values*
   OR Press Ctrl-V
Copying Worksheets

1. Right Click the Sheet Name
2. Choose "Move or Copy..."
3. Select destination file
4. Check "Create a copy"
5. Click OK
Data Management
Drop-Downs

ONLY Sort or Filter with this
Check out the Filters in the Date Columns!
Filters

When a filter is on, the numbers on the left are blue. The status bar shows how many records were found.

If you forget which filter is on, you can clear all filters. This is also where to add drop-downs without creating a Table Object.
Avoid Changing Values Individually

When needed, use Find and Replace (Ctrl-F)
Always choose "Match entire cell contents"
Text to Columns

1. **Copy** the column to split
   - Perhaps CURRENT_COURSE_CODE

2. Ensure there are multiple **empty** columns to the right
   - Select at least 5 columns, right click and choose insert

3. **Select** the column to split

4. On the **Data** Tab, choose Text to Columns
Text to Columns

Convert Text to Columns Wizard - Step 1 of 3
The Text Wizard has determined that the file is Delimited. If this is correct, choose Next, or click Finish to accept the wizard's choices.

Choose the file type that best describes your data:

- Delimited: Characters
- Fixed width: Fields are at fixed positions within the record

Preview of selected data:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>IN-MS-P005-STAT-STD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>IN-MS-P005-CS-STD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>IN-MS-P005-CEIE-STD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>IN-BPRE-P005-UNDE-STD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>IN-NC-AE-AE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Convert Text to Columns Wizard - Step 2 of 3
This screen lets you set the delimiters your data contains. You can see how your text is affected in the preview below.

Delimiters:
- Tab
- Semicolon
- Comma
- Space

Text qualifier:

Data preview:

<table>
<thead>
<tr>
<th>IN</th>
<th>MS</th>
<th>P005</th>
<th>STAT</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN</td>
<td>MS</td>
<td>P005</td>
<td>CS</td>
<td>STD</td>
</tr>
<tr>
<td>IN</td>
<td>MS</td>
<td>P005</td>
<td>CEIE</td>
<td>STD</td>
</tr>
<tr>
<td>IN</td>
<td>BPRE-P005-UNDE</td>
<td>STD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN</td>
<td>NC-AE</td>
<td>AE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Separate & Combine

=LEFT( class, SEARCH( "-", class ) - 1 )

=REPLACE( class, 1, SEARCH( "-", class ), "" )

=CONCATENATE( number, "-", section )
Questions?

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