09 – Spreadsheet Basics

LBSCI 700 | Spring 2019

Queens College, CUNY

09-spreadsheet.pdf

What is spreadsheet?

Enter data into a spreadsheet

Use formulas to perform calculations

Create graphs

What is Spreadsheet

What is Spreadsheet?

- Spreadsheet - an interactive computer application
- Organization, analysis and storage of data in tabular form

  -- A 2-dimensional table (rows and columns)

  -- Can maintain and manipulate data

  -- Can convert data to graphs

- Dan Bricklin, a Harvard Business School student, was credited as the "father" of the electronic spreadsheet in late 1970s.

  VisiCalc (on the Apple II)

Important Features of Spreadsheet

- Workspace - rows and columns

- Excel worksheet - single page workspace

  -- 2^20=1,048,576 rows

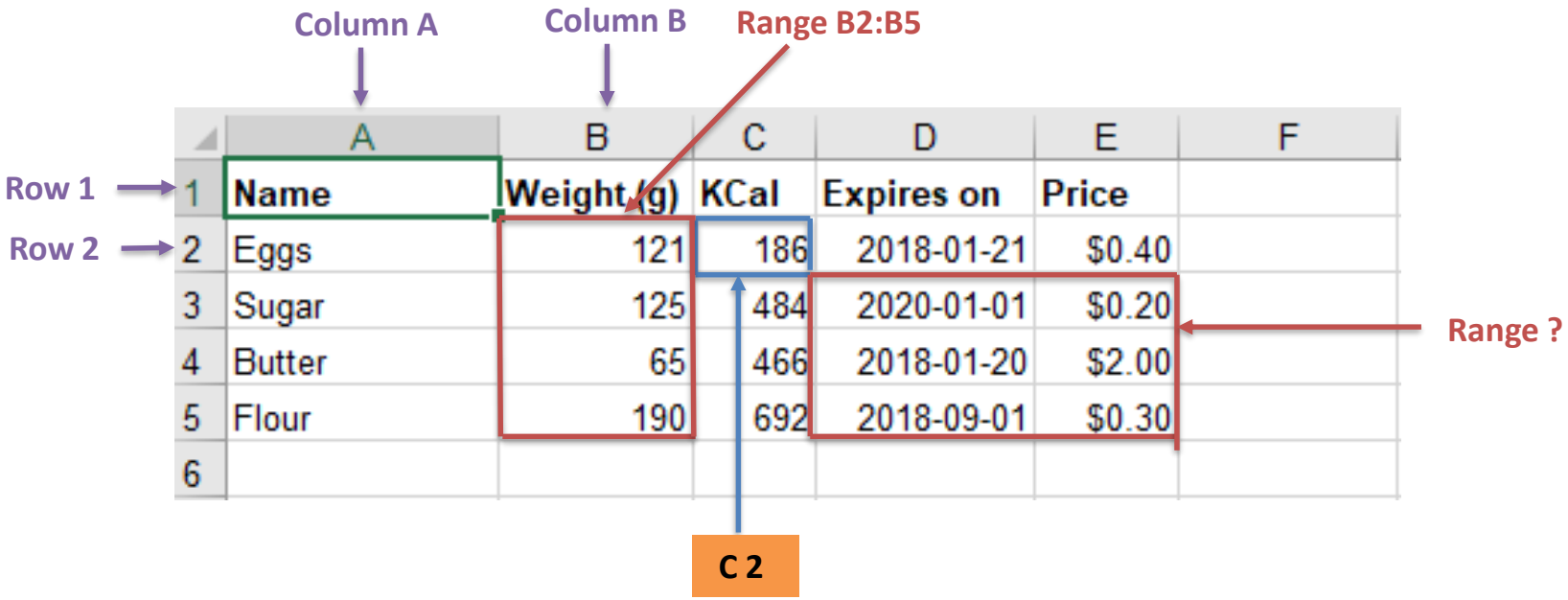
  -- 2^14=16,384 columns (A to XFD)

- Excel workbook

  --file containing one or more worksheets

Main concepts

- **Columns** & **Rows**
- **Cell** = intersection of a row and column
- **Cell address** = Column letter + row number
- **Range** = a rectangular group of cells



	A	B	C	D	E	F
1	Name	Weight (g)	KCal	Expires on	Price	
2	Eggs	121	186	2018-01-21	$0.40	
3	Sugar	125	484	2020-01-01	$0.20	
4	Butter	65	466	2018-01-20	$2.00	
5	Flour	190	692	2018-09-01	$0.30	
6						

Why Spreadsheet?

"Spreadsheets are kind of like the English of the data world...you're going to have to be able to cope with data that comes in that format."

----- Jenny Bryan, a software engineer at RStudio

How Are Spreadsheets Used in a library?

- Circulation Statistical Reports
- Acquisition Allocation
- Gate Count
- Database usage

…… ……

Data & Data Type

- Text

  -- You can force this with ‘

  e.g., 'text, or '2

  -- Aligned to the left by default.

- Number (numeric values)

  -- Aligned to the right by default.

- Date/time

  … …

Enter Data into a Spreadsheet

Exercise 1: Data Entry

- Download: Bb Week9/Data Sets/DataEntry_Ex1
- Instructions

  Find the **row** with number 6 in the spreadsheet. In this row, fill in:

  1. Baking powder in **column A**. Watch out, it's case sensitive.
  2. 30 in **column B** and 10 in **column C**
  3. 2018-12-31 in **column D**.
  4. $0.10 in **column E**

Exercise 2: Change Data Formats

- Download: Bb Week9/Data Sets/ DataEntry_date_Ex2

  *You can try: import data into a Google Sheet.

  Add a new spreadsheet> File > Import > Upload

- Instructions

  1. Select the values in **D2:D5**
  2. Change the format to use / instead of -

     'Format > Number > More formats‘
  3. Select the values in **E2:E5**
  4. Change the format of these values to currency (rounded)

     You can use the format menu, or any other shortcuts you'd like.

Use formulas to perform calculations

Formulas … =function(cells or cell range)

- Calculated result based on reference to one or more cells
- References (used in formulas)
- Relative address (A1, B2) adjusts to changes
- Absolute reference

A1 - absolute reference to A1

A$1 - only row reference is absolute

$A1 - only column reference is absolute

Exercise 3: Absolute References

- Download: Bb Week9/Data Sets/AbsoluteReference_Ex3

  *You can try: import data into a Google Sheet

  Add a new spreadsheet> File > Import > Upload

- Instructions

1. Fill in D2 with the relative population of China, compared to the world: **= B2 / B12 * 100** (multiply by 100 to get a percentage)
2. Now copy this by dragging towards **D11**. You'll see some **#DIV/0!** errors - some values are divided by zero because you use references to empty cells.
3. Remove the values you just copied and change **D2**. Make **B12** an absolute reference to that cell. Lock the row and the column.
4. Now fill **D2:D11** up again by copying from **D2**.

Exercise 4: Only Row Reference is Absolute

- Download: Week9/Data Sets/AbsoluteReferenceRow_Ex4

  *You can try: import data into a Google Sheet

  Add a new spreadsheet> File > Import > Upload

- Instructions

  1. Fill in **E2:E11**, the area relative to the world land area as percentage. Try to do this first by selecting column **D2:D11**, and copying it one column to the right by dragging from the lower right corner.
  2. Apparently, the values can't just be copied. You can solve this by locking only the row in **D2** and copy that to D11. Then copy **D2:D11** to **column E** again.

Exercise 5: Only Column Reference is Absolute

- Download: Week9/Data Sets/AbsoluteReferenceColumn_Ex5

  *You can try: import data into a Google Sheet:

  Add a new spreadsheet> File > Import > Upload

- Instructions

  1. Fill in **F2:F11**, the population density per square mile. Try to do this first by selecting column **E2:E11**, and copying it one column to the right by dragging from the lower right corner
  2. Again, copying these values doesn't give the expected values. You can solve this by locking only the population column (B) in **E2:E11** and repeating the copying process. Try this now!

Exercise 6: Combine Everything

- Download: Week9/Data Sets/Combine_Ex6

  *You can try: import data into a Google Sheet:

  Add a new spreadsheet> File > Import > Upload

- Instructions

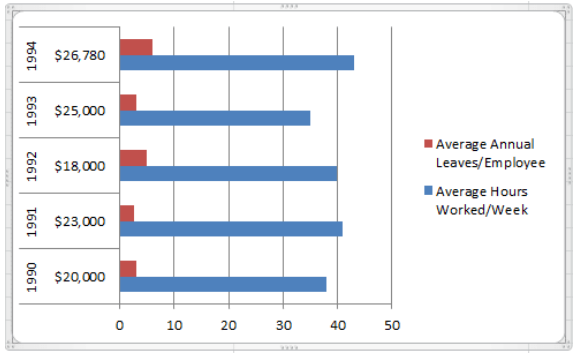
  1. Fill in **D2:D12** with the amount by which the population will grow. Use the growth index in **B14**
  2. Fill in the population density in **E2:E12**. This is the population per square kilometer
  3. Fill in the density growth in **F2:F12**, which is the growth per square kilometer
  4. Change the growth to 2.00% and watch the changes ripple through

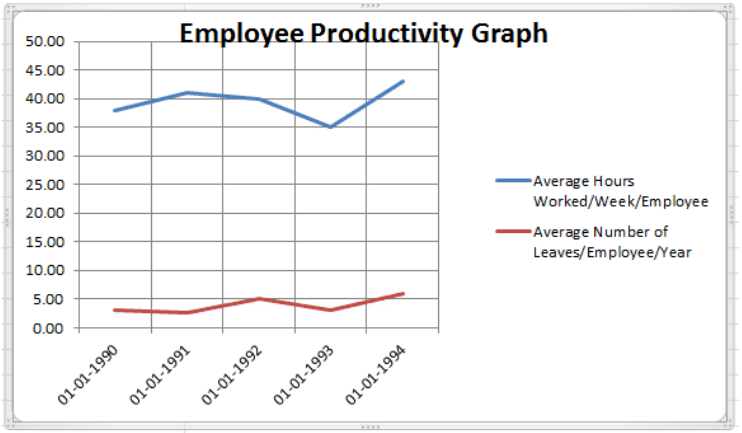
Creating Graphs

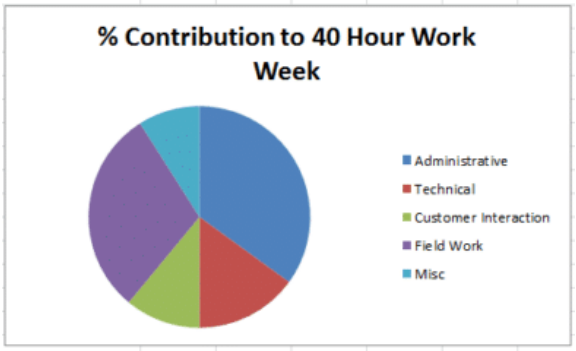
Spreadsheet Graphs

- Column Charts
- Bar Charts
- Pie Charts
- Line Charts

… …







Exercise 7: Creating Graphs

- Open a spreadsheet, and type in data
- Instructions

1. Select the data you are going to graph.
2. Select the column graph and click NEXT.

   INSERT --> Charts --> Column Chart
3. Click the 'Series' tab and change each series

   Design --> Select Data --> Select Data Source dialog box, and click Edit --> Type a legend name into the Series name text box, and click OK
4. Give your chart a title and label the X and Y axis.

Recap

What is spreadsheet?

Enter data into a spreadsheet

Use formulas to perform calculations

Create graphs HTML vs. XHTML

Last Things

About Usability Studies

- Conference presentation (poster/paper)?
  ALA: http://www.ala.org/
  ACRL: http://www.ala.org/acrl/conferences
  PLA: http://www.ala.org/pla/
  SAA: https://www2.archivists.org/conference
  …
- Data collected may be used for master's thesis?
- Share findings with people outside QC?

Redo Midterm Exam

- + 5%
- + 10%
- + 20%
- + 25%
- + 30%

ToDo

- Start homework
  -- Look for email
  -- Check Bb weekly folder

- Note any questions from reading and homework