Chapter 1:
Data and Datasets

Data

The Latin word ***data*** is the plural of ***datum***, "*(thing) given”*

Data are a set of values of *qualitative* or *quantitative* variables about one or more persons or objects, while a **datum** is a single value of a single variable.[1]

[1] "Statistical Language - What are Data?". *Australian Bureau of Statistics*. 2013-07-13

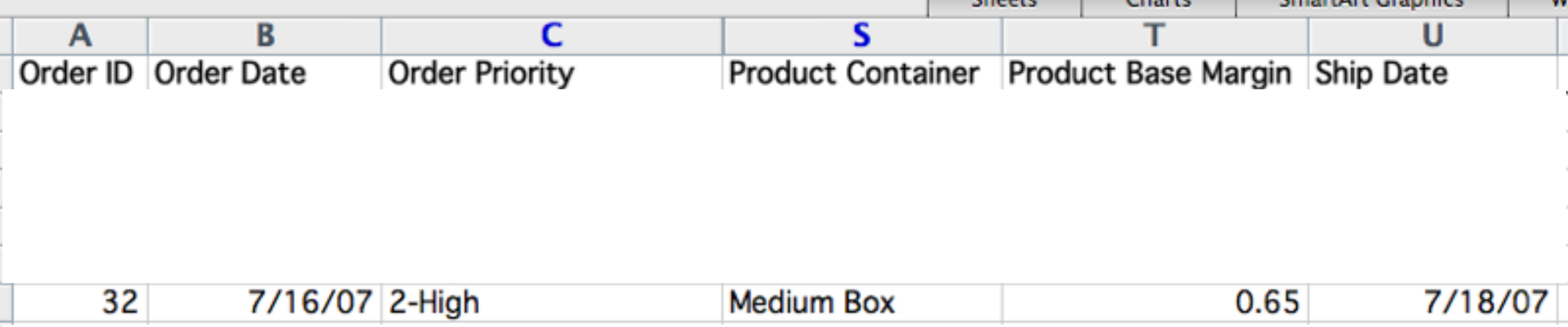
Dataset types

- Tables
- Networks / graphs (trees)
- Text / logs
- Fields
- Static file vs. dynamic stream

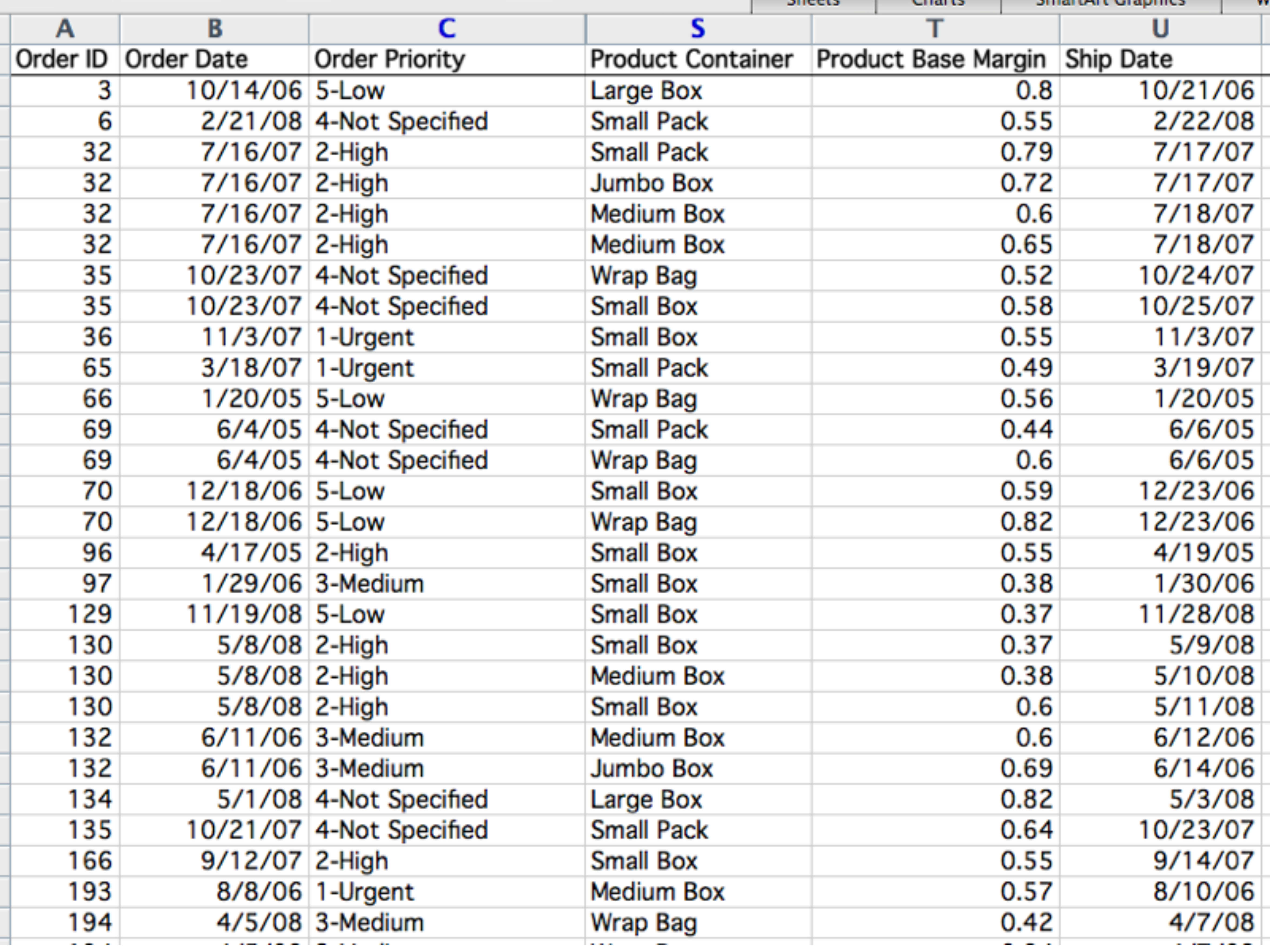
Tables

- each data **item** in a new row
- each column contains an **attribute**

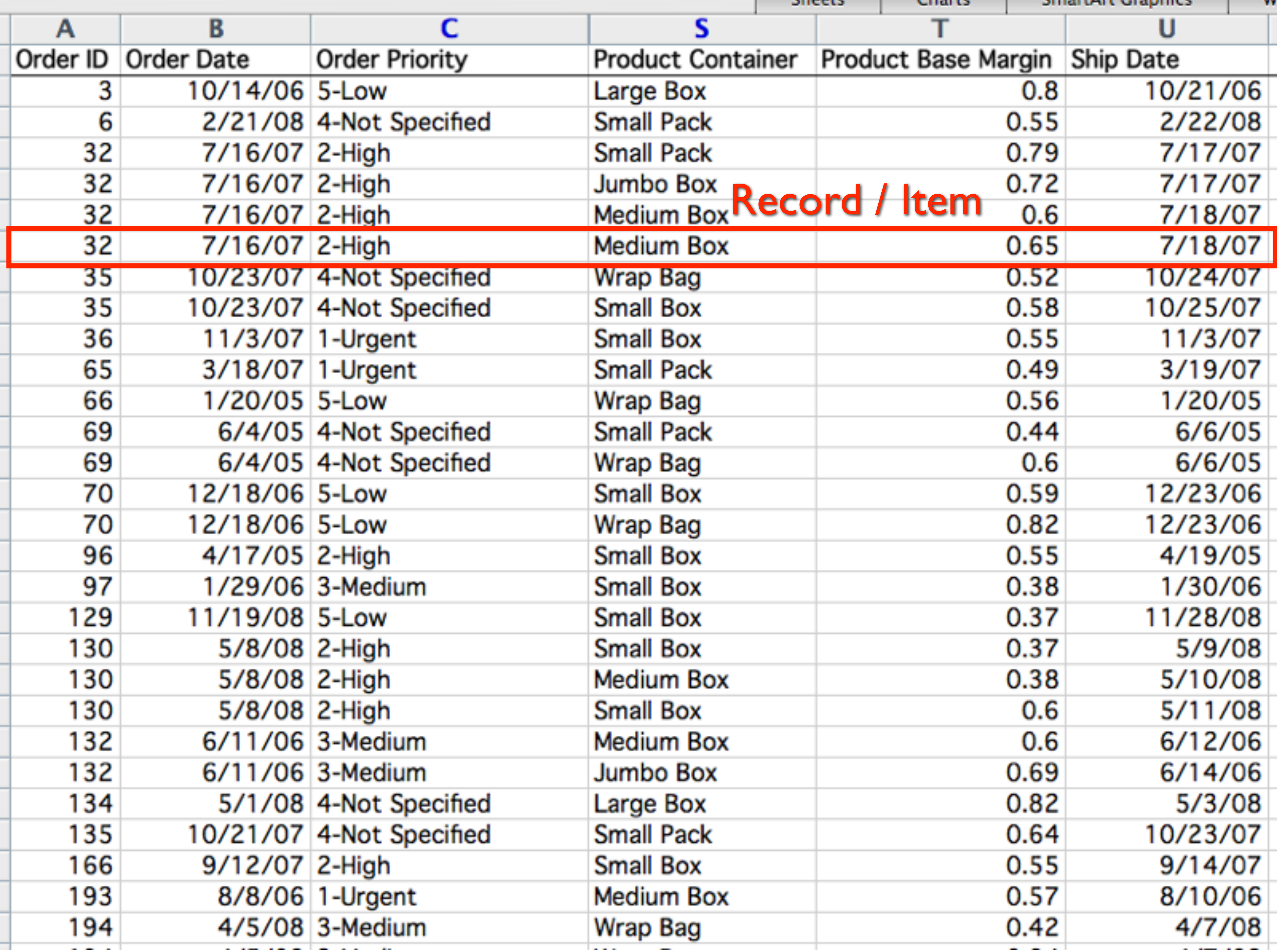
32	7/16/07	2-High	Medium Box	0.65	7/18/07



A	B	C	S	T	U
Order ID	Order Date	Order Priority	Product Container	Product Base Margin	Ship Date
32	7/16/07	2-High	Medium Box	0.65	7/18/07



A	B	C	S	T	U
Order ID	Order Date	Order Priority	Product Container	Product Base Margin	Ship Date
3	10/14/06	5-Low	Large Box	0.8	10/21/06
6	2/21/08	4-Not Specified	Small Pack	0.55	2/22/08
32	7/16/07	2-High	Small Pack	0.79	7/17/07
32	7/16/07	2-High	Jumbo Box	0.72	7/17/07
32	7/16/07	2-High	Medium Box	0.6	7/18/07
32	7/16/07	2-High	Medium Box	0.65	7/18/07
35	10/23/07	4-Not Specified	Wrap Bag	0.52	10/24/07
35	10/23/07	4-Not Specified	Small Box	0.58	10/25/07
36	11/3/07	1-Urgent	Small Box	0.55	11/3/07
65	3/18/07	1-Urgent	Small Pack	0.49	3/19/07
66	1/20/05	5-Low	Wrap Bag	0.56	1/20/05
69	6/4/05	4-Not Specified	Small Pack	0.44	6/6/05
69	6/4/05	4-Not Specified	Wrap Bag	0.6	6/6/05
70	12/18/06	5-Low	Small Box	0.59	12/23/06
70	12/18/06	5-Low	Wrap Bag	0.82	12/23/06
96	4/17/05	2-High	Small Box	0.55	4/19/05
97	1/29/06	3-Medium	Small Box	0.38	1/30/06
129	11/19/08	5-Low	Small Box	0.37	11/28/08
130	5/8/08	2-High	Small Box	0.37	5/9/08
130	5/8/08	2-High	Medium Box	0.38	5/10/08
130	5/8/08	2-High	Small Box	0.6	5/11/08
132	6/11/06	3-Medium	Medium Box	0.6	6/12/06
132	6/11/06	3-Medium	Jumbo Box	0.69	6/14/06
134	5/1/08	4-Not Specified	Large Box	0.82	5/3/08
135	10/21/07	4-Not Specified	Small Pack	0.64	10/23/07
166	9/12/07	2-High	Small Box	0.55	9/14/07
193	8/8/06	1-Urgent	Medium Box	0.57	8/10/06
194	4/5/08	3-Medium	Wrap Bag	0.42	4/7/08



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69	6/4/05	4-Not Specified	Small Pack	0.44	6/6/05
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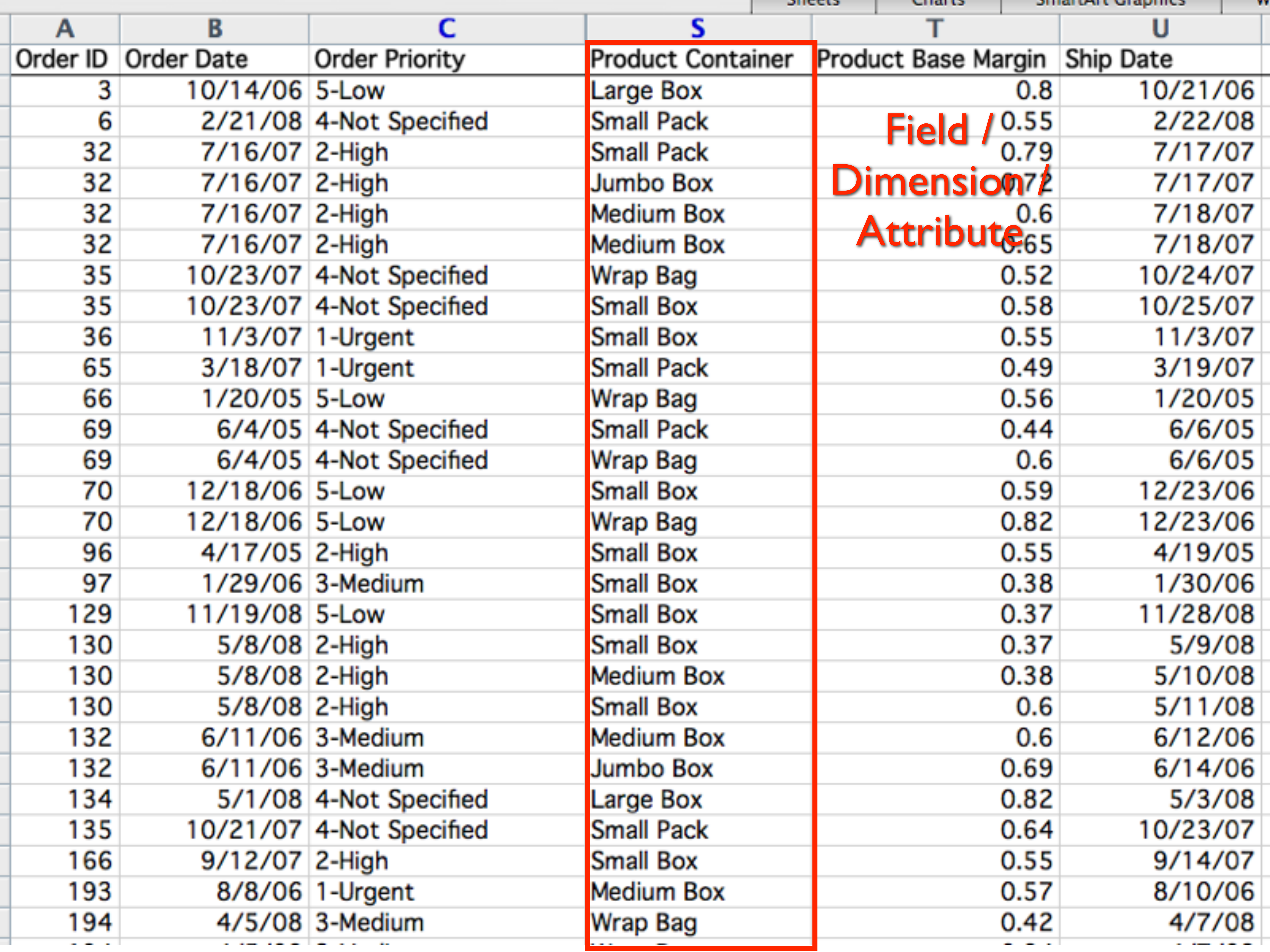
194	4/5/08	3-Medium	Wrap Bag	0.42	4/7/08

Record / Item



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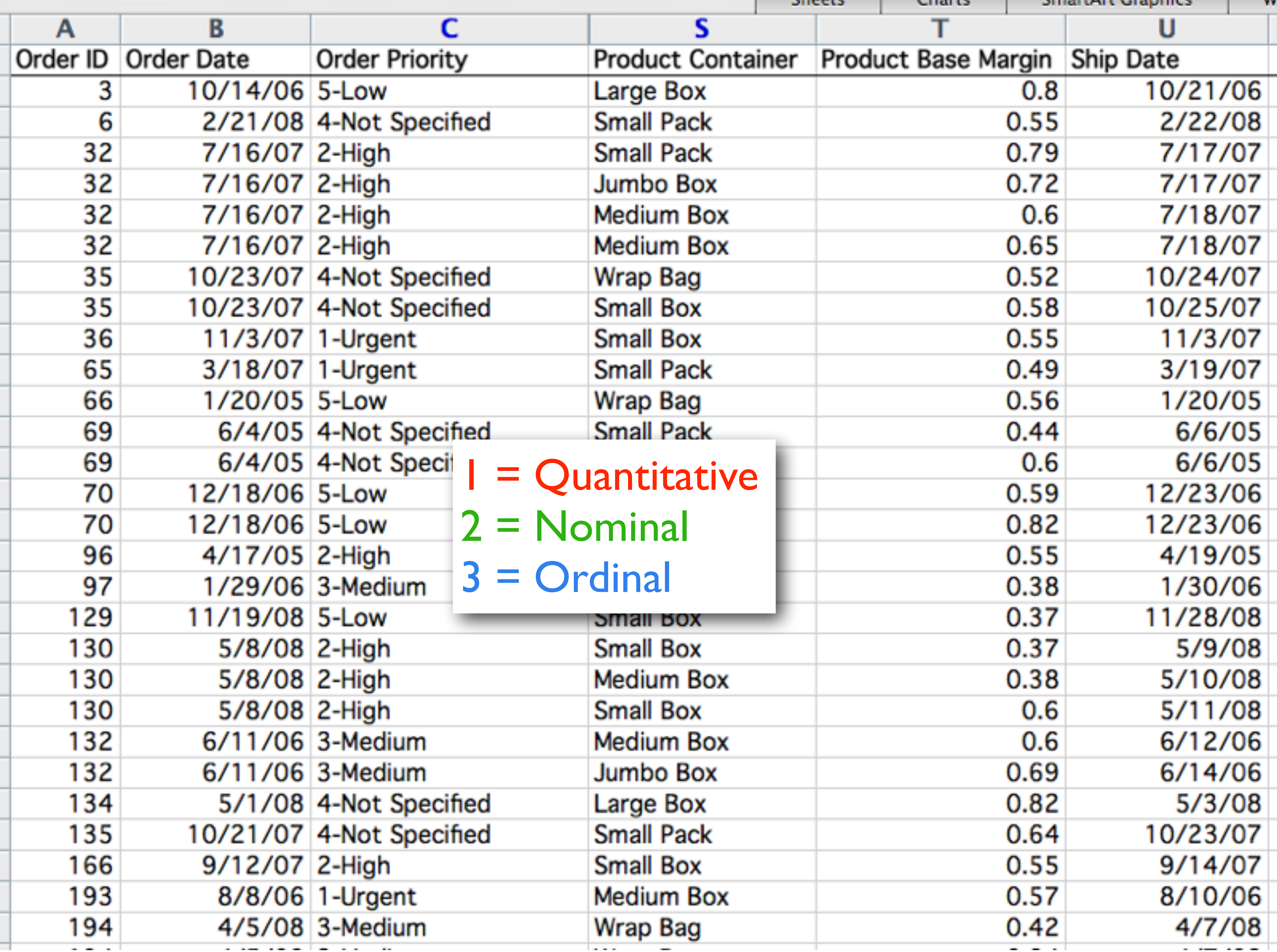
Field / Dimension / Attribute



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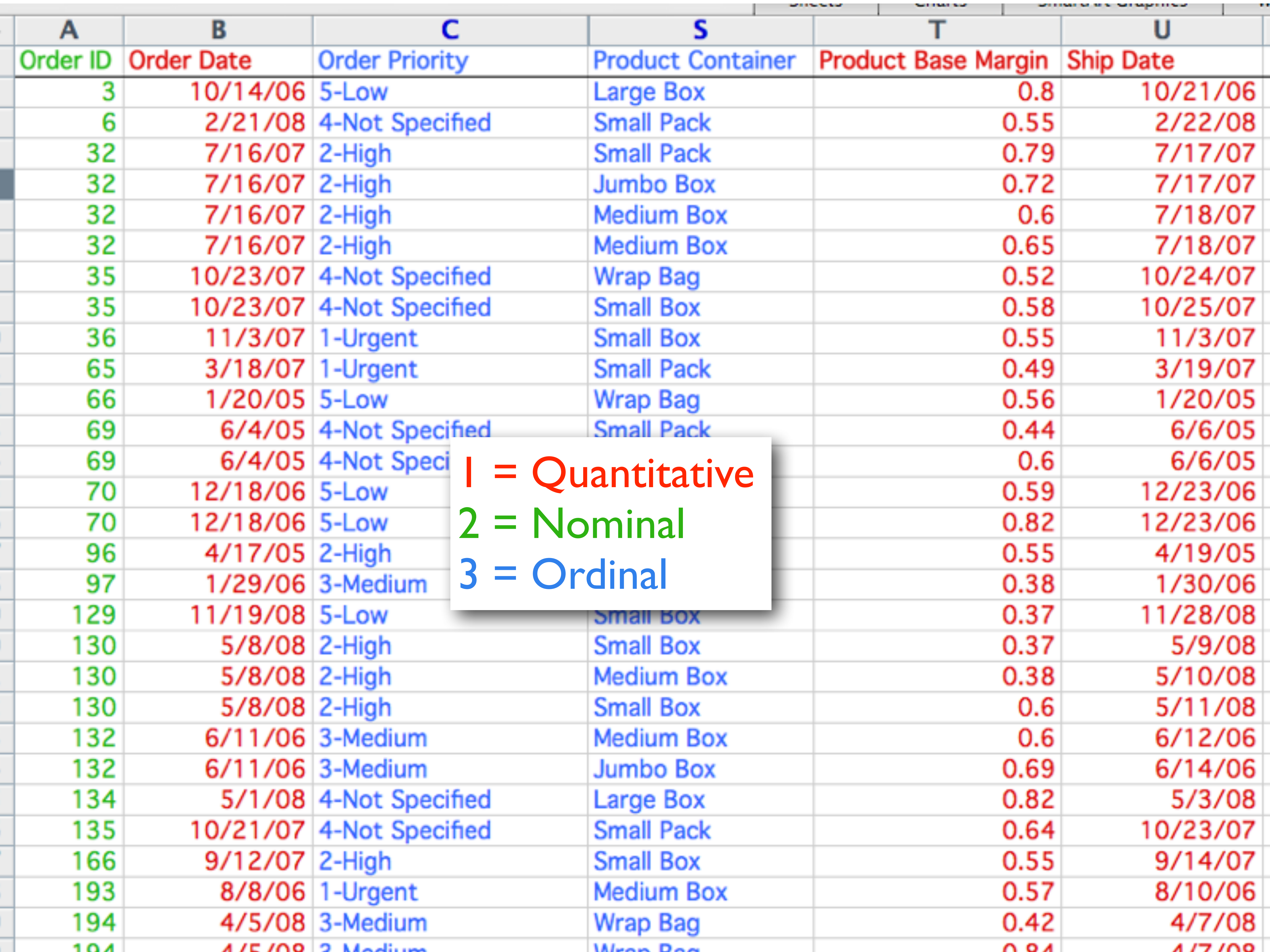
1 = Quantitative

2 = Nominal

3 = Ordinal



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194	4/5/08	3-Medium	Wrap Bag	0.42	4/7/08
194	4/5/08	3-Medium	Wrap Bag	0.84	4/7/08

1 = Quantitative

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3 = Ordinal

Dataset for this Tutorial

- **Happiness** x **World Factbook** x **HDI** x **IHDI**
- built for this tutorial, data from 2017
- Download Link: https://github.com/Christoph/Happiness-Teaching-Dataset/archive/master.zip
- Data-Description: https://github.com/Christoph/Happiness-Teaching-Dataset

Some Dataset Values Explained

- Happiness Score
  Calculated by asking sampled people in a country the question: *"How would you rate your happiness on a scale of 0 to 10 where 10 is the happiest."*

- Biggest Official Language
  Official language with most speakers in a country

- Human Development Index
  A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living.[2]

- Gini Coefficient
  This index measures the degree of inequality in the distribution of income in a country. Measured from 0 to 100 where 0 means perfect equality and 100 means perfect inequality.

[2] See *Technical note 1 at* http://hdr.undp.org/sites/default/files/hdr2018_technical_notes.pdf for details on how the HDI is calculated