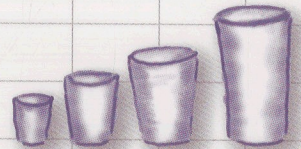


A Brain-Friendly Guide

# Head First Excel

Explore your  
data with  
pivot tables



Nest formulas for  
complex operations



Visualize data  
with charts  
and graphs



Organize your  
information



Sort, zoom, and  
filter worksheets



Make  
calculations  
across  
worksheets

O'REILLY®

Michael Milton

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# Table of Contents (the real thing)

## Intro

**Your brain on Excel.** Here *you* are trying to *learn* something, while here your *brain* is doing you a favor by making sure the learning doesn't *stick*. Your brain's thinking, "Better leave room for more important things, like which wild animals to avoid and whether naked snowboarding is a bad idea." So how *do* you trick your brain into thinking that your life depends on knowing spreadsheets?

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# Introduction to formulas

## Excel's real power

### We all use Excel to keep lists.

And when it comes to lists, Excel does a great job. But the real Excel ninjas are people who have mastered the world of formulas. Using data well is all about executing the **calculations** that will tell you what you need to know, and **formulas** do those calculations, molding your data into something useful and illuminating. If you know your formulas, you can really make your numbers *sing*.

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Craft

Aquavit

Lupa

E. BERNARDINI

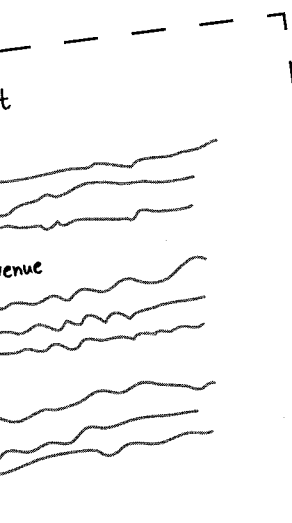
## visual design

### **Spreadsheets as art**

# 2

#### **Most people usually use Excel for page layout.**

A lot of formula-writing masters, who are familiar with just how powerful Excel can be, are shocked that people “just” use the software for showing information with a grid. But Excel, especially in its more recent versions, has become quite handy as a page layout tool. You’re about to get comfortable with some important and not-so-obvious Excel tools for serious visual design.



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He likes it, but there’s something else...	50
Use proximity and alignment to group like things together	53
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## references

# 3

### Point in the right direction

#### A formula is only as good as its references.

No matter how creative and brilliant your formula is, it won't do you much good if it does not point to the correct data. It's easy to get references right for short, individual formulas, but once those formulas get long and need to be copied, the chance of reference mistakes increases dramatically. In this chapter, you'll exploit **absolute and relative references** as well as Excel's advanced new **structured reference** feature, ensuring that no matter how big and numerous your references are, your formulas will stay tight and accurate.

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Structured references are a different dimension of absolute reference	83
Your profitability forecasts proved accurate	88



change your point of view

## Sort, zoom, and filter

# 4

### The details of your data are tantalizing.

But only if you know *how* to look at them. In this chapter, you'll forget about formatting and functions and just focus on how to change your perspective on your data. When you are exploring your data, looking for issues to investigate, the **sort, zoom, and filter** tools offer surprising versatility to help you get a grip on what your data contains.

Political consultants need help decoding their fundraising database	90
Find the names of the big contributors	91
Sort changes the order of rows in your data	92
Sorting shows you different perspectives on a large data set	95
See a lot more of your data with Zoom	103
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Use Filter drop boxes to tell Excel how to filter your data	108
An unexpected note from the Main Campaign...	109
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data types

5

## Make Excel value your values

### Excel doesn't always show you what it's thinking.

Sometimes, Excel will show you a number but think of it as text. Or it might show you some text that it sees as a number. Excel will even show you data that is neither number nor text! In this chapter, you're going to **learn how to see data the way Excel sees it**, no matter how it's displayed. Not only will this knowledge give you greater control over your data (and fewer "What the #\$\$%! is going on?" experiences), but it will also help you unlock the whole universe of formulas.

Your doctor friend is on a deadline and has broken data	118
Somehow your average formula divided by zero	121
Data in Excel can be text or numbers	122
The doctor has had this problem before	125
You need a function that tells Excel to treat your text as a value	126
A grad student also ran some stats...and there's a problem	132
Errors are a special data type	135
Now you're a published scientist	140

## dates and times

### Stay on time

# 6

#### Dates and times in Excel are hard.

Unless you understand *how Excel represents them* internally. All of us at one point or another have had to do calculations involving these types of figures, and this chapter will give you the **keys to figuring out** how many days, months, years, and even seconds there are between two dates. The simple truth is that dates and times are a really **special case** of the data types and formatting that you already know. Once you master a couple of basic concepts, you'll be able to use Excel to **manage scheduling flawlessly**.

Do you have time to amp up your training for the Massachusetts Marathon?	142
VALUE() returns a number on dates stored as text	146
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Coach is happy to have you in her class	161
Excel represents time as decimal numbers from 0 to 1	162
Coach has an Excel challenge for you	165
You qualified for the Massachusetts Marathon	167

You give the formula your text.

=VALUE(**A4**)

Excel reads the text



## finding functions

# 7

### Mine Excel's features on your own

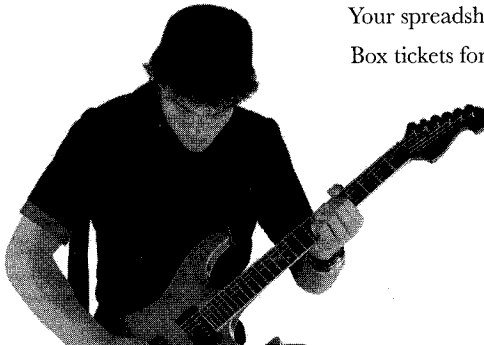
#### Excel has more functions than you will ever use.

Over many years and many versions, the program has accumulated specialized functions that are terribly important to the small group of people who use them.

That's not a problem for you. But what *is* a problem for you is the group of functions **that you don't know** but that **are useful in your work**. Which functions are we talking about? Only you can know for sure, and you're about to learn some tips and techniques to finding quickly the formulas you need to get your work done efficiently.

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The Dataville Convention Center COO checks in...	185
Functions are organized by data type and discipline	186
Your spreadsheet shows ticket counts summarized for each date	192
Box tickets for you!	195

Excellent!



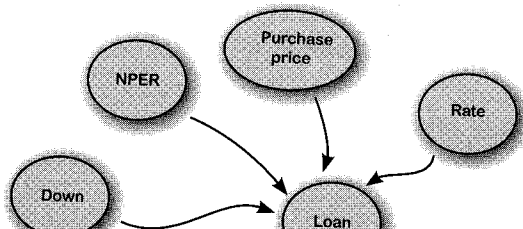
## formula auditing

## 8

**Visualize your formulas****Excel formulas can get really complicated.**

And that is the point, right? If all you wanted to do was simple calculation, you'd be fine with a paper, pen, and calculator. But those complicated formulas can get unwieldy—especially ones written by other people, which can be almost impossible to decipher if you don't know what they were thinking. In this chapter, you'll learn to use a simple but powerful graphical feature of Excel called **formula auditing**, which will dramatically illustrate the flow of data throughout the *models* in your spreadsheet.

Should you buy a house or rent?	198
Use Net Present Value to discount future costs to today's values	202
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Models in Excel can get complicated	206
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Excel's loan functions all use the same basic elements	212
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Formulas must be correct, and assumptions must be reasonable	218
The broker weighs in...	222
Your house was a good investment!	225



## charts

### **Graph your data**

# 9

#### **Who wants to look at numbers all the time?**

Very often a nice graphic is a more engaging way to present data. And sometimes you have so much data that you actually can't see it all without a nice graphic.

Excel has extensive charting facilities, and if you just know where to click, you'll unlock the power to make charts and graphs to display your data with drama and lucidity.

Head First Investments needs charts for its investment report	228
Create charts using the Insert tab	231
Use the Design and Layout tabs to rework your chart	232
Your pie chart isn't going over well with the corporate graphic artist	236
You're starting to get tight on time...	247
Your report was a big success...	249

## 10

## what if analysis

**Alternate realities****Things could go many different ways.**

There are all sorts of *quantitative factors* that can affect how your business will work, how your finances will fare, how your schedule will manage, and so forth. Excel excels at helping you model and manage all your *projections*, evaluating how changes in those factors will affect the variables you care about most. In this chapter, you'll learn about three key features—**scenarios**, **Goal Seek**, and **Solver**—that are designed to make assessing all your “what ifs” a breeze.

Should your friend Betty advertise?	252
Betty has projections of best and worst cases for different ad configurations	255
Scenarios helps you keep track of different inputs to the same model	258
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Solver can handle much more complex optimization problems	267
Do a sanity check on your Solver model	272
Solver calculated your projections	276
Betty's best-case scenario came to pass...	277

text functions

11

Letters as data

Excel loves your numbers, but it can also handle your text.

It contains a suite of functions designed to enable you to manipulate **text data**. There are many applications to these functions, but one that all data people must deal with is what to do with **messy** data. A lot of times, you'll receive data that isn't at all in the format you need it to be in—it might come out of a strange database, for example. Text functions shine at letting you pull elements out of messy data so that you can make analytic use of it, as you're about to find out...

Your database of analytic customers just crashed!	280
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Excel has a suite of functions for dealing with text	286
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FIND returns a number specifying the position of text	298
Text to Columns sees your formulas, not their results	302
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Looks like time's running out...	305
Your data crisis is solved!	308

=FIND("x")

## pivot tables

## 12

**Hardcore grouping**

**Pivot tables are among Excel's most powerful features.**

But what are they? And why should we care? For Excel newbies, pivot tables can also be among Excel's most *intimidating* features. But their purpose is quite simple: **to group data quickly** so that you can analyze it. And as you're about to see, grouping and summarizing data using pivot tables is *much faster* than creating the same groupings using formulas alone. By the time you finish this chapter, you'll be slicing and dicing your data in Excel faster than you'd ever thought possible.

Head First Automotive Weekly needs an analysis for their annual car review issue	310
You've been asked to do a lot of repetitive operations	313
Pivot tables are an incredibly powerful tool for summarizing data	314
Pivot table construction is all about previsualizing where your fields should go	316
The pivot table summarized your data way faster than formulas would have	320
Your editor is impressed!	322
You're ready to finish the magazine's data tables	326
Your pivot tables are a big hit!	330

booleans

# 13

## TRUE and FALSE

There's a deceptively simple data type available in Excel.

They're called **Boolean values**, and they're just plain ol' TRUE and FALSE. You might think that they are too basic and elementary to be useful in serious data analysis, but nothing could be further from the truth. In this chapter, you'll plug Boolean values into **logical formulas** to do a variety of tasks, from cleaning up data to making whole new data points.

Are fishermen behaving on Lake Dataville?	332
You have data on catch amounts for each boat	333
Boolean expressions return a result of TRUE or FALSE	334
IF gives results based on a Boolean condition	334
Your IF formulas need to accommodate the complete naming scheme	336
Summarize how many boats fall into each category	343
COUNTIFS is like COUNTIF, only way more powerful	346
When working with complex conditions, break your formula apart into columns	350
Justice for fishes!	356

segmentation

**Slice and dice****14****Get creative with your tools.**

You've developed a formidable knowledge of Excel in the past 13 chapters, and by now you know (or know how to find) most of the tools that fit your data problems.

But what if your problems **don't fit those tools**? What if you don't even have the data you need all in one place, or your data is divided into categories that don't fit your analytical objectives? In this final chapter, you'll use **lookup functions** along with some of the tools you already know to slice new **segments** out of your data and get really creative with Excel's tools.

You are with a watchdog that needs to tally budget money	358
Here's the graph they want	359
Here's the federal spending data, broken out by county	360
Sometimes the data you get isn't enough	363
Your problems with region are bigger	365
Here's a lookup key	366
VLOOKUP will cross-reference the two data sources	367
Create segments to feed the right data into your analysis	374
Geopolitical Grunts would like a little more nuance	376
You've enabled Geopolitical Grunts to follow the money trail...	380
Leaving town...	381
It's been great having you here in Dataville!	381



## leftovers



### **The Top Ten Things (we didn't cover)**

#### **You've come a long way.**

But Excel is a complicated program, and there's so much left to learn. In this appendix, we'll go over 10 items that there wasn't enough room to cover in this book, but should be high on your list of topics to learn about next.

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## install excel's solver



### **The Solver**

#### **Some of the best features of Excel aren't installed by default.**

That's right, in order to run the optimization from Chapter 10, you need to activate the **Solver**, an add-in that is included in Excel by default but not activated without your initiative.