Spreadsheets

- A spreadsheet is an electronic version of a business ledger
- Organizes information in a 2-D Tabular grid
- Performs Calculations based on grid position

	JAN.	FEB.	MAR.	APR.	TOTAL
SALES	1750	1501	1519	1430	6200
COST OF GOODS SOLD	964	980	982	943	3819
GROSS MARGIN	786	521	587	487	2381
NET EXPENSE	98	93	82	110	383
ADM EXPENSE	77	79	69	88	313
MISC EXPENSE	28	45	31	31	135
TOTAL EXPENSES	203	217	182	229	831
AVERAGE EXPENSE	68	72	61	76	277
NET BEFORE TAXES	583	304	405	258	1550
FEDERAL TAXES	303	158	211	134	806
NET AFTER TAX	280	146	194	124	744

 1

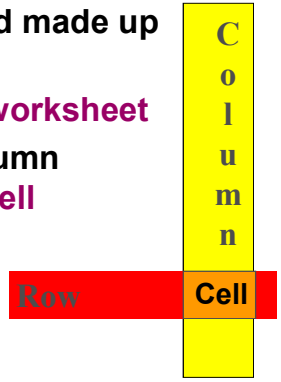
Spreadsheet Uses and Advantages

- Spreadsheets Uses
  - Home: Budgets, Loans, Investments
  - Education: Calculate Grades
  - Business:
    - Accounting, Payroll, Sales, Taxes, Inventory
    - Statistical data analysis and forecasting
  - Scientific and Engineering: Data Analysis
- Advantages of Spreadsheets
  - Save time and fewer errors
  - Automatically recalculate values
    - Formulas can be entered for cells
    - If cell value changes recalculates values in dependent cells
  - Can represent data trends visually using *Charts*
  - Allows "what if" analysis for decision making

 2

Worksheet

- Data appears in a grid made up of rows and columns
- This grid is called a worksheet
- Where a row and column intersect is called a cell



 3

Cell Address and Active Cell

- Cell Address
  - Identified by the column letter and the row number
  - Each cell has a unique address

	A	B	C
1	A1		C1
2		B2	C2
3			C3

 4

Cell Address and Active Cell

- Cell Address
  - Identified by the column letter and the row number
  - Each cell has a unique address
- Active Cell **C2**
  - Changes can only take place in the active cell
  - Selected using mouse cursor or arrow keys

	A	B	C
1	A1		C1
2		B2	C2
3			C3

 5

Cell Address and Cell Range

- Cell Address
  - Identified by the column letter and the row number
  - Each cell has a unique address
- Active Cell
  - Changes can only take place in the active cell
  - Selected using mouse cursor or arrow keys
- Cell Range **A1:C2**
  - Select using mouse drag or Shift and Arrow keys

	A	B	C
1	A1		C1
2		B2	C2
3			C3

 6

Cell Contents

- Contains 1 of 3 types of information
  - Label
    - Text Information
  - Value
    - Number
  - Formula
    - Calculation
    - Dependent on other cells
    - Can use *Functions* which are
      - Preprogrammed Formulas
      - SUM(B2:B4) to calculate the sum of a range
      - AVERAGE(B2:B4) to calculate the average of a range

	Jan.	Feb.
Sales	1750	1328
Cost	964	625
Gross	786	703

 7

Formulas Used to Calculate Values

- Formulas may contain a combination of cell addresses, operators, values, and functions
- Formula appears in the formula bar but its calculated value appears in the active cell
- Which Formula calculates January's Gross?

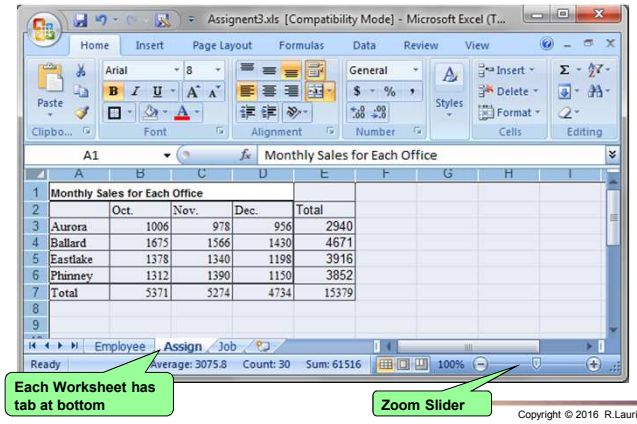
	A	B	C
1		Jan.	Feb.
2	Sales	1750	1328
3	Cost	964	625
4	Gross	786	703

=A4-A3
=SUM(B4)
=SUM(B2:B3)
=B2-B3

 8

Excel Workbook and Worksheets

- Workbook contains one or more worksheets

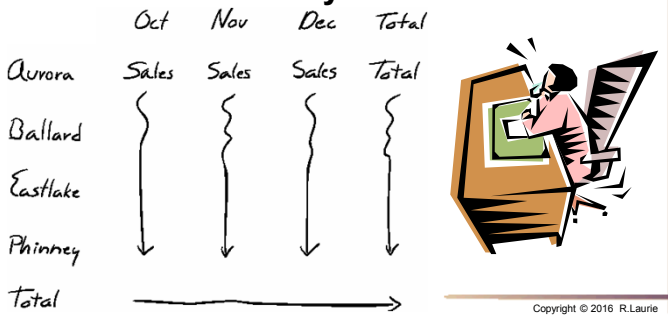


Monthly Sales for Each Office				
	Oct.	Nov.	Dec.	Total
Aurora	1006	978	956	2940
Ballard	1675	1566	1430	4671
Eastlake	1378	1340	1198	3916
Phinney	1312	1390	1150	3852
Total	5371	5274	4734	15379

 9

Plan your Spreadsheet

- Put your first draft on paper, planning what will go into the rows and columns.
- Decide what labels you will need.



 10

Enter Labels

- Create a title and label columns and rows appropriately with text

Montly Sales for Each Office				
	Oct.	Nov.	Dec.	Total
Aurora				
Ballard				
Eastlake				
Phinney				
Total				

 11

Enter Values

- Enter data into appropriate cells

Montly Sales for Each Office				
	Oct.	Nov.	Dec.	Total
Aurora	1006	978	956	
Ballard	1675	1566	1430	
Eastlake	1378	1340	1198	
Phinney	1312	1390	1150	
Total				

 12

Enter Formulas

- Create formulas that reference cells
  - Absolute references B4 $B4 B$4
  - Relative references B4

=SUM(B3:D3)

Montly Sales for Each Office				
	Oct.	Nov.	Dec.	Total
Aurora	1006	978	956	2940
Ballard	1675	1566	1430	
Eastlake	1378	1340	1198	
Phinney	1312	1390	1150	
Total	5371			

=SUM(B3:B6)

 13

Copy and Paste Formulas

- When copy and paste into new cells
  - Absolute references uses same cell reference
  - Relative references use incremented cell reference

Monthly Sales for Each Office				
	Oct.	Nov.	Dec.	Total
Aurora	1006	978	956	2940
Ballard	1675	1566	1430	4671
Eastlake	1378	1340	1198	3916
Phinney	1312	1390	1150	3852
Total	5371	5274	4734	15379

=SUM(B4:D4)

=SUM(B5:D5)

=SUM(B6:D6)

Fill Handle

=SUM(C3:C6)

=SUM(D3:D6)

=SUM(E3:E6)

 14

Automatic Recalculation

- When a data value changes all dependent formulas are recalculated immediately

Montly Sales for Each Office				
	Oct.	Nov.	Dec.	Total
Aurora	1006	978	956	2940
Ballard	1675	1566	1502	4743
Eastlake	1378	1340	1198	3916
Phinney	1312	1390	1150	3852
Total	5371	5274	4806	15451

 15

Formatting Spreadsheets

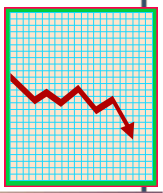
- Spreadsheets have formatting features that allow worksheet layout customization
  - Font Face, Size, and Color
  - Column width
  - Row height
  - Clip Art
  - Number format
    - $1357
    - $1,356.75
    - ($22.50)
    - -$22.50
    - 150%

Catapult Coffee 4th Quarter Sales				
	Oct.	Nov.	Dec.	Total
Aurora	$ 1,006	$ 978	$ 956	$ 2,940
Ballard	$ 1,675	$ 1,566	$ 1,502	$ 4,743
Eastlake	$ 1,378	$ 1,340	$ 1,198	$ 3,916
Phinney	$ 1,312	$ 1,390	$ 1,150	$ 3,852
Total	$ 5,371	$ 5,274	$ 4,806	$ 15,451

 16

Visualizing Data

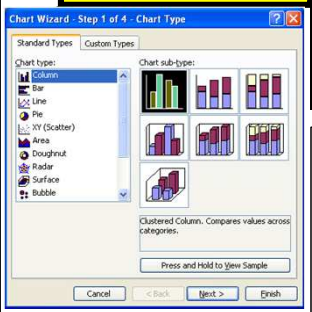
- Spreadsheets organize numerical data and calculations in tabular form
- Numerical information contained in a worksheet can be expressed visually in the form of a *chart*
  - Charts allow the user to show numerical data in ways that are meaningful and quickly understood
  - Easy to see trends both historical and predictive
  - Easy to compare data series and identify patterns



 17

Selecting a Range and Chart

First, the cells to be charted are selected



Catapult Coffee 4th Quarter Sales

	Oct.	Nov.	Dec.	Total
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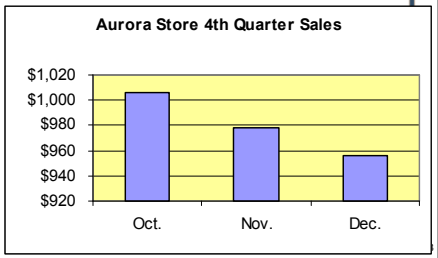
Total	$ 5,371	$ 5,274	$ 4,806	**$ 15,451**

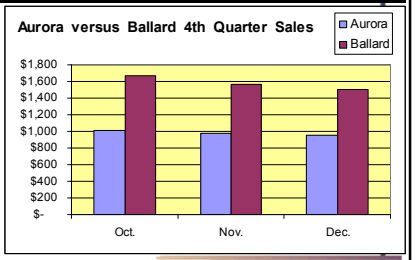


Multiple Series Column Charts

- What is represented?
- Chart elements
  - *Category Labels* – descriptive text entries (Aurora, Ballard, Oct)
  - *Data Points* – numeric values (cell data)
  - *Data Series* – grouping of data points (2 data series exist in this chart specified by the row data)
- This is Column Chart
  - Compares two series
  - Multiple Data Series Chart

Catapult Coffee 4th Quarter Sales

	Oct.	Nov.	Dec.	Total
Aurora	$ 1,006	$ 978	$ 956	$ 2,940
Ballard	$ 1,675	$ 1,566	$ 1,502	$ 4,743
Eastlake	$ 1,378	$ 1,340	$ 1,198	$ 3,916
Phinney	$ 1,312	$ 1,390	$ 1,150	$ 3,852
Total	$ 5,371	$ 5,274	$ 4,806	**$ 15,451**



 19

Stacked Bar Chart

- What is represented?

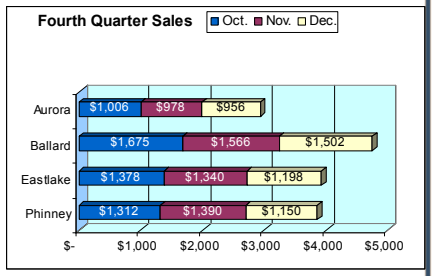
cells to be charted

Catapult Coffee 4th Quarter Sales

	Oct.	Nov.	Dec.	Total
Aurora	$ 1,006	$ 978	$ 956	$ 2,940
Ballard	$ 1,675	$ 1,566	$ 1,502	$ 4,743
Eastlake	$ 1,378	$ 1,340	$ 1,198	$ 3,916
Phinney	$ 1,312	$ 1,390	$ 1,150	$ 3,852
Total	$ 5,371	$ 5,274	$ 4,806	**$ 15,451**

Stacked Bar Chart

- Best for comparing multiple data series with a total value
- Compares Total Quarterly Sales for each location
- This chart also displays values



 20

Pie Charts: Parts of a Whole

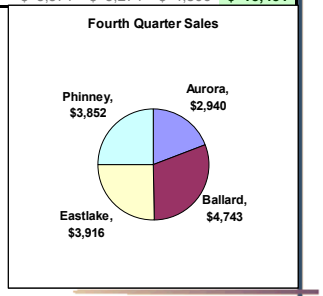
- What is represented?

cells to be charted

Catapult Coffee 4th Quarter Sales

	Oct.	Nov.	Dec.	Total
Aurora	$ 1,006	$ 978	$ 956	$ 2,940
Ballard	$ 1,675	$ 1,566	$ 1,502	$ 4,743
Eastlake	$ 1,378	$ 1,340	$ 1,198	$ 3,916
Phinney	$ 1,312	$ 1,390	$ 1,150	$ 3,852
Total	$ 5,371	$ 5,274	$ 4,806	$ 15,451

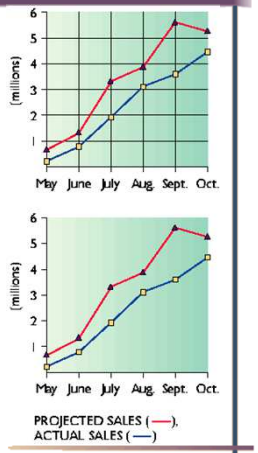
- Pie Chart
  - Best for comparing Parts of a Whole
  - Represent just a single value and shows parts of the whole
  - Percentage of Sales by location
  - This chart also displays values



 21

Line Charts: Trends

- Line Charts are the best way to visualize trends or cycles over a period of an extended period of time
- Line graphs are usually used when there are many values or complex data
- Examples:
  - Stock Price versus Time
  - Corporate Revenue versus Time
  - Sales versus Time



 22