Spreadsheets and Business Graphics

The Nature of Spreadsheets

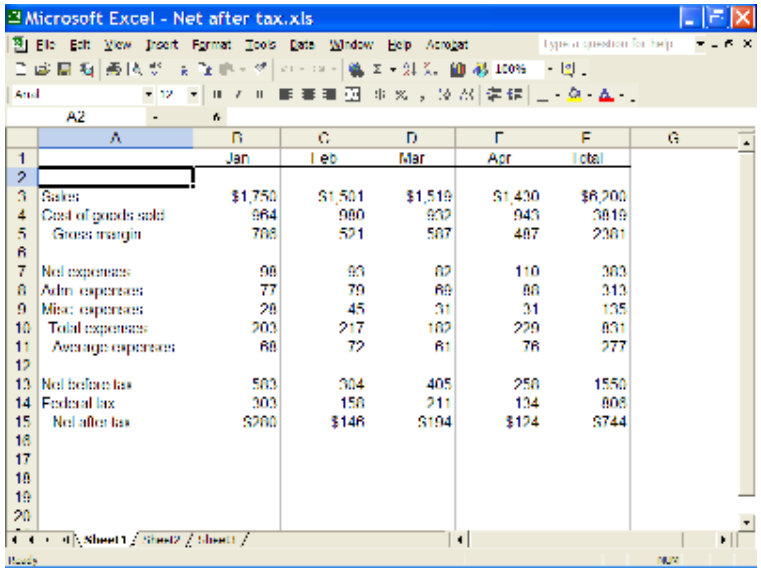
- Spreadsheets organize data in rows and columns
  - Creating spreadsheets manually is tedious
  - Manual spreadsheets are prone to error
  - Manual spreadsheets have to be recalculated by hand if data changes

	JAN.	FEB.	MAR.	APR.	TOTAL
SALES	1750	1501	1519	1430	6200
COST OF GOODS SOLD	964	980	932	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

(a)

Electronic Spreadsheets

- A computerized version of a paper spreadsheet
- Benefits
  - Eliminates much of the tedium
  - Calculations are error-free
  - Worksheet is automatically recalculated when you change one value or calculation
  - Performs "what-if" analysis



What-If Analysis

- Allows users to change one value and have the results instantly recalculated
  - Very useful in financial forecasting

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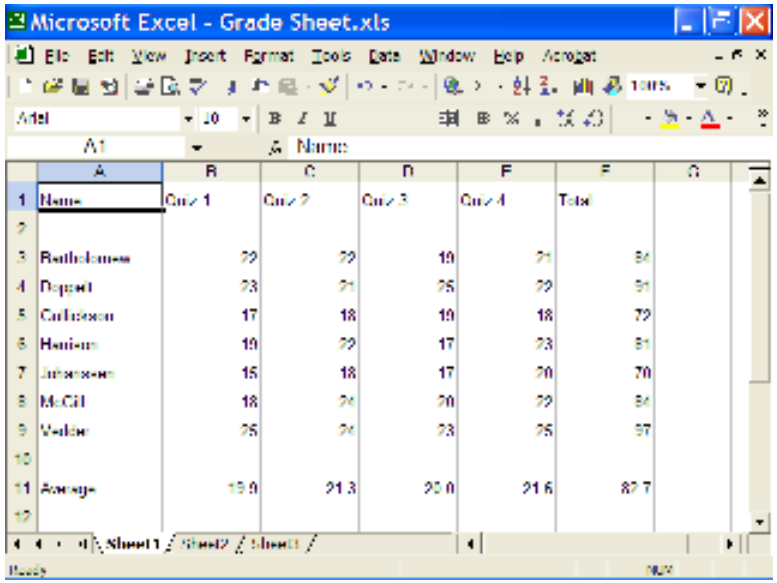
Spreadsheet Fundamentals

- Cells and cell addresses
- Contents of cells
- Ranges

Cells and Cell Addresses

- Spreadsheet is divided into rows and columns
- A cell is the intersection of a row and a column
  - Cell is known by its address
    - Address consists of column letter, followed by row number, for example B7
  - Active cell - the cell available to be edited at a given time



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Contents of Cells

- Label – provides descriptive text information about entries in the spreadsheet
- Value – an actual number that is entered into a cell
- Displayed value – what is displayed in the cell
  - Formula – an instruction to the program to calculate a number
  - Function – a preprogrammed formula

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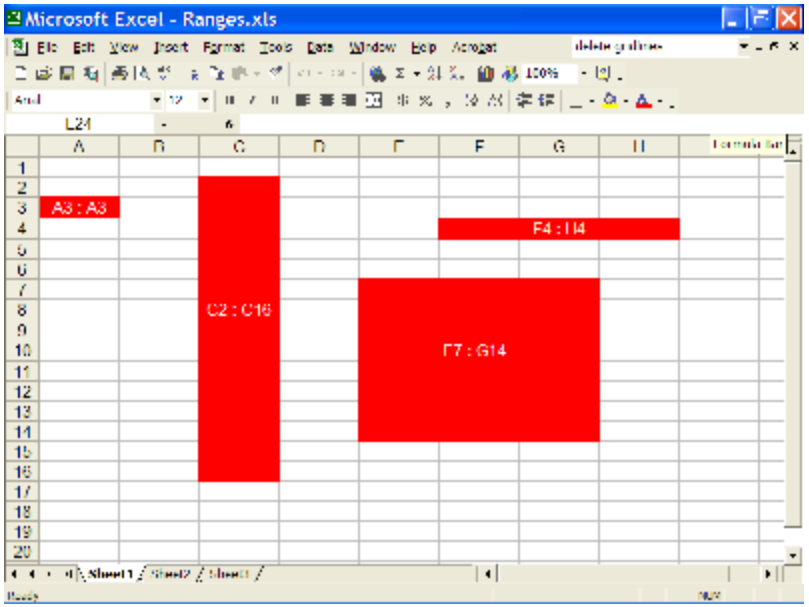
Ranges

- A group of one or more adjacent cells occurring in a rectangular shape
  - The program treats the range as a unit
  - A range is referred to by its upper-left and lower-right cells, for example E7:G14



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Spreadsheet Features

- Width of columns and height of rows can be modified
- Headings can be created as a wide column
- Numbers can be formatted with the appropriate symbols such as a percent sign
  - The number of decimal places can be specified
- There are a full range of printing options
  - Margins can be changed
  - Worksheets can be printed in portrait or landscape orientation

Spreadsheet Features

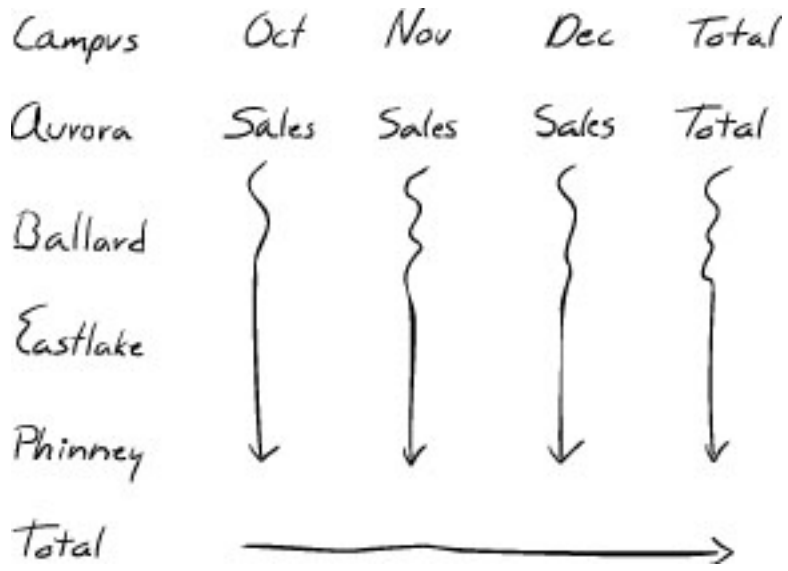
- Security
  - Cells can be protected so the user doesn't accidentally destroy complex formulas
  - Password protection can prevent anyone from making changes to the worksheet
- Decoration
  - Add borders or colors to cells or ranges
  - Change the color of fonts
  - Add clip art

A Problem For a Spreadsheet

- Planning the spreadsheet
- Making a first draft
- Changing the spreadsheet
- Formatting and printing
- Creating a graph from spreadsheet data

Planning the Spreadsheet

- Create a sketch of the spreadsheet
  - Show how labels and data should appear
  - Specify any formulas and/or functions needed



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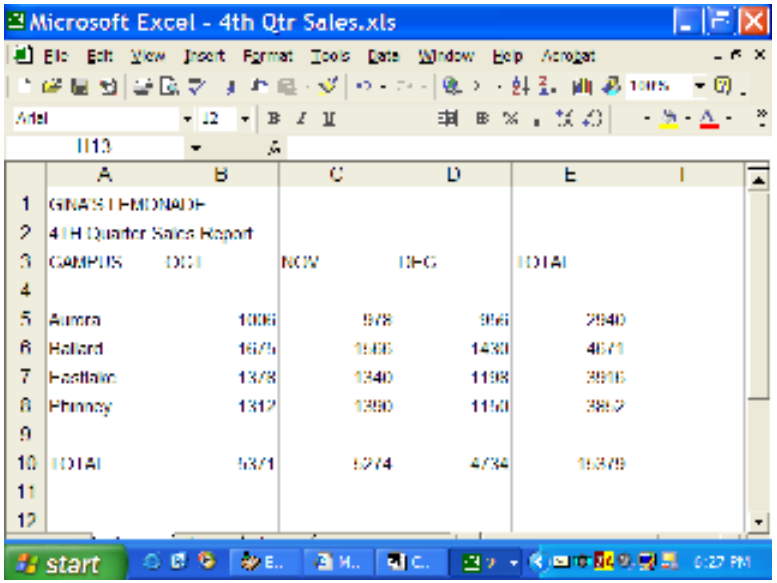
Making a First Draft

- Type the column and row headings
- Enter data into cells
- Enter and test formulas



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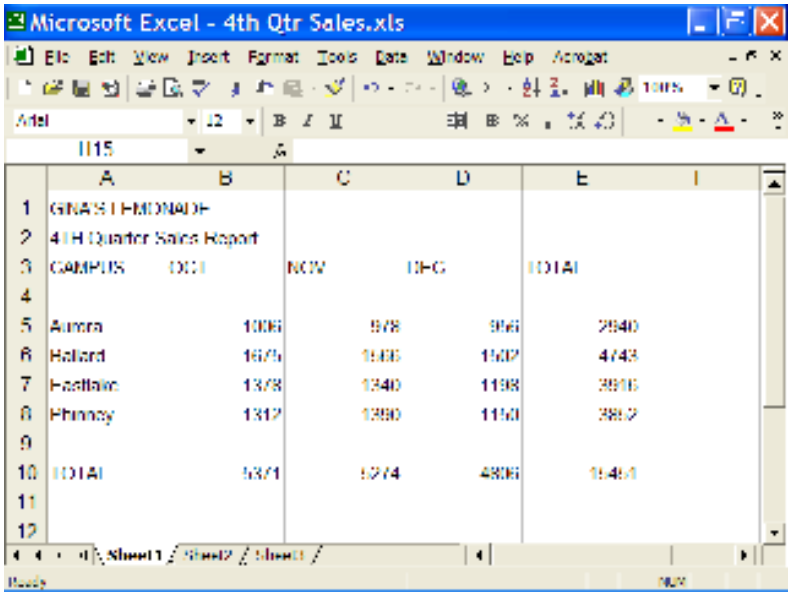
Changing the Spreadsheet

- Change the value in cell D6
  - Cell E6, which calculates the total of row 6, is recalculated
  - Cell D10, which calculates the total of column D, is recalculated
  - Cell E10, which calculates the grand total, is recalculated



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Formatting and Printing

- Format labels
- Format sales numbers as currency
- Add borders to separate areas of the table
- Use cell shading on the main headings

GINA'S LEMONADE 4th Quarter Sales Report				
CAMPUS	OCT	NOV	DEC	TOTAL
Aurora	$ 1,006.00	$ 978.00	$ 956.00	$ 2,940.00
Ballard	$ 1,675.00	$ 1,566.00	$ 1,502.00	$ 4,743.00
Eastlake	$ 1,378.00	$ 1,340.00	$ 1,198.00	$ 3,916.00
Phinney	$ 1,312.00	$ 1,390.00	$ 1,150.00	$ 3,852.00
TOTAL	$ 5,371.00	$ 5,274.00	$ 4,806.00	$ 15,451.00

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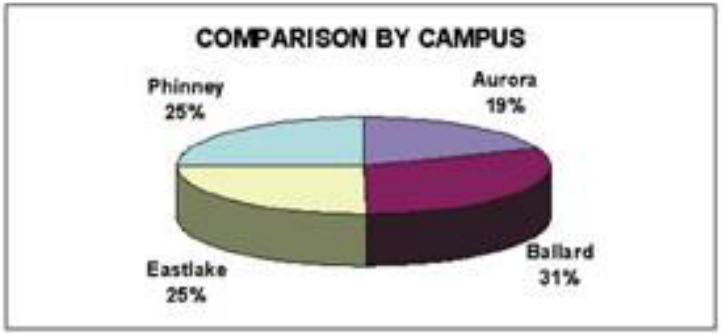
Creating a Graph

- Graph is created based on the data in the spreadsheet
  - Pie chart is used to make comparisons among campuses



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Business Graphics

- Graphics that represent data in a visual, easily understood format
  - Generate and sustain interest
  - Graphs easily reveal trends that could be lost if buried in long columns of numbers
- Two types:
  - Analytical graphics
  - Presentation graphics

	Units Sold Each Month			
Material	**Jan.**	**Feb.**	**Mar.**	**Apr.**
Copper	6	10	13	22
Bronze	18	28	36	60
Iron	9	15	19	32
Gold	32	52	64	110
Silver	20	32	40	68
Totals:	85	137	172	292

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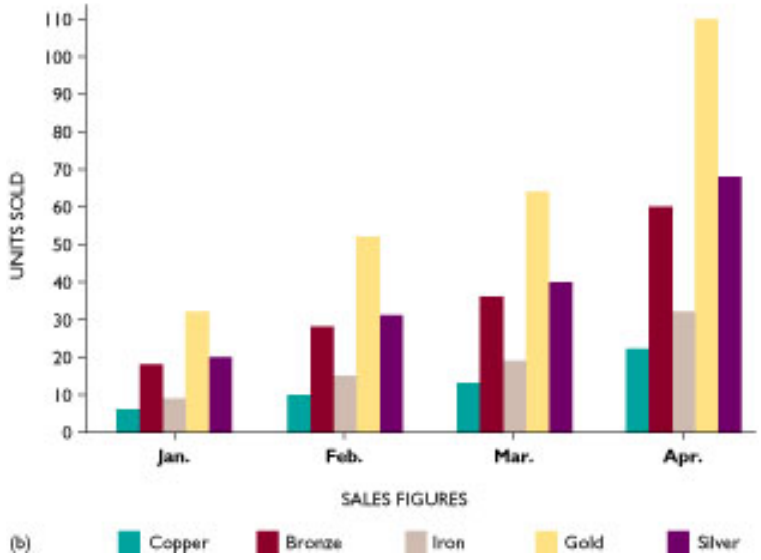

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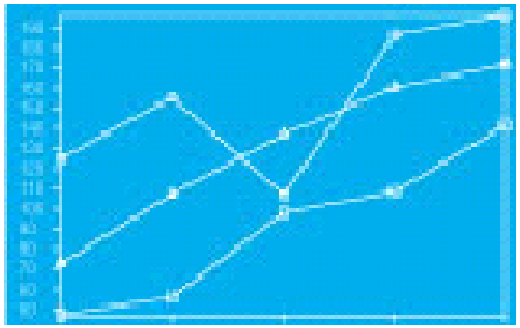
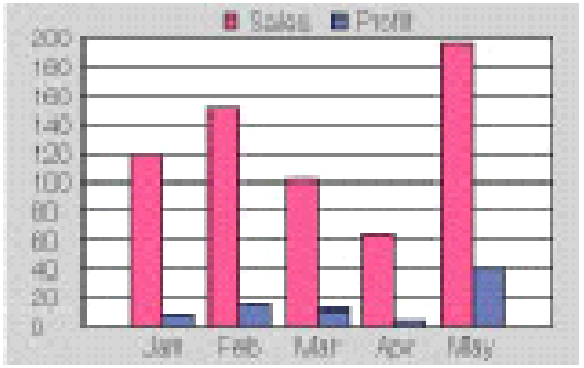
Analytical Graphics

- Designed to help users analyze and understand specific data
- Produce simple line, bar, and pie chart graphs
- Offer relatively few formatting options





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Presentation Graphics

- Let you produce charts, graphs, and other visual aids
  - Charts look as if they were prepared by professional graphic artist
- Offer much more clarity and appeal than analytical graphics

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Presentation Graphics Programs

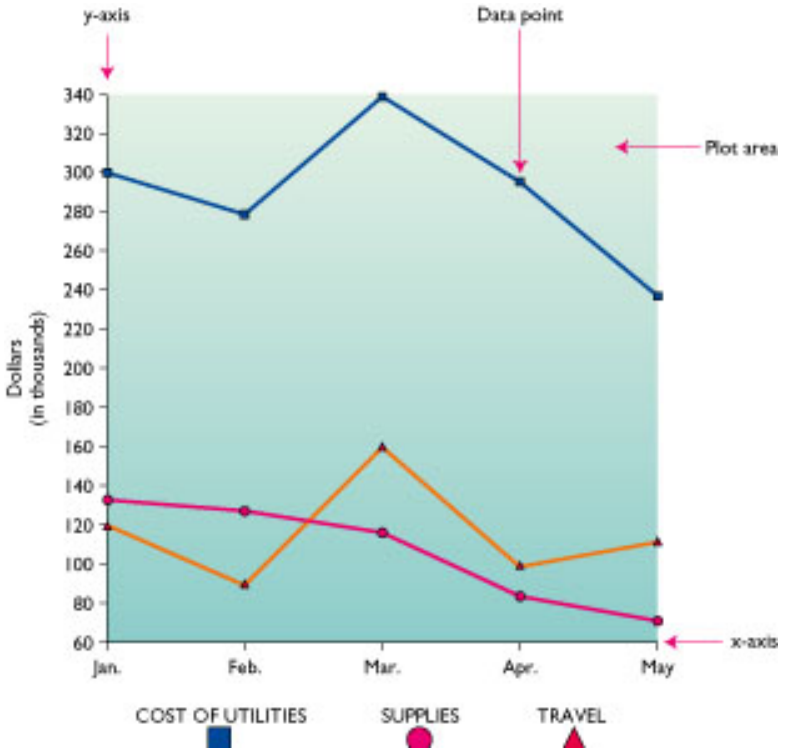
- Allow you to do several tasks
  - Edit and enhance charts created by other programs
  - Create slides from scratch
    - Slides can contain charts, diagrams, drawings, or text
  - Use clip art that comes with the graphics program
  - Create an animated presentation
  - Use small files to add sound to your presentation

Common Types of Graphs

- Line graphs
- Bar graphs
- Pie charts
- Parts of a graph

Line Graphs

- Illustrate multiple comparisons
- Data is plotted in plot area, then connected by a line



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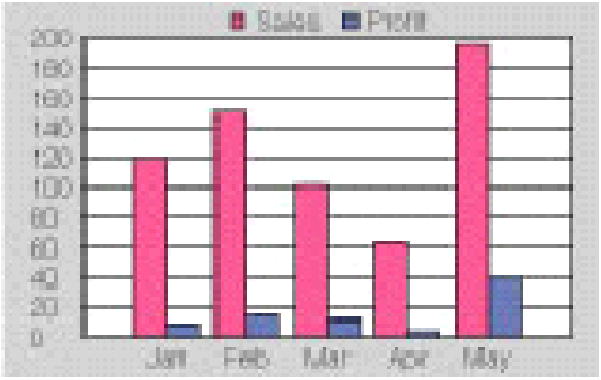
Bar Graphs

- Used to illustrate multiple comparisons
- Data is plotted in plot area, then a rectangular bar is filled in from the x-axis to the data point
- Comparisons are easy to absorb



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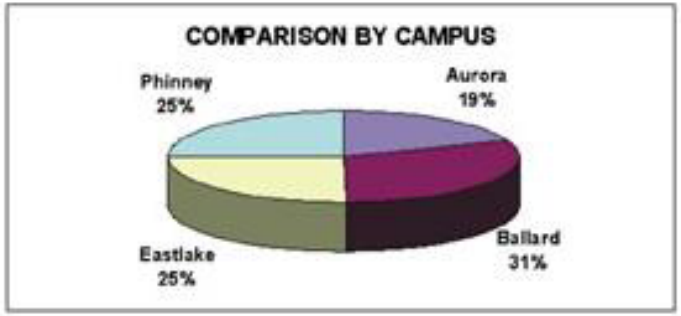
Pie Charts

- Show how each data point contributes to the total
  - The whole amount is represented as a circle
  - Each data point is represented as a slice of the circle
- Exploded pie chart shows one or more wedges pulled slightly away from the pie



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Parts Of a Graph

- Horizontal axis (x-axis) – represent units in time or characteristics
- Vertical axis (y-axis) – represent values or amounts
- Plot area – the area where data is plotted
- Data point – each dot or symbol on a line graph
- Labels – identify the axes
- Titles – summarize the information in a graph

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