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	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

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**

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**
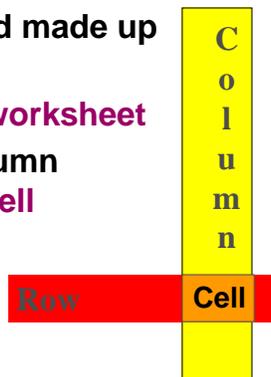
Column

Row   Cell

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

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

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

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

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.	=A4-A3
2	Sales	1750	1328	=SUM(B4)
3	Cost	964	625	=SUM(B2:B3)
4	Gross	786	703	=B2-B3

Excel Workbook and Worksheets

❖ **Workbook contains one or more worksheets**

Microsoft Excel - Grade Book Solution.xls

File Edit View Insert Format Tools Data Window Help

Arial   10   **B** *I* U

D10   =AVERAGE(D3:D8)

	A	B	C	D	E	F
1	Student	Major	Test 1	Test 2	Final	Average
2						
3	Adams	CIS	100	90	81	88.0
4	Baker	MKT	90	86	87	87.5
5	Coulter	ACC	85	95	100	95.0
6	Courier	FIN	75	75	85	80.0
7	Glassman	CIS	90	78	78	81.0
8	Walker	CIS	80	80	100	90.0
9						
10	Class Average		86.7	84.0	88.5	

Each Worksheet has tab at bottom

CS120 CIS223 CIS316

Ready

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Plan your Spreadsheet

❖ **Put your first draft on paper, planning what will go into the rows and columns.**

❖ **Decide what labels you will need.**

	Oct	Nov	Dec	Total
Aurora	Sales	Sales	Sales	Total
Ballard				
Eastlake				
Phinney				
Total				

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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				

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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				

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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)

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Copy and Paste Formulas

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

Montly 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)

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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

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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**

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