

CS130/230

Amortization, What-If Analysis, Formatting

4.1 Exercise

Last time you created a worksheet that calculates the monthly payment's on a car. Let's return to that worksheet. Before you make up your mind about buying the car, you would like to see a table of the payment schedule. Specifically, you want to see for each monthly payment the payment number, starting balance, monthly payment, monthly interest, and ending balance.

Add a payment schedule to your spreadsheet. Your spreadsheet should have columns for (1) payment number, (2) starting balance, (3) monthly payment, (4) monthly interest and (5) ending balance for each of the 60 payments.

The first few lines of your payment schedule should contain the following:

Payment Number	Starting Balance	Monthly Payment	Monthly Interest	Ending Balance
1	\$26,909.10	\$526.51	\$145.76	\$26,528.35
2	\$26,528.35	\$526.51	\$143.70	\$26,145.54
3	\$26,145.54	\$526.51	\$141.62	\$25,760.65
4	\$25,760.65	\$526.51	\$139.54	\$25,373.68
5	\$25,373.68	\$526.51	\$137.44	\$24,984.61
6	\$24,984.61	\$526.51	\$135.33	\$24,593.44
..

Use filling and cell referencing (both relative and absolute) as much as you can while creating this table.

Question: How can you be sure that your payment schedule is correct?

Question: Does your table still give the correct values if the interest rate is changed to 6%?

What-If Analysis and Goal Seeking

Using Excel to scrutinize the impact of changing values in cells that are referenced by a formula in another cell is called what-if analysis.

Let us perform what-if analysis on exercise 4.1 using the "Goal Seek" function found within the Tools menu:

Question: How much car can I afford if I am willing to pay \$600 a month under the initial scenario?

If we know the result that we want a formula to produce then we can use goal seeking to determine the value of a cell on which that formula depends.

4.2 Exercise

You've just realized that it's your mother's birthday in six weeks time. You have found the ideal gift for \$100. You don't have a penny on you at the moment, but you work at the local grocery store for 12 hours a week and make \$4.50 an hour. Since you have been keeping track of your accounts for the last six months you know that your expenses (food, rent, etc.) generally use up 80% of your wages.

Create an Excel worksheet to work out:

- The total amount of money you will make in 6 weeks
- Your total expenses for six weeks
- The amount of money that you will have left over for the gift.

Unfortunately, the amount of money that you have left over will not be enough for that perfect gift.

Use the (Goal Seek) command to determine:

- The number of extra hours a week you will need to work to reach your goal
- If you choose not to work any extra hours then you will need to lower the percentage of your salary that you use on expenses. What will this percentage now be?

Formatting

During our first class meeting, we discussed how to format the output of a cell (currency, decimals, etc.). Not surprisingly, there is much more to formatting than just this. You can format the alignment, fonts, borders, and background colors of cells, which is what we'll do in the first problem below.

4.3 Exercise

Consider the following table of data representing sales (in dollars) for various bookstores in the Portland area:

Portland Area Bookstores
2006 Sales

	Borders	Powells	B&N	Pacific
Fiction	3230	4530	2150	230
Biography	5300	6390	6299	549
Reference	3599	7395	3053	912
First Edition	9232	11003	2351	1052
Children	5234	5372	2692	384

Our goal is to create an Excel document that will graphically display this information in a more creative way.

- Grab the above information and place it in an Excel document. Add an additional row that includes the total sales for each store.
- You need to format the data in the table properly. You can either format it yourself by changing the fonts and background color or you could use the Excel AutoFormat feature.

AutoFormat uses predefined Excel formatting features as follows:

- Select the range of cells to be AutoFormatted
- Go to Format on the menu bar and select AutoFormat
- Select the AutoFormat option of choice

Create the following worksheet:

Portland Area Bookstores 2006 Sales				
	Borders	Powells	B&N	Pacific
Fiction	\$3,230.00	\$4,530.00	\$2,150.00	\$230.00
Biography	\$5,300.00	\$6,390.00	\$6,299.00	\$549.00
Reference	\$3,599.00	\$7,395.00	\$3,053.00	\$912.00
First Edition	\$9,232.00	\$11,003.00	\$2,351.00	\$1,052.00
Children	\$5,234.00	\$5,372.00	\$2,692.00	\$384.00
Total Sales	\$26,595.00	\$34,690.00	\$16,545.00	\$3,127.00