

CS-100 Spreadsheets

Date Given: Tuesday, January 26, 1999

Date Due: Tuesday, February 2, 1999

The purpose of the spreadsheet assignment is to develop a spreadsheet to calculate payments made on an Amortized Loan repayment plan. The financial formulas needed to do this assignment will be covered in class and are listed below:

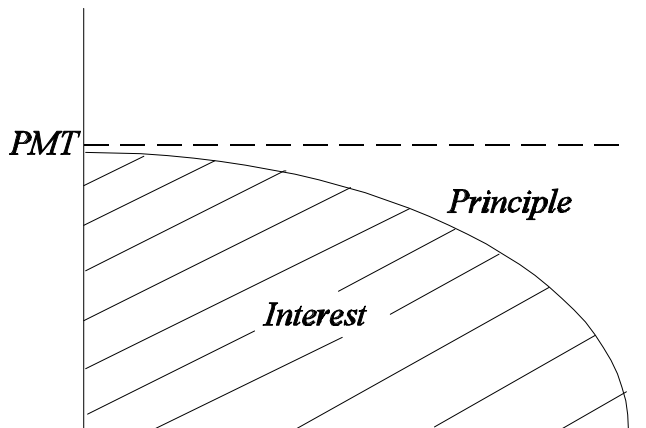
Definitions

n	=	number of periods in the loan
i	=	periodic interest rate
PV	=	Present Value of the loan (i.e. the initial loan amount)
FV	=	Future Value of the loan (i.e. the value of the loan at maturity)
PMT	=	Periodic Payment amount
bal _k	=	Remaining balance on principle after k periodic payments have been made.

$$PMT = PV \left[\frac{i}{(1 - (1+i)^{-n})} \right]$$

$$PV = PMT \left[\frac{1 - (1+i)^{-n}}{i} \right]$$

$$bal_k = \frac{1}{(1+i)^{-k}} \left[PMT \frac{(1+i)^{-k} - 1}{i} + PV \right]$$



The graph at left shows the relationship between principle and interest in periodic payments. The points on the curve and the areas underneath the curve are computed by the above formulas.

Quattro Pro also has some built-in functions which computes the values given by the previous formulas. You can either implement the above formulas directly in your spreadsheet or use the built-in financial formulas to construct your spreadsheet. Check out the “Help | Contents | @Functions” selection from the menu bar.

The next page of the handout shows a screen layout for the spreadsheet. Your spreadsheet should look very similar to this. Notice that some of the cells (fields) have constant values (labels or values) and others are the result of formulas. Most of the work in developing this application will be needed to enter the proper formulas for the appropriate fields. The breakdown Table, starting at line 16, is actually filled in by authoring the proper formulas for the first two rows, then copying and pasting (via Speed Fill, for instance) the remaining elements in each column. This table gives the entire history of all parts of the loan on a “payment by payment” basis. Your spreadsheet must also contain this breakdown table!

Turn in a printout of your spreadsheet, showing the formulas that are present. Also, bring in your spreadsheet to the lab, so we can verify that all aspects of the assignment work correctly.