**Problem Set #7: Mortgages and Amortization Schedules**

**3-11-19**

1. For the following mortgage loan problems, assume a term of 30 years and a fixed-rate mortgage with an APR of 4.55%, which is about the current average APR.
   1. Estimate the gross annual income you expect to have by the time you are ready to purchase a home. You can base this on the average salary for your chosen profession. You can also base it on the assumption of a joint income if you envision having a partner and both of you will work.
   2. As a (very) general rule of thumb, you should be able to afford to purchase a home whose price is between 3 and 5 times your household’s gross annual salary. For example if you expect an income of $50,000 per year, you will likely be able to afford a house that costs between $150,000 and $250,000.

Based on your own salary estimate and the rule of thumb given above, set a realistic budget for your home purchase.

Home budget = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* 1. Using www.zillow.com, select a house in a location of your choosing that is within your budget.
  2. Assuming no down payment, use Excel to determine your monthly PIP for the loan and the total cost of buying the house.
  3. Supply a screenshot from Excel showing both the beginning and end of the full amortization schedule for the loan.
  4. Check your work by supplying a screenshot from an online mortgage calculator like the one found at [www.bankrate.com](http://www.bankrate.com) : <http://www.bankrate.com/calculators/mortgages/mortgage-calculator.aspx> .

1. For the same house as in #1, suppose you decide to take out a 15-year fixed-rate mortgage instead. The current average APR for a 15-year mortgage is about 3.95%. Compare both the PIP and total amount paid to the 30-year loan.
2. A standard down payment for a home mortgage is 20% of the price of the house. Assuming you make a down payment of 20%:
   1. Use Excel to determine your monthly PIP for the loan, and the total cost of buying the house.
   2. How much interest do you save by making the down payment?
3. Suppose now that you do not make a down payment but instead pay 2 points to lower the APR to 3.65%.
   1. Use Excel to determine your monthly PIP for the loan and the total cost of buying the house.
   2. How much do you save on the total cost of the house by paying the points?