This is a project regarding **Buy versus Rent in Massachusetts area** for the perspective of investment. This program will help this decision-making process by returning the profits based on the decision to buy or rent.

The inputs for this program are Listed Home Price, Down Payments, Annual Mortgage Rate, HOA or Maintenance Costs, Annual Property Taxes for buying and 30 years’ Rents for renting.

Constant parameters in considerations are Selling Fees related to selling home such as lawyer, agent commissions, and Buying Fees related to buying home such as filing, title paperwork for buying, and annual Inflation Rate.

The process of this program is to take the inputs to calculate profits of buying a home by: appreciation of value in the home after 30 years, minus sunk costs including 30 years’ mortgage payments, HOA, taxes, buying and selling fees; also calculate profits of renting a home by: appreciation of value in the down payments that were not used to buy a home after 30 years (assumed to be invested in S&P 500 index fund), minus sunk costs including 30 years of renting costs. Then compare the two profits and generate a recommendation accordingly. This program will list sunk costs as well for comprehensive comparison.

The program includes two user defined functions to calculate home price appreciation using 30 years’ data, and S&P investment returns using 30 years’ data.

Then in the class of BuyVsRent, profits and sunk costs for buying and renting are both calculated and listed. \_\_repr\_\_ will list out the numbers while \_\_str\_\_ will give a recommendation. There is also a magic class method \_\_gt\_\_ redesigned to compare buying two different homes, for the case that the user is determined to buying.

The program utilized 4 container types (list, tuple, set AND dictionary), 1 iteration type (for), conditionals (if), try blocks with an else condition, 2 user-defined function that accepts parameters/arguments and/or returns a value, 2 input files, 1 user-defined class.

The class is imported by your main program from a separate file and have the following required structures:  
at least 1 private and 2 public self class attributes, at least 1 private and 2 public class methods that take arguments, return values and are used by your program, an init() class method that takes at least 1 argument, a repr() or str() class method, a magic class method (not one of the methods listed above).

There are 2 unit tests to prove two public class methods, buying and renting, work as expected using assert statements.