**Object-Oriented Design**

*A new approach to problem solving:*

1)View a problem as a set of objects interacting (Object Oriented Design)

* + Before you can write a program, you analyze the problem in terms of objects

2) Design the program to solve the problem (Object Oriented Programming)

*Problem To Solve:*

Fred & Bill’s Scratch and Dent want to keep track of all the bodywork jobs they do. They work with insurance companies to repair autos and other vehicles that have been in accidents. They keep track of all of their customers, the vehicles, and the work that has been done on the vehicles (including cost).

**Steps to Follow:**

Step 1: Analyze a written description of the problem for nouns & noun phrases. Each might be a class.

* Need problem domain description from expert in field, including:
  + Physical objects involved
  + Roles performed by people
  + Results of any events
  + Recordkeeping items
* Create list of all nouns

Step 2: Refine the list

* Combine nouns that mean the same thing
* Remove nouns that don’t matter for solving our particular problem
* Remove nouns that represent objects, not classes (i.e. they are separate instances of the same type of thing)
* Determine if some of the nouns should actually be data members
  + If they describe the state of another noun
  + Or if they don’t have their own properties or actions to perform

Step 3: Identify the Class’s Responsibilities

* What is it responsible for knowing? (data members)
* What is it responsible for doing? (methods)

Classes for our problem of a Fred & Bill’s Auto Shop: