Objectives

- Be able to open a text file with the open() primitive and to read a text file with the readline() message
- Be able to comment on the order in which items are stored in a set or dictionary
- Be able to determine the effect on sorting operations of redefining the < operator
- Be able to define the sorting problem, to comment on its importance, and to indicate what the “size of the problem” is, as well as to suggest a “significant operation”
- Be able to code the Bubble Sort and the Selection Sort
- Be able to explain the strategy behind the Merge Sort and the Quick Sort

Reading a text file

```
infile = open(filename, "r")
              (string)

contents = infile.read()
    #Entire file placed in a string
    #Line feeds ("\n") are there.

infile.readline() reads one line at
a time, storing the "\n".
```

Exercise

- A file called varLenData.txt has been mailed to you
- Write a program to
  (a) insert all the keys in the file into a set
  (b) print the keys out in the order in which they are stored in the set
  (c) print the keys out in sorted order

Redefining order

- Redefine < on a homemade string type (derived from str), then try the previous exercise.

Sorting

Bubble Sort

Selection Sort

Insertion Sort

Merge Sort

Quick Sort