# Sequential Search

1. Write a method `seqSearch` that takes as parameters an array of String `list` and a single String `item`. It searches `item` in `list` and returns the index of `item` in the array if successful, and -1 if not. Create a `main` method in the class to test the method.

2. Write a program that creates an array of 20 integers and fills it with random numbers. It prompts user to enter a number, then searches, using the sequential search algorithm, for the number and outputs its position or indicates if the number is not present in the array.

3. Write a program that does exactly the same job as question 1, except that the sequential search algorithm searches the array of values starting at the top and moving downward.

4. A modification of the basic sequential search operates in the following way. If the item being sought is found, it is interchanged with the item that preceded it. If, for example, we were searching for 7 in the list

   | 3 | 9 | 5 | 7 | 2 | 8 | 4 |
   |---|---|---|---|---|---|---|

   then, after finding 7, the list would be rearranged in the order

   | 3 | 9 | 7 | 5 | 2 | 8 | 4 |
   |---|---|---|---|---|---|---|

   a) Write a method that implements this technique to search an array of int values.
   b) Test your method in a program that first asks for the length of the list to be searched and then reads that many integers into an array. The program should then repeatedly prompt the user for values until the user supplies a sentinel of zero. The program should print the initial list and then, for each non-zero value read, it should use your modified sequential search to try to locate that item and then print the resulting array.
   c) Why might this modification sometimes improve the efficiency of a sequential search?