Write algorithms for the following.

1. Calculate 2^n for a value of *n* specified by the user, where $n \geq 0$. Note that 2^n multiplies 2 by itself *n* times, e.g., $2^3 = 8$, and by definition $2^0 = 1$.

2. A user tries to guess the contents of an unkown *text*, by guessing one letter at a time (like in Wheel of Fortune). If the letter appears in the text, it is revealed. The user keeps guessing letters until the entire text is revealed. For example, if the text is "Computer Programming", and the user guesses an 'm', the program outputs:

   ```
   --m----- ------mm---
   ```

   If the user next guesses an 'r', the program outputs

   ```
   --m----r -r--r-mm---
   ```

3. Suppose that a list of numbers is stored in an array *A*. Update the array *A* to store the numbers in reverse order. In other words, if initially *A* = {5,9,17,3}, then at the end of the algorithm *A* would contain {3,17,9,5}.

4. Suppose that a list of numbers is stored in the array *A* and is sorted from smallest to largest. Determine if a number entered by the user is stored in the array, and output "Number Found" or "Number Not Found".