Interview Requirements

This coding interview consists of four coding problems. The allotted time is approximately one and a half hours. These problems should be able to be completed **without** internet access. The suggested time is included with each problem. If you are not able to finish, that is fine, but please at least attempt all four problems. The requirements for the four problems are listed below.

**Problem 1 (15 Minutes)**

In Program.cs, implement the ReverseString method.

* + The method shall take a string as input.
  + The method shall reverse the entire string without using any built-in .NET string reversal methods.
  + The method shall return the reversed string.

**Problem 2 (35 Minutes)**

In Program.cs, implement the GetStringPermutations method.

* + The method shall take a string as input.
  + The method shall compute all distinct permutations of that string. A permutation is a string with all letters from the input string in a certain order.
  + For example, all permutations of the string “Yes” are { “Yes”, “Yse”, “eYs”, “esY”, “sYe”, and “seY” }
  + The method will then return the collection of strings.

**Problem 3 (10 Minutes)**

In the Main() method of Program.cs, we create a new Cat. When we ask the Cat to “speak”, it doesn’t meow, which is a bug.

* Fix the bug. The Debug.Assert currently fails and will pass when the bug has been fixed.
* The AnimalSpeech class can be found in AnimalSpeech.cs.

**Problem 4 (30 Minutes)**

(This problem is open-ended, so you may or may not be able to finish this in the allotted time)

There is a file in the solution called EmployeeApplication.cs. In that file is some code that compiles. Look through that code and see if there are any opportunities for improvement. Make any improvements you feel are necessary.

Note: the EmployeeApplication class uses some items from DataStorage.cs. There is no functional code in DataStorage.cs, so there is no need to make any changes there. They are just to get the code buildable.