CSE 225, Spring 2021

Course Assignment

A1 (Marks 4):

A palindrome is a phrase that reads the same forward and backward (examples: 'racecar', 'radar', 'noon', or 'rats live on no evil star'). By extension we call every string a palindrome that reads the same from left to right and from right to left. Develop a recursive algorithm that takes as input a string and decides whether the string is a palindrome. Implement your algorithm in the `boolean PalindromeChecker(String)` method.

A2 (Marks 6):

We would like to implement the abstract data type called `Bag` that keeps track of bag of blobs. A bag has a maximum size indicated by the field `Size` and supports `insert`, `delete`, `IsEmpty`, `IsFull`, and constructor/destructor operations.
`Insert` adds a new blob to the bag and `Delete` removes a blob from the bag. Assume blob is a structure type that contains an integer field `position`. A bag of blobs can be implemented using an array `A[1..Size]` of blob pointers. If there are `k` blobs in the bag then the entries `A[1], ..., A[k]` point to these blobs. The remaining entries of the array point to `null`.

The method `Insert (blob* p)` adds the blob pointed to by `p` to the bag that is not full and the method `Delete (blob* p)` removes the blob pointed to by `p` from the bag. The `position` filed in each indicates where it is in the array `A`.