

CSE 101

Winter 2022

Quiz 4

1. (30 Points) Consider the List ADT from [pa5](#) but *without* the `cleanup()` function. Write a C++ client function called `RemoveDuplicates()` that does the same thing as `cleanup()` (except that it does not matter where the cursor ends up.) In other words, `RemoveDuplicates(L)` will alter List `L` so that it contains only the first occurrence of each of its data items. To do this, you may use all ADT operations in [List.h](#) *except* `cleanup()`.

```
void RemoveDuplicates(List& L) {
```

```
// begin code here
```

```
void RemoveDuplicates(List& L){
    List newL;
    L.moveFront();
    while(L.position() < L.length())
    {
        ListElement x =
L.moveNext();
        newL.moveFront();
        int ret = newL.findNext(x);
        if(ret == -1){
            newL.moveFront();
            newL.insertBefore(x);
        }else{
            L.eraseBefore();
        }
    }
}
```

```
// end code here
```

}

(See next page for problem 2)

2. (20 Points) Let T be a Binary Search Tree containing the keys $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$. Suppose that a **pre-order tree walk** prints the keys in order: 2, 1, 12, 10, 8, 7, 5, 4, 3, 6, 9, 11, 13, and that a post-order tree walk prints the keys in order: 1, 3, 4, 6, 5, 7, 9, 8, 11, 10, 13, 12, 2. Determine the structure of T . (Note: only one of the two tree walks is really necessary since each of them uniquely determines the structure of T .) Present your solution either by drawing a picture of the tree, or by constructing a table giving the parent of each Node.

