

## Section 8.13

### 8.13.3 Adapting mergesort to remove duplicates

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- a. Change mergesort so that the algorithm removes duplicate items in the list as well as sort the remaining items. For example, on input (15,2,21,5,15,2,15), the output should be (2,5,15,21).

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MergeSort( X, F=true )
If ( F )
  For i := 1 to n
    For j := i to n
      If ( X_i = X_j )
        remove( X_j )
        n := n-1
      End-if
    End-for
  End-for
End-if

If ( size(X) = 1 ), Return(X)

L := createEmptyQueue()
R := createEmptyQueue()

n := size(X)
m := ceil(n/2)

For i := 1 to m
  x := remove(X)
  add(L, x)
End-for

For i := 1 to (n-m)
  x := remove(X)
  add(R, x)
End-for

A := MergeSort(L, F=false)
B := MergeSort(R, F=false)

C := Merge(A, B)

Return(C)

```

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