

**Problem** The following solution has been given in the class notes for merging two sorted lists. Assume that each argument list is strictly increasing, so that there are no duplicates in either list (though some item may appear in both lists).

```
merge xs [] = xs
merge [] ys = ys
merge (x:xs) (y:ys)
  | x <= y  = x : (merge xs (y:ys))
  | x > y   = y : (merge (x:xs) ys)
```

Revise this program so that the resulting list does not include duplicates. We would expect

```
Main> merge [1,2] [3,4]
[1,2,3,4]
Main> merge [1,2] [2,3,4]
[1,2,3,4]
Main> merge [1,2,3] [2,3,4]
[1,2,3,4]
```

## Solution

```
merge xs [] = xs
merge [] ys = ys
merge (x:xs) (y:ys)
  | x == y   =      merge xs (y:ys)
  | x < y    = x : (merge xs (y:ys))
  | x > y    = y : (merge (x:xs) ys)
```