-- Evan Nichols

-- EECS 368

-- HW06 – Haskell

**Merge.hs**

main = print (qsort (merge [9,3,4,5] [3,4,5,11]))

-- Merge function

merge :: (Ord a) => [a] -> [a] -> [a]

merge [] ys = qsort ys

merge xs [] = qsort xs

merge (x:xs) (y:ys)

--merge qsort (x:xs) qsort (y:ys)

| x <= y = x:merge xs (y:ys)

| x > y = y:merge (x:xs) ys

qsort :: (Ord a) => [a] -> [a]

qsort [] = []

qsort (x:xs) =

let smaller = qsort [a | a <- xs, a <= x]

larger = qsort [a | a <- xs, a > x]

in smaller ++ [x] ++ larger

sortmerge :: (Ord a) => [a] -> [a] -> [a]

sortmerge [] a = qsort a

sortmerge a [] = qsort a

sortmerge a b = qsort (merge a b)

**Test Cases**

\*Main> sortmerge [6,5,4,3,5,76] [4,5,6,98,3,2]

[2,3,3,4,4,5,5,5,6,6,76,98]

\*Main> sortmerge [3,5,6,75] []

[3,5,6,75]

\*Main> sortmerge [] []

[]

\*Main> sortmerge [900,1,3,56,3] [5.4,1,1]

[1.0,1.0,1.0,3.0,3.0,5.4,56.0,900.0]