CSC263 - Week 2, Lecture 2

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ADT	Data Structure	Operations
Mergeable Priority Queues	Binomial Heap	insert, min, extract-min, merge

MERGE:

- Merging two binary forests is directly analogous to adding two binary numbers.
- Any time both of the forests being added each have an S_k tree of the same size, they merge to form a new S_{k+1} tree.
- This is the equivalent of adding two 1's in the same digit of two binary numbers, and carrying the 1 to the next column.

$$\begin{array}{cccccc} & {\scriptstyle S_2} & {\scriptstyle S_1} & & \\ & & S_1 & S_0 & T \\ + & S_2 & S_1 & S_0 & Q \\ \hline = & S_3 & & S_1 & T+Q \end{array} \qquad \begin{array}{cccccc} & & {\scriptstyle 1} & {\scriptstyle 1} & & \\ & & & 1 & 1 & |T| \\ + & & 1 & 1 & 1 & |Q| \\ \hline = & 1 & 0 & 1 & 0 & |T+Q| \end{array}$$

- Every time a tree is "carried" to the next column, it indic