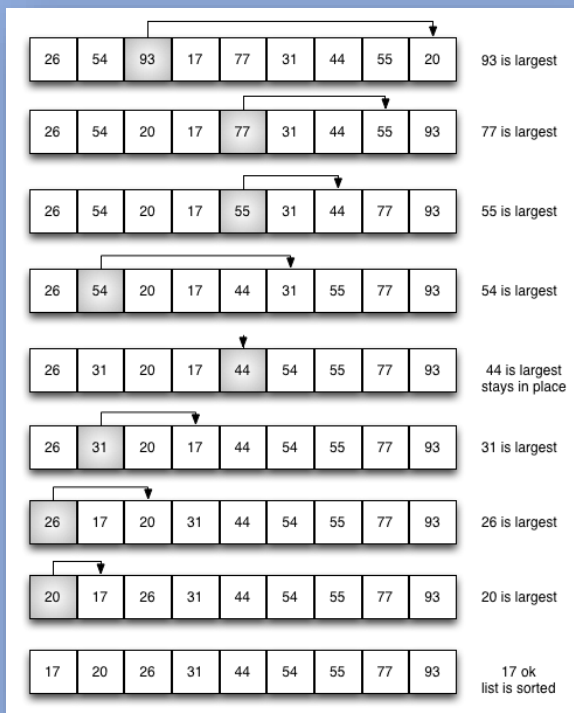


Ball Sorting Machine

Instructions

- Turn lever UP to sort balls using Selection Sorting Algorithm
- Turn lever DOWN to sort balls using Pancake Sorting Algorithm
- Place all balls in top of machine, one ball per lane

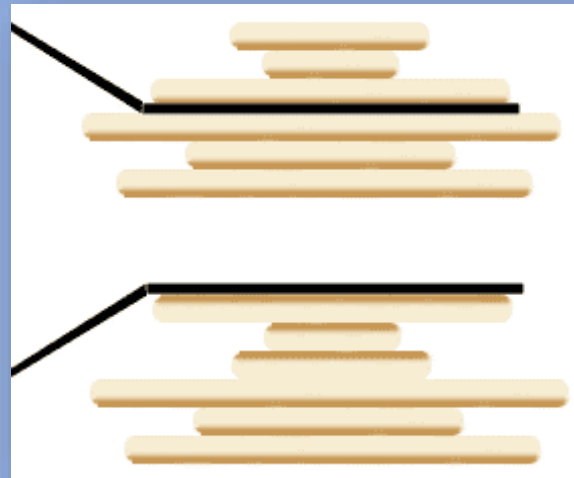
Selection Sorting Algorithm



This algorithm aims to sort the balls into weight order in the least number of comparisons possible.

The largest number (or in our case, the heaviest ball) is selected and moved to the right. This process repeats until the numbers (or balls) are in order.

Pancake Sorting Algorithm



This algorithm aims to sort the balls into weight order in the least number of reversals (or pancake flips) possible.

Imagine you have a stack of pancakes (heavier balls = larger pancakes) and the only way of moving them is by inserting your spatula and flipping all pancakes on top of it.

After identifying the largest pancake (using the selection sorting algorithm), the spatula is inserted and flips that section of the pile so that the largest pancake (heaviest ball) is at the top of the pile. The spatula is inserted at the bottom of the pile and flips the whole pile so the largest pancake (heaviest ball) now ends up at the bottom.

This process repeats until the pancakes are in size order.