Programming Basics
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Packages for Christmas

Packing parcels correctly - a pre-Christmas sorting problem

The scenario
- As Santa, you bring the presents (packed in cuboids) to their recipients.
- You are now thinking about how to get the parcels to their destination
  - flat and light ones by post
  - more voluminous ones by shipping company
  - You drive out particularly large and heavy ones yourself.
- There are so many that you first make a list of all the parcels with their key facts.

The problem
- In order to redistribute the parcels as quickly as possible, you have to sort them!
  - According to the height (-> letter post)
  - According to volume (-> forwarding)
  - According to the weight (-> self-delivery).
- Write a programme that models parcels and which sorts a list of parcels according to different the listed criteria.

Key topics involved:
- Create and manage arrays
- Sort arrays of packages by criteria but try it without the predefined Java sorting algorithms.
  - Sorting based on comparison of objects
    - State "sorted in ascending order" = each element is "smaller" than the following one
    - If the state is not given, objects must be (swapped) into a different order
- Two core problems:
  - How do I swap objects in an array?
  - How do I compare objects against each other

Hope these sorting algorithm descriptions help you:
- Selection Sort: https://en.wikipedia.org/wiki/Selection_sort
  - Search for the next smallest one and add it to the end of the sorted list (or swap the positions accordingly)
- Insertion Sort: https://en.wikipedia.org/wiki/Insertion_sort
  - Take the next element and find the right place and insert (or exchange)
- Bubble Sort: https://en.wikipedia.org/wiki/Bubble_sort
  - Elements "bubble" upwards until they are in the right position.