BBC Bitesize

Merge sort - GCSE Computer Science video for the merge sort algorithm

GAME VOICE: Merge Sort Smash.

D-KODE: Ha ha ha.

GAME VOICE: How to play.

NARRATOR: Merge sort has two stages: divide and conquer.

GAME VOICE: Load the list.

NARRATOR: Stage one is to divide the list in two, then again and again until you have lots of little sublists, each containing just one element.

GAME VOICE: Conquer.

NARRATOR: In stage two, you compare the first elements from each of the sublists, taking the lowest elements from each list and merging them to create new lists. You keep doing that until finally you end up with one list all sorted into order. Got it?

D-KODE: Er … not really.

NARRATOR: Play the game and you'll figure it out.

GAME VOICE: Stage one: Divide.

D-KODE: You have to sort this list from low to high.

NARRATOR: Ready?

D-KODE: Let's do this!

NARRATOR: Divide the list in two. Smash it in half.

D-KODE: Aargh.

NARRATOR: Two sublists. Halve them again.

D-KODE: Aargh.

NARRATOR: Four sublists. In half again.

D-KODE: Aargh.

NARRATOR: Eight sublists. Everything is split into single elements so …

GAME VOICE: Divide is complete.

D-KODE: That was easy. Bring on the conquer.

NARRATOR: Now, we have eight separate lists.

D-KODE: Erm, sublists.

NARRATOR: Sublists. Compare their values, and the lowest value from each comparison gets the hammer.

D-KODE: Smash the lowest number?

GAME VOICE: Low gotta go.

D-KODE: Okay.

NARRATOR: Smash to merge.

D-KODE: Smash to merge? Smerge.

NARRATOR: Haha, I like that. Smerge. Stage two: Conquer. Merging eight lists into four. Compare the pinks. Which is lowest: 12 or 14?

D-KODE: 12. Smerge.

NARRATOR: Two sublists become one. Compare the yellows. 13 or 11?

D-KODE: Low gotta go … 11. Smerge.

NARRATOR: Now, compare the browns. Which is lowest?

D-KODE: 10. Smerge.

NARRATOR: Compare the first elements.

D-KODE: Low gotta go … 17. Smerge.

NARRATOR: You just smerged all eight sublists into four.

GAME VOICE: Now merge four sublists into two.

NARRATOR: Compare pink and yellow. Merge the two lists into one. Ready?

D-KODE: Ready!

NARRATOR: 12 or 11?

D-KODE: Low gotta go. 11. Smerge.

NARRATOR: 12 or 13?

D-KODE: 12. Smerge.

NARRATOR: Which is lowest: 14 or 13?

D-KODE: 13. Smerge it!

NARRATOR: The two sublists have been merged into one. Now compare the next two sublists. Brown and green. Which is lowest: 10 or 17?

D-KODE: 10. Smerge.

NARRATOR: 16 or 17?

D-KODE: 16. Smerge it!

NARRATOR: The rest of that list is sorted.

GAME VOICE: Final merge.

D-KODE: Yes.

NARRATOR: Compare the final two sublists: yellow and brown. Merge them into one. Which is lowest, 11 or 10?

D-KODE: 10. Smerge.

NARRATOR: 11 or 16?

D-KODE: Ummm … 11. Smerge.

NARRATOR: 12 or 16?

D-KODE: 12. Smerge.

NARRATOR: 13 or 16?

D-KODE: 13. Smerge.

NARRATOR: 14 or 16?

D-KODE: 14. Smerge it!

NARRATOR: The rest of that list is sorted.

D-KODE: Yes!

NARRATOR: The final list is now sorted from low to high.

NARRATOR: Merge complete.

D-KODE: I live for the Smerge.