AQA Computer Science GCSE
3.1.4 Sorting Algorithms

Flashcards

What is a sorting algorithm?

What is a sorting algorithm?

An algorithm used to arrange data (e.g. numbers or text) into a specific order, usually ascending or descending.

What are the two sorting algorithms?

What are the two sorting algorithms?

Bubble sort and merge sort.

How does bubble sort work?

How does bubble sort work?

It repeatedly compares and swaps adjacent items, if they are in the wrong order, until the list is sorted.

What happens during each "pass" of a bubble sort?

What happens during each “pass” of a bubble sort?

Adjacent elements are compared and swapped if needed. Multiple passes are made until no swaps are needed.

Is bubble sort efficient for large datasets?

Is bubble sort efficient for large datasets?

No, it's very slow on large or reversed lists.

What are the advantages of bubble sort?

What are the advantages of bubble sort?

It is easy to understand and simple to implement.

What's a disadvantage of bubble sort?

What's a disadvantage of bubble sort?

It is inefficient and has poor performance with large or nearly sorted lists.

How does merge sort work?

How does merge sort work?

It splits the list into halves (recursively), then merges the halves back together in order.

What type of approach does merge sort use?

What type of approach does merge sort use?

A divide and conquer strategy.

Why is merge sort more efficient than bubble sort?

Why is merge sort more efficient than bubble sort?

It sorts large lists more quickly due to its efficient splitting and merging process.

What is a disadvantage of merge sort?

What is a disadvantage of merge sort?

It uses more memory because of recursion and multiple temporary lists.

Which is easier to implement: bubble or merge sort?

Which is easier to implement: bubble or merge sort?

Bubble sort is easier to implement.

Which is faster on large lists: bubble or merge sort?

Which is faster on large lists: bubble or merge sort?

Merge sort is much faster on large datasets.

Which algorithm uses more memory?

Which algorithm uses more memory?

Merge sort (due to recursion and temporary storage).

When is bubble sort acceptable to use?

When is bubble sort acceptable to use?

On small datasets or when simplicity is more important than speed.