

Computational thinking

A bubble sort is carried out on this list to put it in ascending order.

8 3 2 4 0 3 9

The value '8' starts in position 0.

(i) State the number of passes required to complete the sort.

(1)

.....
(ii) State the number of swaps made on the final pass.

(1)

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(iii) State the component of an algorithm used to store whether a swap has been made during a pass.

(1)

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(iv) State the position of the item that will be compared with the value in position 0.

(1)

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(v) Define the term 'iteration'.

(1)

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ANSWERS

1. 5 passes to complete the sort – 4 to get the answers in order and 1 final pass for the algorithm to set its swaps variable to 0 which will stop the sort.
Remember that on each pass, the largest value in the list will move ('bubble up' to the right)
2. 0 swaps are made on the final pass.
3. A variable is used to store the number of swaps.
4. The value in position 1 will be compared with the value in position 0.
5. Iteration means looping over each item in a string or list. Iteration looks at each value using index positions.