Algorithm visualiser designed to demonstrate and display the process behind a variety of sorting algorithms and to play an audible ‘tone’ corresponding to the value of the current data being sorted.

The user will be able to select the algorithm to sort by as well as the method used to ‘shuffle’ the data accessed via drop down menus. The user will be able to control sliders to determine the time between each step in the sort; the size of the array to be sorted; the pitch of the tone played. The user, through the use of buttons, will be able to start and pause the sort; step through the individual steps of the sort; reset the array back to the original state; mute the sound of the tones; select a random sort.

Objectives

1. Display the current state of the array, representing each element as a bar with height corresponding to the value of the data element
2. Display a results screen containing statistics relating to the sort – sort type, number of elements in array, time taken for sort, number of comparisons made, number of swaps made
3. Create a control/settings panel containing:

* 6 buttons to start, pause, step through and reset the sort as well as mute the tones and select a random sort.
* 3 sliders to change the time between sorting steps; change the array size; change the pitch of the tones played
* Drop down menu to select the method used to shuffle the array
* Drop down menu to select the sorting algorithm used
* Information panel to display percentage of array sorted; time taken so far; comparisons made; swaps made

1. Implementing a variety of sorting algorithms