SwapAnimation

The animation of sorting algorithms is based on a fundamental component called SwapAnimation. It is used to animate array of number to be bars with different height, which represents the value of each number. When some of the elements need to swap, this component provides a smooth animation to swap positions of elements. Additionally, in order to visualise the comparing, swapping, insertion and merging process in an intuitive way, colours and y-axis value of bars can also be changed smoothly by this component. To increase the degree of interaction with users and interest, this component consists of three subparts, AnimationControl, AnimationSlider and InputBar, allowing users to control the animation and define the array of numbers.

AnimationControl

This component contains five buttons which are reset, step backward, pay/pause, step forward and speed.

AnimationSlider

AnimationSlider is a progress bar with scales on it. Users can drag the thumb on it to go to a specific frame of the whole animation.

InputBar

InputBar allows user to type in numbers to create a self-defined array of bars for visualisation. This component has a functionality to restrict the user input. An error message will be shown if users tried to visualise an array with large number or size or characters other than integers. A shuffle button is provided to shuffle the bars with random size and numbers.