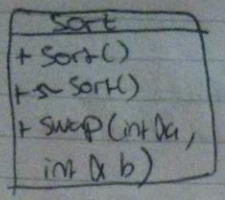
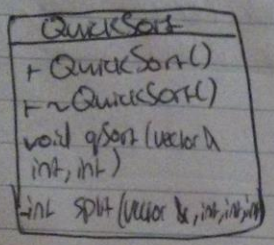
Prac 7 Design

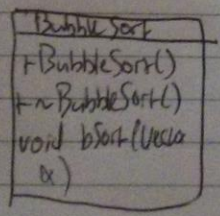


Sort is a parent class of BubbleSort and QuickSort, its only function is swap. Swap is passed by reference 2 integers which it then switches (using a temp variable) this function is included to help with code readability

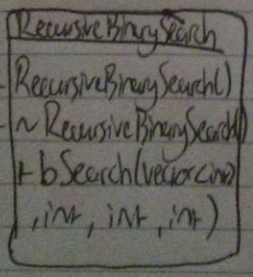


- qSort (vector<int> &, int, int, int)
Takes in a vector of ints and the lower and upper bounds, it then applies the quicksort algorithm to sort the vector

split (vector &, int, int, int) takes the same parameters as above with an extra int that holds the previous pivot point, split partitions the vector and returns a new pivot point



The bSort function in the BubbleSort class takes in a vector of ints which it then sorts using the simple BubbleSort algorithm.



The bSearch function takes in a vector of ints and the value to search for aswell as the lower and upper bounds. The binary search calculates the midpoint then checks whether the value to find is greater or lesser than the value at the midpoint, it then splits the vector into half and continues to recursively search for the value

Testing -

- Test empty vectors, the output should be just 'false' as there is technically no 0 in the list
- Test a vector that is already sorted, or size 1 it requires no sorting and should just return
- ~~Test~~ Test an input which does not contain ints, we would expect that an error would occur (is input validation necessary)
- completely unsorted lists (both negative and positive values)