Lab 0

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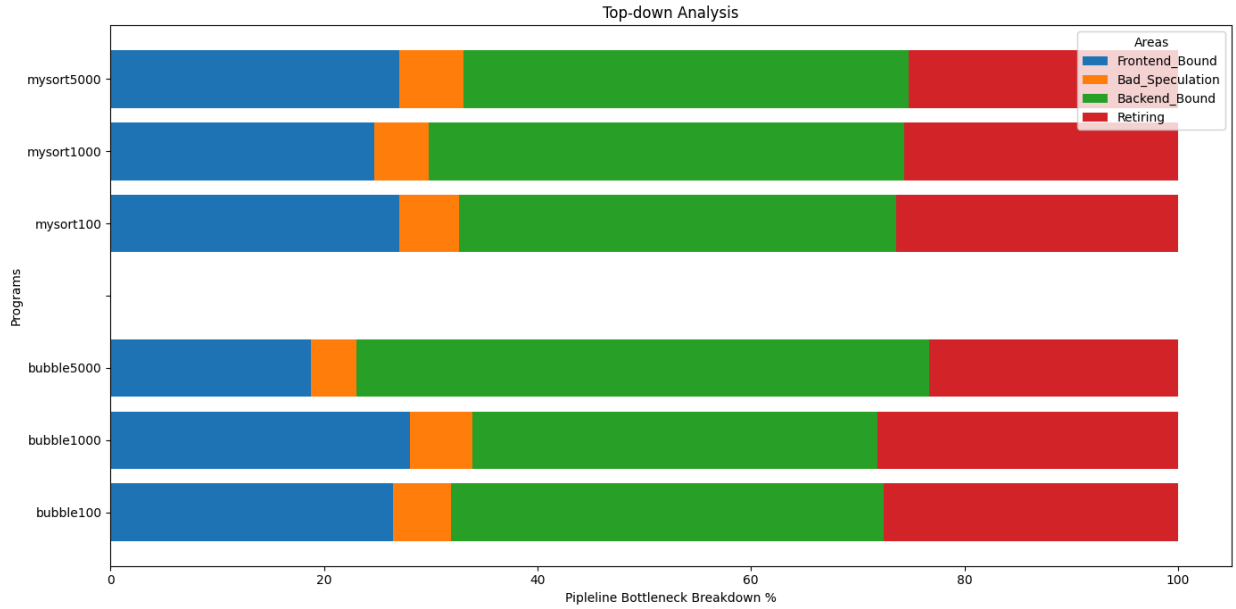

Observations:

The bubble sort algorithm seems to become more backend bound and less frontend as the input size increases, whereas it stays relatively the same for mysort (quicksort). Other than that the areas seem to follow the same relative pattern with the averages among 10 tests each.

Implementation:

bubble:

- Implemented the bubblesort algorithm: Bubble sort repeatedly steps through the list, compares adjacent elements, and swaps them if they are in the wrong order, continuing this process until the entire list is sorted.
  Average TC: $O(n^2)$

mysort:

- Implemented the quicksort algorithm: Quicksort works by selecting a "pivot" element from the array, partitioning the other elements into two subarrays based on whether they are less than or greater than the pivot, and then recursively sorting the subarrays.
  Average TC: O(nlogn)

runTests.sh:

- Created Bash Script to conveniently run through all variations of both sorting algorithms and inputs 10 times.

chart:

- Chart was created by parsing csv through python, and averaging the results for each input num.

*Used github copilot to speed up the process of writing Bash script, quick/bubble sort, and plotting w/ matplotlib.

* No issues encountered with lab