

## **Homework 4 Report**

Haru Chu, Jack Vo, Nicholas Krouse

Contribution:

- Haru Chu: main, test cases
- Jack Vo: Hash Table, Binary Search Tree, modify main
- Nicholas Krouse: debug

Analysis of the results:

- Based on the result we could see that when inserting data into both BST and Hash Table, the Hash Table took less collisions to add all 50 data which is around 100 and sometime less than 50, while the BST usually took up to 300 collisions to do the insertion.
- For the removal, the collision in BST appeared to be less than Hash Table in which usually less than 80 while Hash Table usually go over 350 to remove the data at the index  $\% 7 == 0$ .
- For removal of 50 items, BST took up to 500 collisions while Hash Table went over 1500 collisions.
- For the find function, the BST usually took less than 100 collisions while the Hash Table went over 1500 collisions most of the time to find the number at index  $\% 9 == 0$ .

=> Overall, we could see that the BST does most of the work better than the Hash Table except for insertion.

Execution:

- Code was written in Replit.
- The code can run on VS as well since we use VS to debug a lot.
- We could not do the Unit Testing since we could not understand it. However, we did create test cases to test the program, and I hope it will work.

Grade Distribution:

- Grade is equivalent to Haru and Jack
- Minus -5% for Nicholas Krouse