Optimal BST Results and Reflection

For this assignment I implemented a regular BST and an optimal BST using word frequency data extracted from a news article search powered by the NewsAPI. To test the performance of each tree, I first randomly shuffled the list of words and inserted them one-by-one into a regular BST. I then calculated the total weighted cost of traversing the BST, where each word's cost was its depth in the tree multiplied by its search probability. Next, I built the OBT using dynamic programming and the OBST algorithm described in the textbook. Due to time constraints I was not able to do multiple tests but what I was able to gather from the test I was able to perform was that the OBT’s total weighted search cost was much lower than that of the regular BST. This confirmed what was taught to use during our lectures when we covered module 14. I did find that implementing the OBST was actually a lot more complex that just a normal BST. I did leverage AI a lot in many different ways. First when reading the textbook I found myself getting kind of lost in the technical jargin and would use AI to break down what was being explained in simpler words and to provide me with examples. I also used AI to help me debug because when I implemented the OBT I found that I was getting a negative cost value. I found that even though it helped me find some bugs it did not help me solve all of them, to solve the negative cost value I had to run through a debugger. AI also helped me understand the algorithm and the pseudo code that was provided in the book. I also remembered what Sung said and treated AI as my assistant and had it do a lot of the dirty work for my like the class implementation of the node and writing the code for the regular BST and I spent most of my time trying to do the OBT implementation myself for more practice since that seemed to be the main goal of this assignment. I generally enjoyed learning about API’s in this assignment and then implementing that concept into an algorithm problem which made this assignment feel more real world when compared to most of the other problems.