For this project I used python tutor to help debug my code in the first and third functions. I also used it to better understand how to insert code into the second program without adding any lines to the code. I didn't use any outside resources for the extra credit. I wasn't 100% sure on how to optimize my program for the third extra credit assignment because I didn't know any other search algorithms. However, I implemented the function using objects instead of lists in a for loop instead of a while loop.