

# Forever Young Explanation

The problem given for this assignment was to take in an age and a minimum age and output the base of a number that produces the lowest possible minimum age while appearing to still be in base 10. The time limit for the program was 1 second.

The strategy of this algorithm was to do a binary search on possible bases until the number of digits of the found age matched the number of digits of the minimum age. Once this is done it will then try to match the most significant digit of the found age with the minimum age, it will do this until the upper limit converges with the lower limit. Finally, we will finish by checking between the minimum age and that age to make sure the optimal solution is found.

My algorithm is efficient because it guesses the region the answer is in and implements a binary search (divide and conquer) algorithm to get there and binary search has a time complexity of  $\log(n)$  which just happens to be pretty fast.



Pseudo Code:

Python is basically pseudo code, look at the source file, it has comments <3.