**Homework 5**

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#1

The source code takes a long time to execute. It uses recursive implementation of Fibonacci sequence calculation. For each fibonacci(n) call, it makes two more recursive calls, fibonacci(n-1) and fibonacci(n-2). This creates an exponential time complexity of O(2^n). With n = 90, the number of recursive calls becomes extremely large. Many same values are calculated repeatedly, leading to redundant computations.

#2 (Since GDB is not supported on macOS, I used LLDB to execute the equivalent commands.)

텍스트, 스크린샷, 소프트웨어이(가) 표시된 사진

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#3

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To optimize the code, we should update it to use an iterative approach with dynamic programming. This optimized version uses iteration instead of recursion. It also has O(n) time complexity instead of O(2^n). It avoids redundant calculations and uses only constant extra space. It executes much faster than the original recursive version