Write a program that can print the function names on another program's call stack.

You are given a simple program sort and you need to get a snapshot of its call stack. The way you do it is by first creating a parent process tracer that spawns sort as its child process, then making tracer pauses sort to print the functions that live on the call stack at the moment you pause sort. After printing all functions in the call stack, you need to resume sort.

The functions you are going to use are listed below:

(1) To pause a child process or to resume a child process from the parent process, you can use ptrace() in https://man7.org/linux/man-pages/man2/ptrace.2.html

(2) To get functions in the call stack, you can use libunwind in https://www.nongnu.org/libunwind/docs.html

The skeleton code of tracer is provided in tracer.c. You need to add code to make tracer print the function names on sort's call stack each time tracer receives a 'P' from STDIN.

Please do not touch the code in sort.c, and do not modify the existing code in tracer.c. You can modify Makefile.

After you finish this task, please submit your tracer.c and Makefile to me via email.