# Reverse Debugging with ETM

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# The plan

Wenxuan SHI & Xueying ZHANG: find a research topic for Group Project.

# The work

Our new topic: **reverse debugging**

## Wenxuan
1. Some research on gdb reverse debugging
2. Read a paper "DoublePlay: Parallelizing Sequential Logging and Replay".

## Xueying
1. a work
2. another work

# GDB: Reverse Debugging with Record and Replay

▶ GDB can **record** a log of process execution and save it.
▶ This record can be loaded later on, and used for debugging. This is called offline debugging.
▶ It offers the advantage that you can catch the issue once, and **replay** it as much as needed to find the root cause and fix it.

## Performance issue

To realize this functionality, GDB is in fact executing the software, one assembly instruction after another and **recording relevant registers and memory locations**.

This is a slow operation that can drastically change the timing of process execution, and thus **change the conditions that raise the bug.**