

Debugging Programs With GDB

GDB

- GNU Debugger
- Debugger for programming languages like C
- I use print statements, shouldn't that be enough?
 - Sometimes it's a hassle
- How to start start debugging using GDB:
 - First compile your program
 - Make sure to compile with '-g' flag to compile with symbols
 - `$ gcc -g -o program program.c`
 - Run program with GDB
 - `$ gdb ./program`

Common GDB Commands

- quit – quit GDB
- run – run program
- break – set breakpoint within program
 - break <function> - break before start of function
 - break <line #> - break before particular line of code
- list – list lines around current point in program
- step – steps to next line (or into function)
- next – goes to next line (does not step into function)
- finish – continue until function returns
- continue – continue program execution

Common GDB Commands (cont.)

- print – prints a variable
 - print <var> - prints variable
 - print/x <var> - prints in hexadecimal format
 - <https://sourceware.org/gdb/current/onlinedocs/gdb/Output-Formats.html>
- watch – breaks if expression is changed
 - watch x – break if variable x is changed
- info – prints information about certain things
 - info break – prints information about breakpoints
 - Info variables – prints variables declared outside of functions
- backtrace – shows trace of function frames

More about GDB

- If you want to learn more about GDB look into:
 - Tutorial:
<https://www.cs.umd.edu/~srhuang/teaching/cmsc212/gdb-tutorial-handout.pdf>
 - Tutorial:
https://www.tutorialspoint.com/gnu_debugger/index.htm
 - Manual:
https://ftp.gnu.org/old-gnu/Manuals/gdb/html_node/gdb_toc.html