

GDB_session

CSE116

GDB Commands Cheat Sheet

Starting and Stopping GDB

- `gdb`: Start GDB.
- `gdb program`: Start GDB and load the specified program.
- `quit` or `q`: Exit GDB.

Setting Breakpoints

- `break function_name`: Set a breakpoint at the beginning of a function.
- `break filename:line_number`: Set a breakpoint at a specific line in a file.
- `break *address`: Set a breakpoint at a specific memory address.
- `delete breakpoints`: Delete all breakpoints.
- `delete breakpoint n`: Delete breakpoint number n.
- `disable breakpoint n`: Disable breakpoint number n.
- `enable breakpoint n`: Enable breakpoint number n.

Running and Controlling Execution

- `run` or `r`: Start running the program.
- `continue` or `c`: Continue running until the next breakpoint.
- `next` or `n`: Execute the next line of code, stepping over function calls.
- `step` or `s`: Execute the next line of code, stepping into function calls.
- `finish`: Execute until the current function returns.
- `until`: Continue execution until a specified line is reached.
- `jump location`: Jump to a specified line or address in the code.
- `set args arg1 arg2 ...`: Set command-line arguments for the program.

Viewing Source Code and Variables

- `list`: Show the source code around the current line.
- `print expression`: Print the value of an expression.
- `info locals`: Show the values of local variables.
- `info args`: Show the values of function arguments.
- `display expression`: Print the value of an expression after each step.
- `whatis name`: Display the data type of a variable or expression.

Examining Memory and Registers

- `x/nfu address`: Examine memory at the specified address.

- **n**: Number of units to display.
- **f**: Format specifier (e.g., x for hexadecimal).
- **u**: Unit size specifier (e.g., b for bytes, w for words).
- **info registers**: Display the contents of CPU registers.
- **info frame**: Display information about the current stack frame.
- **backtrace** or **bt**: Display the current stack trace.
- **info threads**: Show information about all threads.
- **thread thread_id**: Switch to a specific thread.

Debugging Multi-Threaded Programs

- **info threads**: Show information about all threads.
- **thread thread_id**: Switch to a specific thread.
- **thread apply all command**: Apply a command to all threads.
- **break thread thread_id function_name**: Set a breakpoint in a specific thread.
- **set scheduler-locking on**: Enable scheduler locking.
- **set scheduler-locking off**: Disable scheduler locking.

Miscellaneous Commands

- **help command**: Display help for a specific command.
- **set variable value**: Set the value of a variable.
- **show variable**: Show the value of a variable.
- **attach process_id**: Attach GDB to a running process.
- **detach**: Detach GDB from the currently attached process.
- **record**: Start recording execution.
- **replay**: Replay recorded execution.
- **info sharedlibrary**: Show information about shared libraries.