CSSE 332 -- Operating Systems

Debugging with gdb

Name: Solution Key

Question 1. (10 points) For each of the `gdb` commands below, write down the description of what the command does.

`n`

Solution: Move to the next code location in the program. If that is a function call, it will be executed until it returns or something happens (crash, signal, etc.)

`b 5`

Solution: Set a breakpoint at line 5 in the current file of the program.

`s`

Solution: Step into next code location. If that is a function call, this will step into that function.

`until 16`

Solution: Continue execution until line 16 of the current file of the program.

`continue` or `c`

Solution: Continue execution until the program terminates or something happens (a breakpoint, a signal, etc.)

`p var`

Solution: Print the value of the variable `var`.

`p/x var`

Solution: Print the value of `x` in hexadecimal.

`x ptr`

Solution: Examine the memory location at address contained in `ptr`.

`watch expression`

Solution: Continue execution until the `expression` changes value.

`info b`

Solution: Print information about all breakpoints

`info local`

Solution: Print information about local variables in the current context.

`where` or `bt` or `backtrace`

Solution: Print a list of the active frames representing current function calls.

`f 1`

Solution: Switch to frame number 1 in the list generated by `where`.

Question 2. (5 points) Assume we have built a binary called `program.bin` and we would like to launch this program in the `gdb` debugger. What command would you issue on the shell to do so?

Solution: `gdb ./program.bin`