## **Resources: Getting Started with GDB**

A debugger is a program that allows you to monitor your program as it runs, inspecting the flow of the program and the values of variables.

To use gdb, the GNU DeBugger on a C++ program, you must recompile the program, telling the compiler to leave debugger information in the program. This is accomplished by added the -g option to all g++ commands. If you are using a Makefile, edit the file to accomplish this task. Remove any existing object files rm \*.o. Then build again make.

To run the debugger on your program (I'll assume your program is called <code>ppm\_menu</code> for now.), launch like this:

```
gdb ./ppm_menu
```

You will now see the <code>gdb)</code> prompt. GDB has opened your program, but is not running it yet. Let's assume you want to watch your program's flow of execution in a couple of functions named <code>imageMenu</code> and <code>takeAction</code>. You can tell the debugger you want it to pause execution anytime either of these functions are called by setting break points. Like this:

```
break imageMenu
break takeAction
```

Now you can start running the program, in the debugger by using the run command:

```
run
```

The program will execute until one of the break points is reached, or the program terminates. Let's say that the program enters the <code>imageMenu</code> function and so GDB pauses execution. You can now step through the statements in this function one at a time using the <code>next</code> command.

```
next
next
...
next
```

Every time you say next, gdb will run the next line of code. Along the way, you might want to examine the value of a variable. You can see variable values using the print command. For example, if you wanted to see the value of a variable named output\_image, you could say:

```
print output_image
```

If you are done stepping through the program one line at a time and want to continue running the program at full speed, you can use the continue command. The program will continue until another break point is reached, or the program terminates.

If you just want to stop the debugger, use the quit command.

The debugger has many more features, but that should get you started.