

Name: _____

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Lab #3: COMP 3000B (Operating Systems)
January 24 & 26, 2006

1. (1 pt) Compile hello.c with the command "gcc -O hello.c -o hello-dyn". Run "ltrace ./hello-dyn". What dynamic functions did hello call?
2. (1 pt) Run "strace ./hello-dyn". How many system calls did hello make?
3. (2 pts) Re-compile hello.c using the command "gcc -static -O hello.c -o hello-static". Run hello-static using ltrace and strace. How does the output compare with that from the previous two questions? (Explain at a high level.)
4. (2 pts) How big are the binaries of hello-dyn and hello-static? Why is one so much bigger than the other one? Explain.
5. (2 pts) Add a "while(1) sleep(1);" loop to hello.c so that it waits forever after saying hello. Recompile statically and dynamically. What is the resident and virtual memory used by both?
6. (2 pts) Compile and run hello-fork.c. Note that hello-fork.c produces a "zombie" process. How do you fix hello-fork.c so that the zombie exits properly?

7. (2 pts) How can you modify `hello-fork.c` so that the child process would run `"/bin/ls"` using the `execve()` function?