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HW 3

3.12 Including the initial parent process, how many processes are created by the program below

15 processes will be created. The parent forks 4 times itself, then each of those child processes will create a reducing amount (3,2,1,0). This continues until all child processes run through the program and hit the return 0 line. This leaves a total of 15 processes.

Using the program below (also given in Figure 3.34), identify the values of pid and pid1  
that are output at lines A, B, C, and D. Assume that the actual pids of the parent and child are  
2600 and 2603, respectively.

A=0

B=2603

C=2603

D=2600

Using the Linux Source Code Browser, find do\_fork(), the fundamental routine for creating a new process (i.e. the main fork-routine)  
• Within do\_fork(), what is the purpose of the call to copy\_process()?  
 • Provide some detail as to what it actually does  
• Specifically, how does this function guard against fork() bombs?

copy\_process() is what actually creates the new process, it does this by creating a new kernel stack and duplicates all the information from the parent process. After everything is created it returns a pointer to the new process to fork(). The copy\_process() routine contains a check to check for fork bombs. This check doesn’t affect any processes with multiple threads as the check will be too late.