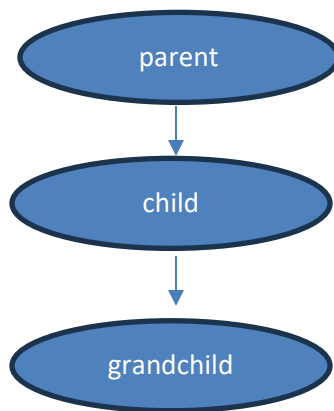


**Fall 2024
CS3413
Lab 2**

Processes and IPC

LABS ARE TO BE COMPLETED INDIVIDUALLY BY ALL STUDENTS!

Write a program that by using multiple processes converts a user message into a lower-case message. This program should use the `fork()` operation two times, to receive the following process tree



Upon creation, each process should print a message with their id. The parent should report its id before invoking `fork()` for the first time.

After the child is created, it should set up a pipe before calling `fork()`. After creating the grandchild process, the child should read a one-word message from the standard input (`scanf()`), send it to the grandchild, and close the pipe. The grandchild should print the message it just received, converting all the characters to lowercase, and terminate. Before termination, each process should print their id again.

The processes should be terminated in the order opposite to the order of their creation.

The parent processes should wait for the child processes to terminate by properly invoking `wait()`.

Please submit the C file with the solution to D2L.