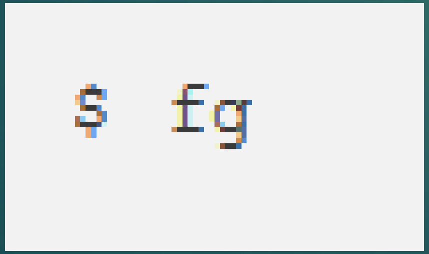
CS 361 – Lab 6

Foreground, Background

MONDAY, MARCH 4TH, 2019.

Foreground

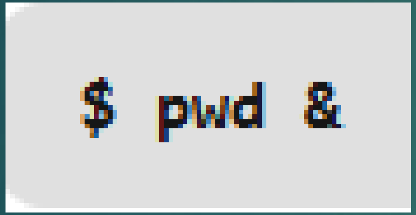
- by default, processes are started in the foreground
- CTRL-Z sends the SIGTSTP signal to the foreground process – tells it to pause the execution of the command and return control to the terminal
- can resume execution of the command in the foreground again by typing fg



```
$ fg
```

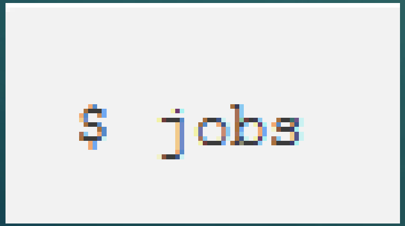
Background

- background processes return control to the shell immediately without waiting for the process to complete
- User able able to start processes directly in the background using "&"



```
$ pwd &
```

- to see all stopped or backgrounded processes, type jobs command



```
$ jobs
```

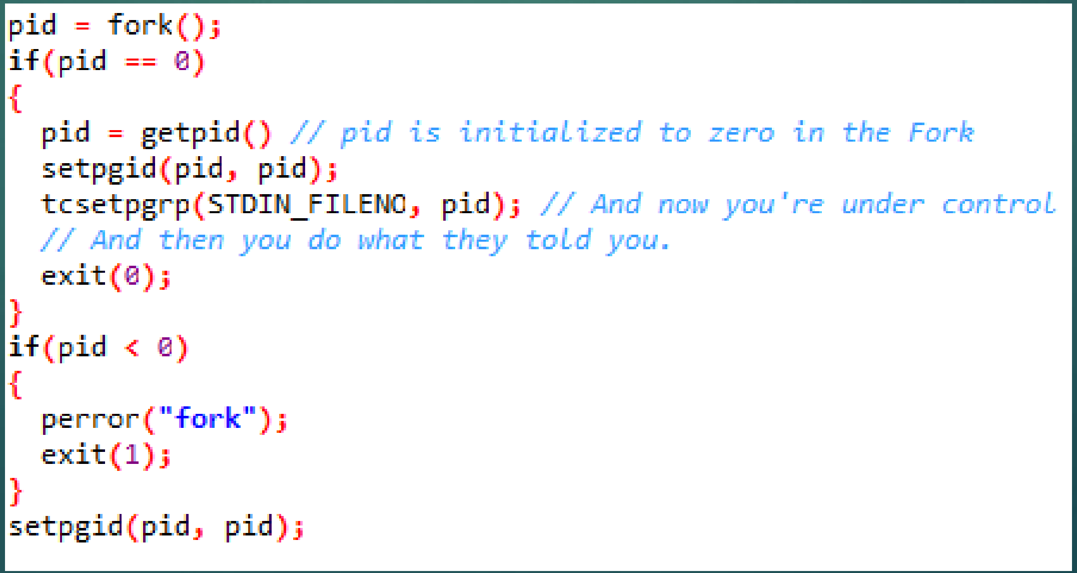
setpgid(), getpgid()

- Int setpgid(pid_t *pid*, pid_t *pgid*)
- sets the process group ID of the process *pid* to *pgid*

- pid_t getpgid(pid_t *pid*);
- returns the process group ID of the process specified by pid

tcsetpgrp(), tcgetpgrp()

- to get and set terminal foreground process group
- int tcsetpgrp(int fildes, pid_t newid);
- tcsetpgrp makes the process group with process group ID newid the foreground process group based on the file descriptor fildes which is connected to terminal
- pid_t tcgetpgrp(int *fd*);



```
pid = fork();
if(pid == 0)
{
  pid = getpid() // pid is initialized to zero in the Fork
  setpgid(pid, pid);
  tcsetpgrp(STDIN_FILENO, pid); // And now you're under control
  // And then you do what they told you.
  exit(0);
}
if(pid < 0)
{
  perror("fork");
  exit(1);
}
setpgid(pid, pid);
```

Task

- 1. Finish the code(lab6_samp.c on github) so that control is returned to the main process before exiting.
- 3. Why must we block SIGTTIN and SIGTTOU to be able to transfer control?

  - Try removing the signal handler registers and see what it does.
- 2. Modify the code to take an input parameter to send a job to the background. Send a job to the background.