Homework 5: Pipes

The goal of this homework is to understand the pipe command in shell. The given routine is trying to implement ‘‘`ls | wc -l`’’. You need to use `close` and `dup` system calls to redirect the `STDOUT` of `ls` to the `STDIN` of `wc`. The effect of running your modified code should be same as running the command ‘‘`ls | wc -l`’’.

```
#include <stdio.h>
#include <unistd.h>

//ls | wc -l

int main()
{
    int pid;
    int fd[2];
    int ret;

    ret = pipe (fd);

    if (ret == -1) {
        printf ("Unable to create pipe\n");
        return 0;
    }
    pid = fork ();
    if (pid == 0) {
        /* Verify that ls exists at /bin/ls */
        /* to verify run: which ls */
        char* const args[] = {"/bin/ls", NULL};

        /* write your code here */

        ret = execv (args[0], args);
        /* NOT REACHED*/
        printf ("failed to exec ls\n");
    }
    else if (pid > 0) {
        /* Verify that wc exists at /usr/bin/wc */
```

```
        /* to verify run: which wc */
        char* const args[] = {"/usr/bin/wc", "-l", NULL};

        /* write your code here */

        execv (args[0], args);
        /* NOT REACHED*/
        printf ("failed to exec wc\n");
    }
    else {
        printf ("Unable to fork\n");
    }
    return 0;
}
```

1 Submission

Upload a pdf file with your answers on the Backpack. This is a project group homework. Only one project member needs to upload. You must follow the naming convention as group_id.pdf.