# Lab 4 Description
## ELEC377
### Aiden Peters and Laeticia Niu

## Problem Description

In this lab, we will use the contents of /proc to generate a list of the currently running process numbers (PIDs), names (Users) and status. We will be using shell programming and the different flags and commands it offers. The flags we will include will be -rss, -comm, -command and -group. Our script will have the first two columns as PID and User and more columns can be added as needed.

## Details

### Command line parsing

For each flag included, this while loop will show the necessary flag if the user has entered it in the command. We start with -rss and end with -group since the shift commands moves each parameter to the left. The last command is an error, which will be displayed if the user enters a flag that is not specified.

### Other

Next, following the instructions, we included an error if the -comm and -command flags are called. Then we use the command grep to obtain the username from the UID and the group name from the GID.

### Running Processes

In an if loop, we extract the information from /proc using grep and sed commands and assign it to different variables to call later on in the script. Under the comment # Print optional columns, we print out the optional columns of the flags that the user can call. Finally, we print headers for the optional columns that will only show up if the flag is called.

# Lab 4 Testing

## Test Cases

Test 1 shows the default without flags compared to the system's information in t1lab.txt and t1system.txt. Test 2 compares our program with the RSS flag against the system's information in t2lab.txt and t2system.txt. These tests are repeated with the group flag in Test 3, the comm flag in Test 4, and the command flag in Test 5. Test 6 shows that the program errors when given an unknown flag, in this case '-unknown'. Test 7 shows that the program errors when given the '-comm' flag and the '-command' flag.

## Differences

For each test we can see slight differences between the system and our program. For each there are slight user differences such as the system just having systemd+ and message+ while our

program doesn't shorten it and has systemd-timesync and messagebus. Test 5 also has differences with the commands that aren't paths being enclosed in square brackets while our program does not.