Nicholas LaJoie, ECE 331, HW 7

```
// Author: Nicholas LaJoie
// ECE 331 - Homework 7
// March 22, 2017

1. Political Makefile

TARGET=thebest
CFLAGS=-g -Wall
OBJS=trump.o spicer.o kellyanne.o pence.o
CC=gcc

.PHONY: all clean

all: ${TARGET}

${TARGET}: ${OBJS}
        ${CC} -o ${TARGET} ${OBJS} ${LIBS}

clean:
        rm -f ${TARGET} ${OBJS}

2. Parse /etc/passwd file in perl

#!/usr/bin/perl
# Author: Nicholas LaJoie
# ECE 331 - Homework 7, Problem 2
# Script parses all lines in /etc/passwd file, creates hash that associates usernames with she
lls for all users
# Once parsed, prints each username and shell, one per line

open(IN, "/etc/passwd") or die "Cannot open \"/etc/passwd\" file.\n"; # Open file for parsing

my %pairs; # Hash to store username-shell pairs

while (<IN>) {
        chomp;
        my @L = split ':';
    $pairs{$L[0]} = $L[6]; # Store pair in the hash
}

for my $x (keys %pairs) {
    print "$x $pairs{$x}\n"; # Print each pair of username and shell
}

3. Regex for passwd: ^[^:]+:x:\d+:\d+

4. Print resident set size with getrusage()

// Author: Nicholas LaJoie
// ECE 331 - Homework 7, Problem 4
// File: prob4_usage.c
// Date: March 14, 2017
// Description: Prints the resident set size of the running program itself by calling getrusag
e()

#include <stdio.h>
#include <sys/time.h>
#include <sys/resource.h>

int main (int argc, char * argv[])
{
    struct rusage use;
```

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```
    int result = getrusage(RUSAGE_SELF, &use); // Get usage for program itself

    if (result < 0) {
        perror("Error getting usage.\n"); // Error checking
        return 1;
    }
    printf("Resident Set Size: %ld\n", use.ru_maxrss); // On success, print set size

    return 0;
}
```

5. Random command line:

    a) dw
    b) sed -n '20,30p' /usr/local/project/from/lleh/morse
    c) ln -s /usr/share/jon/snow \$throne
    d) chmod -R go=u,go-w,go+r .
    e) ps aux | tee save | egrep '\s+S.?.?\s+' | wc -l
    f) sudo apt-get update
       aptitude search '~dAtari'
       sudo apt-get install stella

6. Mystery Hunt

```
    $ cp /mnt/start_here /home/pi/test1     # Copy into empty directory
    $ cd /home/pi/test1                     # Navigate to directory
    $ file start_here                       # See what kind of file it is
    $ ./start_here                          # Run the executable
    $ ls                                    # See what changed
    $ tar -xf files                         # Extract files
    $ ls -al                                # View extracted files
    $ cd .\ \ _/                            # Take a look at the new directory
    $ ls                                    # See what we've got
    $ file next                             # Check file type
    $ ls -l next                            # Check permissions
    $ chmod +x next                         # Add executable permissions
    $ ./next nicholas.r.lajoie@maine.edu *[0-9]     # Run based on provided usage
```

    Result: MARYLAND

7. Kernel Modules

    a) Makefile

```
obj-m += systimer.o

all:
        make -C /lib/modules/$(shell uname -r)/build M=$(PWD) modules

clean:
        make -C /lib/modules/$(shell uname -r)/build M=$(PWD) clean
```

    b) Having trouble with compiling the module. Working on it.