CS 305 Prelab 1: Introduction to Linux and C
Fall 2019

Name: _____(done individually) score: _____ / 30

Yes, there is a CS 305 lab on Friday, the first week of class. This prelab sheet is due on Friday at the beginning of the class.

Readings (do before the lab)

Read the following in GNU C tutorial: pages 1 – 69.

Exercises (do before the lab)

1. (12 points) Consider the following C program:

```
include <stdio.h>

int mystery(int a, int b){
  int retValue = 0;
  if(a > b) {
    int diff = a - b;
    int i;
    for(i = 0; i < diff; i++){
      retValue += i;
    }
  }
  else {
    retValue = (43 / 10) + 2;
  }
  return retValue;
}

int main(int argc, char* argv[]) {
  int trial1 = mystery(4, 7);
  int trial2 = mystery(6, 1);
  int trial3 = mystery(5, -1);
  int trial4 = mystery(5, 5);
  printf("Trial 1: %d\n", trial1);
  printf("Trial 2: %d\n", trial2);
  printf("Trial 3: %d\n", trial3);
  printf("Trial 4: %d\n", trial4);
  return 0;
}
```

What is printed?

Trial 1: _____
Trial 2: _____
Trial 3: _____
Trial 4: _____

2. (4 points) What is the purpose of function prototypes in C?

3. (4 points) In C, what is the difference between `int` and `unsigned int`?

4. (8 points) Assume the following C code is written.

```
#include <stdio.h>

int main(int argc, char* argv[]) {
  int count = 45;
  int *p = &count;
  int value = *p;
  int *q = &count;

  // update the value that q points to
  *q = *q + 1;

  printf("Value of p: %u\n", p);
  printf("Value of *q: %d\n", *q);
  printf("Value of count: %d\n", count);
  printf("Value of value: %d\n", value);

  return 0;
}
```

What is printed? (If the memory address of a pointer is printed, use the memory address 2488952052 for the value of the pointer.)

Value of p: _____
Value of *q: _____
Value of count: _____
Value of value: _____

5. (2 points) By signing here, I am acknowledging that I have downloaded and installed the software for this course (gcc, emacs, gdb, ddd). x
_____

My personal computer is ☐ Windows ☐ Mac ☐ Linux

Bring to lab

You should bring the following to lab:

- GNU C tutorial (or electronic access to it).
- Coursepack.
- A pencil/pen and scratch paper.
- Your completed prelab, done on this sheet.