COMP2130 LAB 1 - Introduction to C

Instructions: *You should create a zip file with the results of this lab. You should email this file to:* ***comp2130.2015@gmail.com****. Since the computer lab is not quite ready, you will have a longer time to submit this lab. Please submit this lab before Monday, February 9 at midnight.*

(1.)
Debug the following code by compiling it for debugging and executing it within a debugger. At which line of code does the program crash? Why does it crash there? Show the debug commands that you used.

```
1  #include <stdio.h>
2  #include <math.h>
3
4  main(int argc,char *argv[])
5  {
6      int n,i;
7      int  d2,count,
8      double d1;
9
10     while (1)
11     {
12         printf("Enter a number (0 to quit): ");
13         scanf("%d",&n);
14         if (n == 0)
15             break;
16         count=0;
17         for (i=0; i<n; i++)
18         {
19             d1=(double)n/(double)i;
20             d2=n/i;
21             if (fabs(d1-(double)d2) < 0.00001)
22             count++;
23         }
24         if (count == 2)
25             printf("%d is prime\n",n);
26         else
27             printf("%d is not prime\n",n);
28     }
29 }
```

(2.)
Write a simple C program (*mydivide.c*) that takes two integers as command line arguments and divide the first argument by the second argument. You should do all possible checks on the input so that your program does not crash. You should also ensure that the first argument is always bigger than the second argument. In addition to printing the result of the division. You should also print the number of arguments that this program takes and the list of arguments.

NB: *Printing the number of arguments and the list of arguments, should still work if we decide to take an arbitrary number of arguments.*

(3.)
Write a program (*addDigits.c*) that prompts the user for a positive integer and then computes the sum of all the digits of the number. For example, if the user enters 2784, then the program reports 21. If the user enters 59, then the program reports 14. The program should work for any number having one to ten digits.

(4.)
Consider the following code:

```
int i,j,t;
char name[50];
printf("What is your name? ");
scanf("%s",name);
t=0;
for (i=0; i<strlen(name); i++)
     for (j='a'; j<=name[i]; j++)
     t++;
printf("%d\n",t);
```

If the user types “dad” (not including the quotes—just the three letters dad followed by the [ENTER] key) at the prompt, what is the output?

(5.)
Write code (*mysplit.c*) to split an input string (variable “name”) into two output strings (variables “first” and “last”). Assume that the user provides input containing only the characters a through z and A through Z. Assume there are exactly two capital letters in the input, one at the beginning of the first name, and one at the beginning of the last name. For example, given the input “JoeSmith”, your code should split it into “Joe” and “Smith”. Your code should use the following lines:

```
char name[50],first[25],last[25];
printf("What is your name? ");
scanf("%s",name);
```

THE END