This is a warm-up project whose objective is for you to set up the infrastructure you need for subsequent assignments.

HW1-1: The goal of this part is to obtain a Ubuntu Linux environment and become familiar with its facilities. Toward this end, you must acquire an appropriate Ubuntu Linux distribution that fits your computing environment (e.g., a live distro, disk-installed distribution, USB flash thumb distro). Then perform the following exercises.

1. Create and edit a text file.
2. Connect to the class web page and download a file.
3. Explore the application package installation process (e.g., with Ubuntu Software Center or Synaptic Package Manager).
4. Find a suitable application to capture a screenshot which shows your web browser displaying the class website and your text file open in an editor, running under Linux.
5. Submit your screenshot in **jpeg format** in a file of **size no greater than 200K**.

In order for your solution to be properly received and graded, there are a few requirements.

1. The file must be named `HW1-1.jpg`.
2. The file must be less than 200K bytes.

Your solution must be properly uploaded to the submission site before the scheduled due date, **5:00pm on Friday, 25 January 2013**.

HW1-2: The goal of this part of the project is to modify a short C program, compile it using the GNU C Compiler `gcc`, and run it. A program shell `HW1-2-shell.c` is provided. You must copy/rename it to `HW1-2.c` and modify it to compute the union of the two integer sets globally declared. Your program should return the number of elements in the union. It should also print each element in the union (in any order). Assume that the two sets are "sets" in that there are no duplicate elements within a set.

You should design, implement, and test your own code. Otherwise you won't learn the things you need to know for later parts of the projects. **Any submitted assignment containing non-shell code that is not fully created and debugged by the student constitutes academic misconduct.**

You should open a "terminal window" to run `gcc` under Ubuntu (type `man gcc` for compiler usage or look up GCC online documentation on the internet). Note that in the terminal window, you can enter any of the Linux commands (such as `ls`, `cd`, `cp`; for reference see http://users.ece.gatech.edu/~linda/2035/Linux_Cmd_Cheatsheet.pdf). Use the linux command `cd` to change your current working directory to the directory in which you placed the shell program. For example,

```
> cd ~/Documents/2035/hw1
```

You can list the files in that directory using

```
> ls -la
```

You can copy a file using `cp` or rename a file using `mv` (move a file to a new file). For example:

```
> cp HW1-2-shell.c HW1-2.c
```

Once you write your program, you can compile and run it using the Linux command line:

```
> gcc HW1-2.c -g -Wall -o HW1-2
> ./HW1-2
```

You should become familiar with the compiler options specified by these flags.

In order for your solution to be properly received and graded, there are a few requirements.

1. The file must be named `HW1-2.c`.
2. You name and the date should be included in the header comment.
3. The starting *shell* program should not be modified except for the replacement of the comment "*`// insert your code here`*" and the addition of declared local variables. It is especially important not to remove or modify any print statements since that will be used in the grading process.
4. Your solution must be properly uploaded to the submission site before the scheduled due date, **5:00pm on Friday, 25 January 2013**.

HW1-3: The goal of this part is for you to install MiSaSiM, modify a short assembly program `HW1-3-shell.asm`, simulate, test and debug it in MiSaSiM. The MiSaSiM simulator can be installed according to the instructions at www.ece.gatech.edu/~scotty/misasim/. Copy or rename the shell program to `HW1-3.asm` and modify it to compute the union of the two integer sets `SetA` and `SetB` allocated and initialized in the shell program. These sets contain ten elements each. Store the union set in the contiguous memory space allocated starting at label `SetC`. (There are 20 words allocated, but the union might not use all twenty words.) Again, assume that the two sets are "sets" in that there are no duplicate elements within a set.

In order for your solution to be properly received and graded, there are a few requirements.

1. The file must be named `HW1-3.asm`.
2. Your name and the date should be included in the beginning of the file.
3. The starting *shell* program should not be modified except for the replacement of the comment "# write your code here..."
4. Your program must store the union elements in the memory starting at `SetC` when it returns. This answer is used to check the correctness of your code.
5. Your program must return to the operating system via the **`jr`** instruction. *Programs that include infinite loops or produce simulator warnings or errors will receive zero credit*.
6. Your solution must be properly uploaded to the submission site before the scheduled due date, **5:00pm on Friday, 25 January 2013**.

Project Submission Instructions:

To submit your project, you will upload the answer to each part of the assignment as a separate file.

1. When creating an `asm` file to simulate using Misasim, always use a plain text editor, such as NotePad or Emacs, to create the file. (Other editors and word processors, including WORD, may introduce control characters that will interfere with simulation.)

Be sure that your asm file has the extension "`.asm`".

2. Submitting an asm, C, jpg, or txt file: When you are ready to submit a file as your answer to a part of the assignment, use your web browser to go to the web site: http://www.ece.gatech.edu/~linda/2035/projects/index.html.

Click on FILE UPLOAD which will take you to the ECE3035 Project Upload Page, which you will use to submit your assignments (it's ok that it still says "ECE3035"). This contains a form for you to enter your GT Account ID (i.e., your username, e.g., `lwills3` or `gtg363m`, **not** your 9xxxxxxx number) and the name of the file to upload (e.g., `C:\My Documents\Misasim\asm\HW1-3.asm`).

Once you submit your file, a confirmation page will be displayed giving you a confirmation number. An example of the information you will see on the confirmation page is:

```
GT ID: gtg363m
The file HW1-3.asm was successfully uploaded at 02:37:28 PM 05 Sep 2012.
Confirmation number: 84543 (Be sure to save this number.)
```

PRINT THIS PAGE and retain it for your records. A print out of this confirmation page is the only proof that you submitted the project on time.

Double check that the name of the file uploaded is the one you intended to submit.

If you submit a file as the answer to part of the project and later you would like to submit an improved answer, you may submit the more recent version of the file. Only the most recent one will be graded. However, versions submitted after the due date will not be graded.