CISC 2000—Computer Science II
Spring, 2010

Programming Project #3: Graphing Data
Date Due: Wednesday 30 October 2013

Write a graphics program `proj3.cc` that does a line graph of United States life expectancy at selected ages by gender (data courtesy of the U.S. Center for Disease Control, 2005). This program will be similar to `chapter.15.6.cc`, which graphed Japanese age data over a course of years.

You'll probably find that the most frustrating part of `proj3b` is getting things to line up right. That's the most annoying part of low-level computer graphics.

A few considerations:

1. I have made an executable version of `proj3` and for you to try out, which may be found in the directory

   `~agw/class/cs2/share/proj3`

   on the Departmental Linux machines. This means that once you log in and `cd` into said directory, you execute it by simply typing in its name (`proj3`). As always, you should try out my sample version before you start working on the assignment.

2. The share directory "`~agw/class/cs2/share/proj3`" also has the life expectancy data alluded to above. This data may be found in the file "`life-expectancy.txt`" in said directory, which should be copied to your working directory. The data in this file consist of a set of lines, each line containing the following information:

   - age,
   - average life expectancy for said age,
   - average male life expectancy for said age, and
   - average female life expectancy for said age.

   For example, the line

   `55|26.7|24.8|28.3`

   says that for people who were 55 years old in 1965, the overall average life expectancy was 26.7 additional years, with males and females having life expectancies of 24.8 and 28.3 additional years, respectively.

3. You should do this project in a directory named "`~/private/cs2/proj3`". As with the previous project, you'll need to create this directory before using it. You should always place yourself within said directory before doing any work on the project.

4. The directory "`~agw/class/cs2/share/proj3`" also contains a `Makefile`, which you should copy to your working directory (`~/private/cs2/proj3`). Once you've done this, you can use the `make` command (from within this working directory) as follows:

(a) The command `make proj3` (by itself) will compile and link the source file `proj3.cc`, producing an executable program named `proj3`. Note that you must have a file named `proj3.cc` in the working directory for this to work. If you want to precede more incrementally, you can first run the command `make proj3.o`, which will simply compile `proj3.cc` into non-executable object code `proj3.o`.

(b) The command `make` (or `make all`) will also build `proj3`.

(c) `make clean` will clean out the directory.

5. Make sure that you adhere to our documentation standards, i.e., block comments at the beginning of each file, documentation of member functions and data members.

6. When you're ready to turn in your listing for this project, issue the shell command

```
a2ps -o - proj3.cc | ps2pdf - proj3.pdf
```

Now take a moment to see what the listing looks like, by issuing the shell command

```
xpdf proj3.pdf &
```

If you're happy with what you see, mail me `proj3.pdf` by issuing the shell command

```
mail -s "Project 3" -r  harry@bovik.com agw < proj3.pdf
```

As always, `harry@bovik.com`[1] is to be replaced by the email address to which my confirmation message should be sent, i.e., the email address you most commonly use.

Have fun!

[1] Nobody's asked me about Harry Bovik yet.