Q530 Homework 1: "Hello, World."

Due date: 5 September, midnight

The purpose of the first homework is to familiarize you with the programming environments that you will be using for the programming assignments this semester. You may already know this stuff. If not, now is the time to learn it.

The assignment consists of two parts. The first part is to write a "Hello, World." program in the following programming languages: Matlab, Perl, C, and Java. The second part is on Matlab. Here is a list of what you need to do:

1. Install and set up the program environments on the computer that you will be using this semester.

- Perl
  A perl compiler can be downloaded from http://www.activestate.com/Products/ActivePerl/. You can use other compliers.
- C/Java
  If you are a windows user, you can download Visual Studio through IU software repository: http://iuware.iu.edu/
  If you are a Unix/Linux user, javac and gcc should already be installed by default.
- Matlab
  There is no free version of Matlab. If your laboratory doesn't have a computer with Matlab installed or you'd like to have one in your personal computer. You can get a student version (~$100) from IU software store at IMU.

2. Write programs to display "Hello, World." in the four languages respectively. Here is an example in C++:

```
#include <iostream.h>

main ()
// this is a comment
/* this is also
     a comment */
{
      cout << "Hello, world.\n";
}
```

3. Write a brief report to describe your efforts, what you've done, what problems you've solved during installation and coding, etc.

4. MATLAB problems:

- Given the row vector x = [1 2 3 4] and column vector y = [10 9 8 7]', write at least two different ways to compute the row vector z defined as $z_i = x_i - y_i$.

- Create the matrix $E = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$ using MATLAB build-in functions.
- Plot sin x versus x in the interval 0 < x < 2pi. The line should contain 60 points labeled as red open circles.

5. Zip your programs and the report into a file with a name Q530_hw1_lastname, and submit it to q530_yu@yahoo.com.