CSE 102 – Computer Programming
HW 1

Last Submission Date: February 17, 2015 – 11:00

1. **(50Pts)** Examine the code below. It calculates the integral of a 1st degree polynomial.

```c
1 /*##################################################################*/
2 /*HW00_Evren_Cifci_101043000.c                                      */
3 /*_____                                   */
4 /*Written by Evren Cifci on Februay 10, 2015                        */
5 /*                                                                  */
6 /*Description                                                       */
7 /*_____                                                       */
8 /*Takes the Integral of a given 1st degree polynomial               */
9 /*Inputs:                                                           */
10 /*  -Coefficients of the 1st degree polynomial                     */
11 /*  -Zero input value of the resulting polynomial                  */
12 /*Outputs:                                                          */
13 /*  -Resulting 2nd degree polynomial                               */
14 /*##################################################################*/
15 /*                                                                  */
16 /*----------------------------------------------------------------*/
17 /*                          Includes                               */
18 /*----------------------------------------------------------------*/
19 #include <stdio.h>
20
21
22 int
23 main(){
24     double ia0, ia1;    /*coefficients of the input poly*/
25     double p0;          /*P(0) value of the resulting  poly*/
26     double ra0, ra1, ra2;   /*coeffients of the resulting poly*/
27
28     /*Get the 1st degree input polynomial*/
29     printf("Enter the coefficients of the polynomial (from higher to lower order)>");
30     scanf("%lf%lf", &ia1, &ia0);
31     /*Get the zero input value of the resulting poly*/
32     printf("Enter P(0) value for the resulting polynomial>");
33     scanf("%lf", p0);
34
35     /*Calculate the resulting poly*/
36     ra2 = (1/2)*ia1;
37     ra1 = ia0;
38
39     /*Output the resulting poly*/
40     printf("The resulting polynomial is %5.3f.", ra2, ra1, ra0);
41
42     return 0;
43 }
44
45 /*##################################################################*/
46 /*              End of HW00_Evren_Cifci_101043000.c                 */
47 /*##################################################################*/
```

Correct all syntax and logical errors in the code. Compile and link the code using the gcc compiler under Linux. Run the executable file obtained from the code, make sure that it works properly. Test it with several inputs. Submit both the error-free source code and the screen out of the executable (screen capture after an execution).

2. **(50 Pts)** Change the code in part 1 so that it takes 2 polynomials of 2nd degree and outputs the multiplication of them.

For example, if the following polynomials are given

```
2.5  3    0
1    2    1
```

your program should output

```
2.5 x^4 + 8 x^3 + 8.5 x^2 + 3 x + 0
```

where x^3 means x^3.

Redirect input and output stream for your program to input and output files. Produce a console screen-shot including:
- Creation of input text file (without using any editors)
- Execution of your code with i/o redirection
- Monitoring the content of the output text file (without using any editors)

General:
1. Obey honor code principles.
2. Obey coding convention.
3. Submit your HW using moodle system. Your submission should include the following files only:
   HW00_<student_name>_<studentSirname>_<student number>_part1.c
   HW00_<student_name>_<studentSirname>_<student number>_part1.jpg
   HW00_<student_name>_<studentSirname>_<student number>_part2.c
   HW00_<student_name>_<studentSirname>_<student number>_part2.jpg

4. Deliver the printout of your work (all 4 files) **until the last submission date**.
5. Do not use non-English characters in any part of your homework (in body, **file name**, etc.).