BİL 102 – Computer Programming
HW 01

Last Submission Date: February 26, 2013 – 09:00

1. **(35 Pts)** Write a complete C program which evaluates the following function for some user defined **integer** variables a, b and given parameters c, d (define by macros).

$$\left(\frac{a+b}{b+1}\right)^{3.8} + \sqrt{\log_3^d + \frac{13}{7}} + \sqrt[3]{a+\frac{d}{c}}$$

$c = 5$

$d = 8$

Variables a and b will be supplied by an input text file named '**Variables.txt'**. The input file will consist only the integer variables (no other text) separated by white space characters. A sample input file is provided on Moodle. The result will both be printed on the console and saved to an output text file named '**Result.txt'**. The console output should include a meaningful explanation but the file should include a numeric value only.
You may need to use some mathematical identities to implement some mathematical functions not directly supported by 'math.h' library.

2. **(30 Pts)**Write a complete C program which reads birth years of 3 students from a text file named as '**BirthYears.txt'** and calculates their average age in 2014. The format of the input file will be as follows:

<student number1> <birth year 1>
<student number 2> <birth year 2>
<student number 3> <birth year 3>

The result will both be printed on the console and saved to an output text file named '**AverageAges.txt'**. The console output should include a meaningful explanation but the file should include a numeric value only. A sample input file is provided on Moodle.

3. **(35 Pts)** Write a complete C program which reads purchase information of a company from an input text file named as '**Buys.txt**' and outputs unit prices of each item. The input file will include the information of 4 purchases. The information of each purchase will be in a separate line as shown below.

<Item code 1> <amount of item 1> <total cost 1>
<Item code 2> <amount of item 2> < total cost 2>
<Item code 3> <amount of item 3> < total cost 3>
<Item code 4> <amount of item 4> < total cost 4>

Item codes and amounts are represented by integers, total costs are represented by floating point numbers. Total costs indicate the cumulative payment, i.e. total cost 3 indicates the total payment for item1, item2 and item3.

The output will both be printed on the console and saved to a text file named '**UnitPrices.txt'**. In the console output unit prices should be displayed as TL and Kurus format, but in the file unit prices should be represented by 2 precision floating point numbers. The console output should include a meaningful explanation but the file should include item codes and unit prices separated by white space characters only. The format of the output file is shown below:

<Item code 1> <unit price 1>
<Item code 2> <unit price 2>
<Item code 3> <unit price 3>
<Item code 4> <unit price 4>

An example of inputs and outputs are shown below:

Content of 'Buys.txt':
3005 100 5050
158 200 6050
1020 50 10050
8500 20 11050

Content of 'UnitPrices.txt':
3005 50.50
158 5.00
1020 80.00
8500 50.00

Console Output:
The unit price of the item 3005 is 50TL and 50 Kurus.
…

General:

1. Obey honor code principles.
2. **Read your homework <u>carefully</u>** and follow the directives about the I/O format (data file names, file formats, etc.) and submission format **<u>strictly</u>**. Violating any of these directives will be penalized.
3. Obey coding convention.
4. Do not forget to put the required **tags** in the main function.
5. Your submission should include the following files **<u>and NOTHING MORE</u>** (no data files, object files, etc):
   HW01_<student_name>_<studentSirname>_<student number>_part1.c
   HW01_<student_name>_<studentSirname>_<student number>_part2.c
   HW01_<student_name>_<studentSirname>_<student number>_part3.c
   Put all of these files in a folder named as below, compress and upload the folder.
   HW01_<student_name>_<studentSirname>_<student number>
6. Do not use non-English characters in any part of your homework (in body, **file name**, etc.).
7. Deliver the printout of your work **until the last submission date**.