BİL 102 – Computer Programming
Project 01

Last Submission Date of the Analysis Report: Mar. 26, 2012 – 13:00

Last Submission Date of the Implementation: Apr. 02, 2012 – 13:00

1. Description of the Project

In this project you will implement a foreign exchange game. In the game, there exist 4 currencies; TL, €, $ and £. The user starts with 10000 TL and tries to increase this money as much as she can by buying other currencies. All exchanges are made once a day (in the morning) in accordance with the rates of the day.

In the beginning of each day, the user will be informed of the current exchange rates **against the currency she has** and. Then she will be asked if she is desired to consult any advisors in return for some fee. The user may retain 3 advisors; A, B and C. These advisors will have the possibilities 75%, 50% and %40 of truly guessing the most profitable choice (keeping the present currency may also be the best choice) without considering the buying commission, respectively. Their fees depend on how busy they are and will be random integers between 8TL - 20TL, 5TL -15TL, 6TL - 40TL for A, B and C, respectively. Implement the advisors by using the next day's data. Then, she can buy one of the other currencies **with all of his/her money** or keep his/her money. A commission rate of 0.0004 will be applied for each buying. At the end of each day, the user will be given a daily investment report including buying details, daily profit and the daily profit rate. Use next day's data to calculate the daily profit (next day's data is the closing session data of the present day and therefore, assumed to be available at the end of the day). After handling the last day, generate a general profit report and a detailed investment report. Investment report should include all exchange details, TL equivalent of the money the user has at the end of each day and the profit (positive, negative or zero) of each day. Display the profit report and record the investment report to a text file, named 'InvestmentReport.txt'.

Exchange data will be provided as a text file named 'ExchangeRates.txt'. Below, a sample exchange data set is given (enhanced version of this set is also provided as a text file). Using this data set, it is possible to play the game for 2 days in the following manner. The user is informed of the currency for the beginning of day 1 by using the data for day 1 and the fees for the advisors. Then, if she desires to consult any advisors, she is provided with the purposes of the desired advisors, which are prepared by using the exchange rates of day 1 and day 2. The user takes action (exchanges or keeps her money). The resulting daily investment report is displayed. Then, similar procedures are applied for day 2. After this (when the game finishes), a general profit report and an investment report are generated and output.

Day	Euro	Dollar	Pound
1	2.326	1.764	2.7802
2	2.3099	1.7596	2.7754
3	2.3015	1.7531	2.7736

Table 1: A sample foreign exchange data.

Your implementation will read the exchange rate file, given in the format described in table 1 with any number of rows, analyze it and extract the number of days the game will be played.

2. Outputs of the Project

You will submit 2 documents for this project:

Analysis report

This report will be written in Turkish and include:

- a detailed description of the project: write with your own words how it will work **in details**
- I/O report: define all inputs and outputs of your implementation
- a structure chart for the project (study chapter 4.5 of the text book)
- function prototypes: define the functions to be used in your implementation, write their prototypes, for each function give brief explanations about the function itself, each input of it, its output and the functions it calls (also mention which functions main calls).

This report will be prepared in pdf format.

Implementation

This is the source code of your implementation written in C programming language in the proper format with the following name: 'PR01_<student number>.c'.

General:

1. Obey honor code principles.
2. Obey coding convention.
3. Deliver the printout of your code until 3 days later then the last submission date.