Vending Machine Test – C# Developer

Thank you for your application. The exercise below forms part of CME's recruitment and selection process for this vacancy.

The Task:

For this problem the candidate should consider the design of a solution and provide code that represents a 'first draft' or 'prototype' solution. Consideration should be made as to a suitable level of generality as well as considering other factors such as (but not necessarily limited to) performance, flexibility, maintainability, error conditions. Where the problem is unclear the candidate should make any assumptions that they think appropriate.

Along with the code the candidate should provide some documentation (which may simply consist of comments in the code) describing the solution along with any assumptions that have been made or limitations in the provided solution. When evaluating the solution the following factors (amongst others and in no particular order) will be taken into account: correctness and efficiency of algorithms, class and method structure, appropriateness of data structures used, clarity and maintainability of code, appropriateness of assumptions, flexibility of design. There is no time-limit but it is not expected that the task should take much more than an hour.

Exercise

A vending machine sells items for various prices and can give change. At the start of the day it is loaded with a certain number of coins of various denominations e.g. 100 x 1p, 50 x 5p, 50 x 10p etc. When a drink is requested a certain number of coins are provided. Write code which models the state of the machine and calculates the change to be given when an item is purchased (e.g. 2 x 20p used to purchase an item costing 25p might return 1 x 10p and 1 x 5p).

Please complete the exercise below and return it directly to your recruiter at CME by emailing internationalrecruitment@cmegroup.com ensuring that you do not include .exe files as can bet blocked by our firewall.