## Full-stack developer test assignment

The Sustainables maken duurzaamheid makkelijk

Thank you again for applying to our vacancy. Here is a small assignment which we would like you to do in order to verify your engineering skills.

Key aspects:

1. We will check your object-oriented design skills
2. We will check the code quality
3. We will check the algorithm correctness

Requirements:

1. Please use C# for the backend (using .NET 4.0 or higher or .NET Core)
2. Feel free to use any framework for the frontend (ASP.NET MVC or SPA on Angular or whatever you’d like to work with)
3. Unit tests are beneficial but not required
4. Please share an archive or Git repository

### Description

We would like you to create a model of virtual vending machine (<https://en.wikipedia.org/wiki/Vending_machine>). Complex UI is not required, just make sure that the requirements are covered. Also would be beneficial to briefly describe what you would do differently if you had more time.

In the case of a missing requirement please come up with a reasonable solution and document your decision.

#### Initial data

Vending machine contains the following products:

* Tea (1.30 eur), 10 portions
* Espresso (1.80 eur), 20 portions
* Juice (1.80 eur), 20 portions
* Chicken soup (1.80 eur), 15 portions

At the start the vending machine wallet contains the following coins (for exchange):

* 10 cent, 100 coins
* 20 cent, 100 coins
* 50 cent, 100 coins
* 1 euro, 100 coins

The customer has an unlimited supply of coins.

#### Vending machine should support the following features:

##### Accept coins

Customer should be able to insert coins to the vending machine.

##### Return coins

Customer should be able to take back the inserted coins in case customer decides to cancel his purchase.

##### Sell a product

Customer should be able to buy a product:

* If the product price is less than the deposited amount, Vending machine should show a message “Thank you” and return the difference between the inserted amount and the price using the smallest number of coins possible.
* If the product price is higher than the amount inserted, Vending machine should show a message “Insufficient amount”

The amount and type of coins returned should be shown by the UI.