CODING ASSIGNMENT

Node.js Developer

bjss

Introduction

Pre-requisites

To take this challenge you will quite simply need to have access to a computer, email and software that can create a server application using a JavaScript & node.js stack. We strongly recommend that you have a suitable professional environment in which to work.

Instructions

The purpose of this assessment is to complete a simple programming assignment. You are required to:

- Produce a working, object-oriented and tested source code to solve the problem
- Walk through your code with the assessor, answering questions on the code and programming/design choices as requested by the assessor

These should be supplied to the BJSS in electronic format, preferably as a complete project from your IDE of choice. If you have any issues with the programming assignment, please ensure that you inform BJSS immediately. You are expected to work on this task on your own, without help or advice from others. If you need clarification on any aspect of the assessment, please seek help from BJSS by emailing the Recruitment team.

Coding Assignment

Write a program and associated unit tests that can price a basket of goods in a selected currency, accounting for special offers.

The goods that can be purchased, which are all priced in USD, are:

- Soup – $0.65 per tin
- Bread – $0.80 per loaf
- Milk – $1.15 per bottle
- Apples – $1.00 per bag

Current special offers are:

- Apples have 10 percent off their normal price
- Buy 3 Milks and get 50 cents off.

Requirements:

1. The program should provide a RESTful API that allows a basket of items to be priced.

   You are free to design the API as you think best, but the requirements are:

   - It must accept a list of **items** to be priced, and a **currency** to use, where each item is a string (e.g. “Soup"), and the currency code is a 3-character ISO currency code:
     You only need to support “GBP", “USD", & “EUR" currencies.
   - For example, to price a basket containing 3 bags of Apples & 1 Soup, in EUR, I would call the API with a payload containing

     “items": [“Apples", “Apples", “Apples", “Soup"]

     “currency" : “EUR"

- The structure of your REST endpoint URL, the HTTP METHOD, and the way you pass the “items" & “currency" are your decision.
- The response from your REST endpoint should be JSON as follows:

  { “subtotal" : <sub-total of the basket, before discounts>,
  “discounts" : <list of discounts applied. Empty if no discounts>,
  “discountAmt": <total of the discounts. Zero if no discounts>,
  “total": <total of the basket, after discounts>,
  “currency": <the currency of the basket totals>}

  For example: calling the API with “Apples Milk Soup" and “EUR", when the USD-EUR exchange rate is 0.85 Euros per USD, would return the following.

  { “subtotal" : 2.43,
  “discounts" : [“Apples 10% off"],
  “discountAmt" : 0.09 }],
  “total" : 2.34
  "currency" : "EUR }

2. To convert to other currencies, you will need to create a (free) account on currencylayer.com: https://currencylayer.com/product. This will then issue you with an API Key that permits reading from the various public APIs listed on that site. (Note that the free tier API only allows conversion where the source currency is USD, which is entirely suitable for this assignment)
   - The exchange rates may change at any time: your basket pricing API should use the latest rate.
   - You should apply the currency conversion after pricing the basket: i.e., in the example above the discountAmt is the sum of all the discounts in USD, converted to the target currency.
   - You only need to cater for a predefined list of currencies: “GBP", “EUR", USD".

Your design and code should meet these requirements and be sufficiently flexible to allow for future extensibility.

Code should be well structured, suitably commented, have error handling and be tested.