**SAPIENT CODING EXERCISE**

**Instructions**

* Duration of this exercise is 120 minutes. Please manage your time accordingly.
* Make any necessary assumption, and clearly state the assumptions made.
* Do not seek any help – online or through any other source.
* **Do not disclose this problem with anyone.**

**Expectations**

* The code should run and solve the requirement.
* Write the Unit Test Cases using JUNIT/ TestNG (if you’re not conversant with JUNIT/TestNG , just list down unit test cases).
* **Please make sure you get soft copy of sample input & output files from hiring team**

**Evaluation criteria**

* Code Completeness/ Correctness
* Code Structure and quality: Modularity, usage of OO principles, size of classes/functions, class/function/variable names, package/class structure
* Choice of data structures
* Unit Test cases

**The better you perform on these criteria, higher you will score.**

**Problem Statement**

Sapient has won a bid for ABC agency (will be referred as client going forward) which publishes the per capita income data for various cities / countries. Client receives the income information from various external sources. The per capita income information are received in a pre-configured format, for example, CSV, EXCEL, XML or a simple pipe delimited format text file placed at a file location.

**Note:** The code should handle csv format input, however the design should be extensible to support other input formats as well in future.

Client wants to -

1. Load the income data (as described in Sample\_Input.csv) into the system.
2. Calculate the average income in USD (US Dollar), (currency conversion is required if needed).
3. The records should be grouped by Country and gender (refer Sample\_Output.csv).

**Note:** City should be used where country is not available.

**Currency Rates**

|  |  |
| --- | --- |
| **USD (US Dollar)** | **Currency** |
| 1 $ | 66 INR |
| 1 $ | 0.67 GBP |
| 1 $ | 1.5 SGD |
| 1 $ | 8 HKD |

**Objective**

The objective of the system is:

* To read the average income information into the system. The various attributes are listed below.
* To calculate the average income grouped by country and gender.
* To provide API to get the summary report in a particular format (format mentioned below) **in a csv file**.

**Attributes (provided in the Input)**

|  |  |
| --- | --- |
| **Attribute name** | **Attribute Description** |
| City | City |
| Country | Country (Not Mandatory) |
| Gender" | M / F |
| Currency | The base currency (e.g. INR for Indian rupee, SGD for Singapore dollar, HKD for Hong kong Dollar) |
| Amount | Average Income, in decimals. |

**Summary Report Definition**

The summery report should print the average price grouped by country and gender **in a csv file**. Report should be **SORTED** further by Country, gender and average price.

**Note:** City should be used where country is not available.

|  |  |  |
| --- | --- | --- |
| **Country / City Name** | **Gender** | **Average Income (USD)** |
|  |  |  |
|  |  |  |

**Sample java command**

java <MainClass> <Sample\_Input.csv> <Sample\_Output.csv>

**Sample Data**

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