

Java Developer Exercise

Specification for a customer Rating Application

This is a specification for customer rating application. The application should compute and assign each customer in the system a rating value when executed.

Each Customer has following properties:

CUSTOMER:

- ID (Number)
- Username (String)
- Country of origin (String)
- Country of Residence (String)
- Date of birth (Date)
- Sex (String)
- Rating (Decimal)
- Creation Date (Date) → Date the customer's profile was created

Country of origin and country of residence should be represented as one of 4 possible zones

- EU
- US/CA
- Europe (None-EU)
- Others

The customer Rating should be calculated using the following formula:

$$\text{RATING} = \frac{\sqrt{\frac{1}{3}\pi \cdot R} + \sqrt{(0.1 \cdot \text{AGE}) + (1-R)^2}}{0.25(1+R)}$$
, where R is the Rating offset and AGE the current age of the customer in years.

The Rating offset R is decided based on the country of origin of the customer as follows

- 1 if an EU Country
- 2 if country is US/CA
- 3 Europe (None-EU)
- 4 for Others

The calculated Rating should be adapted if one of the following conditions are met

- If the country of origin of the Customer is EU and the customer's residence is US/CA the rating should be increased by 5%
- If the country of origin of the Customer is EU and the customer's residence is neither US/CA nor EU the rating should be increased by 20%
- If the country of origin of the Customer is US/CA and the customer's residence is EU the rating should be increased by 10%
- If the country of origin of the Customer is US/CA and the customer's residence is neither US/CA nor EU the rating should be increased by 25%
- If the country of origin of the Customer is Europe (None-EU) and the customer's residence is either US/CA or EU the rating should be decreased by 10%
- If the country of origin of the Customer is Europe (None-EU) and the customer's residence is Others the rating should be increased by 25%

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- If the country of origin of the Customer is Others and the customer's residence is either US/CA or EU the rating should be decreased by 25%
- If the country of origin of the Customer is Others and the customer's residence is Europe (None-EU) the rating should be decreased by 10%
- If the customer profile is older than 5 years the rating should be reduced by 10%.
- The initially computed value RATING should only be adapted once irrespective of how many of the above conditions the customer fulfils.
- All male customers in the EU or US/CA older than 75 years get a minimum rating 5
- All female customers in the EU or US/CA older than 75 years get a minimum rating 3
- Assigned final Rating should not exceed 10 and not less than 1