**Design Document**

**Customer Rewards**

Date: 06-09-2024

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**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Date** | **Reason for Changes** | **Version** |
| Shirisha Gajam | 06-09-2024 | Initial Draft | 1.0 |

1. **Introduction**

Customer Rewards is a Spring Boot Application which provides a Rest Api to calculate rewards for the purchases made by each customer. A retailer offers a rewards program to its customers, awarding points based on each recorded purchase. Given a record of every transaction during a three months period, calculate the reward points earned for each customer per month and total. This document is to demonstrate the technical design and specification of this api.

**Rewards Calculation Logic:**

A customer receives 2 points for every dollar spent over $100 in each transaction, plus 1 point for every dollar spent between $50 and $100 in each transaction.

(e.g. a $120 purchase = 2x$20 + 1x$50 = 90 points).

1. **Technical Approach**
   1. **Technological Stack**

* Jdk 1.8
* Maven
* Spring Boot 2.1.9
* H2 Database
* Tomcat Server
  1. **Tools**
* **STS –** IDE for development
* **Postman –** For testing Rest Api

1. **System Architecture**

JSON

GET

DB

CustomerRewards Api

User

1. **Data Model**

|  |
| --- |
| customer |
| pk id *integer* |
| name *string* |

|  |
| --- |
| customer\_transaction |
| pk id *Long* |
| description *string* |
| total *Double* |
| save\_date *Date* |
| fk customer\_id *integer* |

1. **Api Specification**

* 1. **List of Apis**

|  |  |
| --- | --- |
| **Api Name** | **Url** |
| GetAllCustomers | http://localhost:8080/customers |
| GetCustomer | http://localhost:8080/customers/{id} |

* 1. **Swagger Documentation**

<http://localhost:8080/swagger-ui/index.html>

* 1. **Database Endpoint**

<http://localhost:8080/h2-console>

* 1. **Api Responses**
* An appropriate 200, 4xx and 5xx HTTP status code will be returned
* HTTP status code 200 will indicate that the call succeeded
* Non-200 status will be returned if something went wrong

1. **Get All Customer List Api**
   1. **Functionality**

This is a GET request to fetch all the customer list with their transaction details and the calculated rewards.

Rewards calculation eg:

A customer receives 2 points for every dollar spent over $100 in each transaction, plus 1 point for every dollar spent between $50 and $100 in each transaction.

* 1. **Input Fields**

**NA**

* 1. **URL**

<http://localhost:8080/customers>

* 1. **Sample Response Payload**

[

{

"id": 101,

"name": "Ramesh",

"transactions": [

{

"points": 15,

"id": 10005,

"total": 65.0,

"description": "Product 1",

"saveDate": "2024-09-04T16:54:00.000+0000"

},

{

"points": 270,

"id": 10006,

"total": 210.0,

"description": "Product 2",

"saveDate": "2024-08-24T16:54:00.000+0000"

}

],

"rewardPoints": 285,

"totalPurchases": 275.0

},

{

"id": 102,

"name": "Prakash",

"transactions": [

{

"points": 0,

"id": 10007,

"total": 40.0,

"description": "Product 10",

"saveDate": "2024-09-04T16:54:00.000+0000"

}

],

"rewardPoints": 0,

"totalPurchases": 40.0

}

]

1. **Get Customer**
   1. **Functionality**

This is a GET request to fetch all the customer list with their transaction details and the calculated rewards for the given Customer id

* 1. **Input Fields**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Field Name** | **M/O** | **Type** | **Valid Values** | **Description** |
| id | M | Integer | 100 | Customer id |

* 1. **URL**

<http://localhost:8080/customers>/{id}

* 1. **Sample Response Payload**

{

    "id": 101,

    "name": "Ramesh",

    "transactions": [

        {

            "points": 15,

            "id": 10005,

            "total": 65.0,

            "description": "Product 1",

            "saveDate": "2024-09-04T16:54:00.000+0000"

        },

        {

            "points": 270,

            "id": 10006,

            "total": 210.0,

            "description": "Product 2",

            "saveDate": "2024-08-24T16:54:00.000+0000"

        }

    ],

    "rewardPoints": 285,

    "totalPurchases": 275.0

}

1. **Http Status Codes**

|  |  |
| --- | --- |
| HTTP Status Code | Description |
| 200 | Success |
| 400 | Bad Request |
| 404 | Resource Not Found |
| 500 | Internal Server Error |