NAB Assignment Design

Introduction

Bank ABC want to provide a new feature on its website. The feature is to purchase prepaid data for a SIM card by getting a voucher code from a 3rd party. Anyone can purchase the prepaid data on the website without login.

Requirement

The bank wants to build a new service(s) to integrate with that 3rd party. But it expects that the API will return voucher code or a message that says the request is being processed within 30 seconds.

If the web application receives the voucher code, it will show on the website for customers to use. In case that the code can't be returned in-time, the customer can receive it via SMS later.

The customer can check all the voucher codes that they have purchased by phone number on the website, but it needs to be secured.

Assume that the payment has been done before the website call to the services to get the voucher code.

Goal

This document will provide detail design of this new system, developers can use it to start implement system.

High level design

The basic algorithm executed by new service is to take information of amount payment of customer: phone number, amount as its input and execute the following steps:

1. Validation customer information
2. Process payment with customer information
3. If process payment success will get voucher code.
4. If process payment failed after try 3 times, system will write to Database to tracking
5. Processing to get voucher code from 3rd API
6. If get voucher code from 3rd API is success , system will return for customer using
7. If get voucher code from 3rd API failed after try 3 times, system will write to database and send voucher code through SMS after.

So, base on above steps, we need minimize these components :

* API: Endpoint to call from website
* Payment: To store payment information
* Voucher: To store information from 3rd API
* Datastore: Store information as voucher, customer, payment

Diagram

Description automatically generated

Detail Component Detail

Diagram

Description automatically generated

Database Schema

CREATE TABLE `passcode` (

`pass\_code` varchar(6) NOT NULL,

`phone\_number` varchar(20) NOT NULL,

`created\_date` datetime DEFAULT NULL,

`status` int DEFAULT NULL,

`updated\_date` datetime DEFAULT NULL,

`status\_code` int NOT NULL,

PRIMARY KEY (`pass\_code`,`phone\_number`),

KEY `idx\_phone\_number` (`phone\_number`),

KEY `idx\_pass\_code` (`pass\_code`)

) ENGINE=MyISAM DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE `prepaid` (

`id` binary(255) NOT NULL,

`amount` double NOT NULL,

`created\_date` datetime DEFAULT NULL,

`customer\_id` binary(255) DEFAULT NULL,

`updated\_date` datetime DEFAULT NULL,

PRIMARY KEY (`id`)

) ENGINE=MyISAM DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE `voucher` (

`id` binary(255) NOT NULL,

`code` varchar(50) DEFAULT NULL,

`created\_date` datetime DEFAULT NULL,

`phone\_number` varchar(20) DEFAULT NULL,

`status` int DEFAULT NULL,

`status\_code` int NOT NULL,

`transaction\_id` binary(255) DEFAULT NULL,

`updated\_date` datetime DEFAULT NULL,

PRIMARY KEY (`id`),

KEY `idx\_code` (`code`),

KEY `idx\_phone\_number` (`phone\_number`),

KEY `idx\_transaction\_id` (`transaction\_id`)

) ENGINE=MyISAM DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;

CREATE TABLE `payment` (

`id` binary(255) NOT NULL,

`amount` double NOT NULL,

`created\_date` datetime DEFAULT NULL,

`phone\_number` varchar(255) DEFAULT NULL,

`updated\_date` datetime DEFAULT NULL,

PRIMARY KEY (`id`)

) ENGINE=MyISAM DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4\_0900\_ai\_ci;