

# Database Schema

## Introduction

The rewards system is designed to incentivize user engagement by allowing users to earn and redeem points for various rewards, including coupons and donations. The system comprises two main tables: Reward and RedeemedItem, which manage the data related to points accumulation, redemption, and item details. A set of API endpoints facilitates interactions such as earning points, redeeming rewards, tracking redemption history, and integrating with other systems like user profiles and feedback mechanisms. This document outlines the schema and API design of the rewards system, ensuring scalability, usability, and seamless integration with other modules.

## Reward Table

```
CREATE TABLE Reward (  
    reward_id INT AUTO_INCREMENT PRIMARY KEY,  
    user_id INT NOT NULL,  
    points_earned INT NOT NULL,  
    points_redeemed INT NOT NULL,  
    reward_description VARCHAR(255) NOT NULL,  
    is_active BOOLEAN NOT NULL,  
    earned_date TIMESTAMP NULL,  
    redeemed_date TIMESTAMP NULL,  
    FOREIGN KEY (user_id) REFERENCES User(user_id)  
);
```

## Redeemed Item Table

```
CREATE TABLE RedeemedItem (  
    reward_id INT UNIQUE NOT NULL,  
    amount DOUBLE NOT NULL,  
    item_description VARCHAR(255) NOT NULL,  
    item_code VARCHAR(16) NULL,  
    PRIMARY KEY (reward_id),  
    FOREIGN KEY (reward_id) REFERENCES Reward(reward_id)  
);
```

# Relationships

Reward to RedeemedItem: One-to-One relationship.

## API Endpoints

### Point Accumulation

#### Earn Points

Endpoint: POST /rewards-api/earn-points/

Request Body:

```
{  
  "user_id": INTEGER,  
  "points_earned": INTEGER,  
  "reward_description": STRING  
}
```

#### Purchase

Endpoint: POST /rewards-api/purchase/

Request Body:

```
{  
  "user_id": INTEGER,  
  "reward_description": STRING,  
  "price": DOUBLE  
}
```

### Redeeming Points

#### Redeem Coupon

Endpoint: POST /rewards-api/redeem-coupon/

Request Body:

```
{  
  "user_id": INTEGER,  
  "points_redeemed": INTEGER,  
  "reward_description": STRING,  
  "amount": DOUBLE  
}
```

## Redeem Donation

Endpoint: POST /rewards-api/redeem-donation/

Request Body:

```
{  
  "user_id": INTEGER,  
  "points_redeemed": INTEGER,  
  "reward_description": STRING,  
  "donation_amount": DOUBLE  
}
```

## Redemption Tracking

### Use Coupon

Endpoint: POST /rewards-api/use-coupon/

Request Body:

```
{  
  "item_code": STRING  
}
```

### Get Redemption

Endpoint: POST /rewards-api/get-redemptions/

Request Body:

```
{  
  "user_id": INTEGER  
}
```

## Bonus Points

### Submit Feedback

Endpoint: POST /rewards-api/submit-feedback/

Request Body:

```
{  
  "user_id": INTEGER,  
  "reward_description": STRING  
}
```

# Integration

## Get User Info

Endpoint: POST /rewards-api/get-user-info/

Request Body:

```
{  
  "user_id": INTEGER  
}
```

Response:

```
{  
  "total_points": INTEGER,  
  "redemption_history": [  
    {  
      "points_earned": INTEGER,  
      "points_redeemed": INTEGER,  
      "earned_date": TIMESTAMP,  
      "redeemed_date": TIMESTAMP,  
      "reward_description": STRING  
    }  
  ]  
}
```