Project Documentation for Reward Management System

Project Title: Reward Management System

Project Description:

The Reward Management System is a comprehensive solution designed to enable users to redeem various types of rewards using accumulated points. The system supports multiple reward types, including discount codes, raffle chances, free products, and conditional cash discounts. This system aims to enhance user engagement by providing diverse reward options that can be redeemed based on the points users collect.

Models:

Point Model:

- user: A foreign key that links to the user associated with the points. This relationship allows tracking of points per user.
- points: An integer field representing the total number of points the user has accumulated.
- last_updated: A timestamp indicating the last update made to the user's points. This field is automatically updated whenever the points are modified.

RewardReference Model:

- content_type: A foreign key to the ContentType model, which specifies the type of the reward content (e.g., RaffleChance, DiscountCode).
- object_id: An integer representing the unique identifier of the reward content.
- content_object: A GenericForeignKey linking to the actual reward content object.
- points: A foreign key linking to the Point model, representing the points associated with the reward.

Base Reward Model (Reward):

- points_required: An integer field indicating the number of points required to redeem the reward.
- description: A text field providing additional details about the reward, which can be used to describe its benefits or usage.

RaffleChance Model:

- name: A string field representing the name of the raffle chance.
- quantity: An integer field indicating the number of available raffle chances that can be redeemed.

- DiscountCode Model:
- code: A unique string representing the discount code.
- product_category: A string field specifying the category of products applicable for the discount.
- discount_percentage: A decimal field indicating the percentage of the discount.
- valid_from: A datetime field specifying the start date of the discount code's validity.
- valid_until: A datetime field specifying the end date of the discount code's validity.
- is_valid(): A method that checks whether the discount code is currently valid based on the valid_from and valid_until dates.

ConditionalDiscountCode Model:

- code: A unique string representing the discount code.
- product_category: A string field specifying the category of products applicable for the discount.
- discount_percentage: A decimal field indicating the percentage of the discount.
- purchase_threshold: A decimal field specifying the minimum purchase amount required to use the discount code.
- condition: A string field indicating the condition of the purchase threshold (e.g., greater_than, less_than).
- valid_from: A datetime field specifying the start date of the discount code's validity.
- valid_until: A datetime field specifying the end date of the discount code's validity.
- is_valid(): A method that checks whether the conditional discount code is currently valid based on the valid_from, valid_until, and purchase condition.

FreeProduct Model:

- product_name: A string field representing the name of the free product.
- quantity: An integer field indicating the number of free products available for redemption.

ConditionalCashReward Model:

- discount_value: A decimal field representing the amount of cash discount offered.
- purchase_threshold: A decimal field specifying the minimum purchase amount required to use the cash discount.
- condition: A string field indicating the condition of the purchase threshold (e.g., greater_than, less_than).
- valid_from: A datetime field specifying the start date of the discount's validity.
- valid_until: A datetime field specifying the end date of the discount's validity.
- is_valid(): A method that checks whether the conditional cash reward is currently valid based on the valid_from, valid_until, and purchase condition.

Admin Configuration (admin.py):

RaffleChance Management:

- Admin Class: RaffleChanceAdmin
- Functionality: This class provides the interface for managing RaffleChance instances in the Django admin panel. It includes options to add, edit, and delete raffle chances. The display includes fields such as name, quantity, points_required, and description.

DiscountCode Management:

- Admin Class: DiscountCodeAdmin
- Functionality: This class manages DiscountCode instances. It provides functionality for adding, editing, and deleting discount codes. The display in the admin panel includes fields like code, product_category, discount_percentage, valid_from, and valid_until. The admin interface also supports searching by code and product_category, and filtering by valid_from and valid_until.

ConditionalDiscountCode Management:

- Admin Class: ConditionalDiscountCodeAdmin
- Functionality: This class manages ConditionalDiscountCode instances. It offers options to add, edit, and delete conditional discount codes. The admin interface displays fields such as code, product_category, discount_percentage, purchase_threshold, condition, valid_from, and valid_until. Additionally, it supports searching by code and product_category, and filtering by condition, valid_from, and valid_until.

FreeProduct Management:

- Admin Class: FreeProductAdmin
- Functionality: This class provides management features for FreeProduct instances. The admin panel allows for the addition, editing, and deletion of free products. Key fields displayed include product_name, quantity, points_required, and description.

ConditionalCashReward Management:

- Admin Class: ConditionalCashRewardAdmin
- Functionality: This class handles ConditionalCashReward instances. It includes functionality for adding, editing, and deleting cash rewards. The admin interface shows fields like discount_value, purchase_threshold, condition, valid_from, and valid_until. Filtering options are available based on condition, valid_from, and valid_until.

Summary:

The Reward Management System is designed to provide a robust framework for managing and redeeming rewards through a point-based system. The models include a variety of rewards that users can earn and redeem, and the admin configuration ensures efficient management and customization of these rewards. This documentation provides a comprehensive overview of the system's features, models, and administrative tools to facilitate development, deployment, and ongoing maintenance.