

**Centre for Distance and Online Education**

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**Name of the programme** : MCA **Semester** : IV

**Course Code**  : 223MCA4201 **Regulation** : Jul 2023

**Project Title** : Loyalty Rewards Engine for E-Commerce

**Abstract**

This project presents a **Loyalty Rewards Engine for E-Commerce** aimed at increasing customer engagement and retention through a point-based rewards system. Users can earn points via purchases or referrals, unlock tier-based benefits, and redeem rewards from an admin-managed catalogue. The system also enables promotional campaigns and detailed admin analytics.

The backend is built with Django REST Framework and PostgreSQL, offering secure APIs for point tracking, tier evaluation, reward redemption, and campaign management. JWT authentication ensures secure user access. The React frontend provides a responsive interface for both customers and admins.

Key modules include:

* **Customer Module**: Point accumulation, tier tracking
* **Rewards Module**: Reward catalogue, redemption logic
* **Campaign Manager**: Promotion setup, expiry control
* **Admin Analytics**: Heatmaps, redemption history

This solution is scalable and supports future integrations like WhatsApp API and exportable reports. It offers real-world value for e-commerce platforms by improving user retention through personalized incentives. The project also demonstrates strong backend and frontend development skills using modern web technologies.

**Tools & Technologies Used:** Django REST, PostgreSQL, JWT/Auth, React frontend

Approval Committee

Signature of the Signature of the Deputy Director - CDOE Director - CDOE

**ER (Entity Relationship) Diagram or DFD (Data Flow Diagram)**

**Loyalty Management System Planning Flow Chart**

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Customer Signup/Login

**↓**

Earn Points (Purchase/Referral)

**↓**

Update Total Points & Tier Status

**↓**

View & Select Available Rewards

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Redeem Reward (if eligible)

**↓**

Log Redemption + Notify Customer

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Admin Campaign Configuration

**↓**

View Analytics & Audit Logs

**↓**