# Capstone Project Proposal

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Project Title: RewardMountan: Multi-Tenant Business Rewards Platform

Duration: 3 Months

Advisor: Nabil Makarem

## Executive Summary

RewardMountan is a comprehensive Software-as-a-Service (SaaS) platform that enables businesses of all sizes to create and manage customer loyalty programs through user-friendly web and mobile applications. Similar to website builders like Squarespace and GoDaddy, RewardMountan provides businesses with customizable templates and intuitive tools to design their own branded rewards system without technical expertise. The platform features a dual-portal architecture serving both business administrators and end customers, with cross-platform compatibility through React web application and React Native mobile applications.

## Problem Statement

Small to medium-sized businesses struggle to implement effective customer loyalty programs due to high development costs, technical complexity, and lack of customization options in existing solutions. Businesses need an accessible, affordable solution that allows them to create branded, feature-rich loyalty programs that engage customers across both web and mobile platforms.

## Project Objectives

### Primary Objectives

1. Develop a multi-tenant Saas platform for business rewards system creation and management
2. Create intuitive template-based system for non-technical business users
3. Build customer-facing web and mobile applications for rewards interaction
4. Implement comprehensive analytics and reporting dashboard for businesses
5. Design scalable architecture supporting multiple business types and reward structures

### Learning Objectives

1. Master multi-tenant application architecture and data isolation
2. Develop expertise in template engine implementation and dynamic UI generation
3. Gain experience with business analytics integration and data visualization
4. Understand SaaS business model implementation and customer onboarding flows
5. Learn DevOps practices for scalable application deployment

## Technical Architecture

### Technology Stack

* Frontend Web: React.js with JavaScript
* Mobile: React Native
* Backend: Node.js with Express.js
* Database: MongoDB with Mongoose ODM
* Authentication: JSON Web Tokens (JWT) with role-based access control
* Analytics: Python scikit learn
* Deployment: Docker containerization with potential cloud deployment