Gamified Digital Commerce Platform

Project Description

Project Overview

This capstone project involves developing an innovative gamified digital commerce platform that revolutionizes how consumers discover and access discounted Products, Services, Activities, and Attractions (PSAAs) in the Las Vegas market. The system will demonstrate that discounting with gamification is significantly more effective than traditional discounting methods by leveraging real-time consumer demand analytics and personalized targeting.

Problem Statement

Current discount systems in the hospitality and entertainment sectors lack personalization and fail to optimize consumer engagement. Traditional discount offerings do not consider real-time consumer demand patterns, resulting in suboptimal conversion rates and customer satisfaction. There is a critical need for an intelligent system that can analyze consumer preferences dynamically and deliver targeted, gamified discount experiences.

Solution Approach

The platform will create a comprehensive ecosystem serving two primary market segments:

- **Internal Casino Venues**: Including gaming establishments, restaurants, spas, and retail shops within casino properties
- **External Las Vegas Attractions**: Encompassing shopping districts, entertainment venues, and tourist destinations throughout the Las Vegas metropolitan area

The system will utilize existing discount data as a baseline to demonstrate the superior effectiveness of gamified discount mechanisms compared to conventional approaches.

Team Configuration

Project Acronym: GBCP (Glam Brandi Commerce Platform)

Recommended Team Size: 8-10 students (optimal for system complexity and parallel development tracks)

Required Skill Sets:

- Frontend Development (React/Angular, responsive design)
- Backend Development (API design, database management)
- Data Analytics and Visualization
- Real-time Systems Development
- Cybersecurity Implementation
- User Experience Design
- Quality Assurance and Testing

Technical Considerations

Core System Architecture

1. Real-Time Data Processing Engine

- Implementation of consumer-demand scraping mechanisms
- Development of histogram-based demand analysis algorithms
- Fast icon construction and dynamic content generation
- Real-time response capabilities for consumer interactions

2. Personalization and Gamification Framework

- Consumer behavior analysis and profiling systems
- Dynamic discount calculation based on demand patterns
- Gamified user engagement mechanisms
- Reward and incentive management systems

3. Multi-Tenant Customization Platform

- Customized look-and-feel interfaces for different seller categories:
  - Casino operators and gaming venues
  - Shopping centers and retail establishments
  - Restaurant and hospitality services
  - Entertainment and attraction venues
- Scalable branding and theming capabilities
- Seller-specific dashboard and management tools

4. Vacation Planning Integration

- Intelligent front-end menu system for Las Vegas vacation planning
- 4-day/3-night itinerary generation based on:
  - Family composition and group dynamics
  - Budget constraints and spending preferences
  - Interest categories and activity preferences

- - Real-time availability and pricing

Security and Compliance Framework

Implemented Security Measures

- Data encryption and secure transmission protocols
- User authentication and authorization systems
- Compliance with hospitality industry security standards

To-Be-Implemented Security Features

- Advanced threat detection and monitoring
- Secure API gateway implementation
- Privacy protection and data anonymization

Testing and Evaluation Methodology

Dual-Perspective Testing Approach

Seller Perspective Testing:

- Dashboard functionality and usability
- Revenue impact measurement
- Integration with existing point-of-sale systems
- Analytics and reporting capability validation

Consumer Perspective Testing:

- User experience and interface testing
- Gamification effectiveness measurement
- Discount satisfaction and engagement metrics
- Mobile responsiveness and cross-platform compatibility

A/B Testing Framework

- Comparison between gamified vs. traditional discount systems
- Conversion rate analysis and statistical significance testing
- Consumer behavior pattern analysis
- Revenue optimization validation

Innovation Elements

Primary Innovation Areas

1. **Real-Time Demand Analytics**: Revolutionary approach to understanding and responding to consumer demand patterns instantaneously
2. **Adaptive Gamification**: Dynamic adjustment of gamification elements based on individual consumer behavior and preferences
3. **Multi-Venue Integration**: Seamless experience across diverse Las Vegas entertainment and hospitality venues
4. **Intelligent Vacation Planning**: AI-driven itinerary creation that optimizes both consumer satisfaction and merchant revenue

Competitive Advantages

- Superior personalization through real-time data processing
- Enhanced consumer engagement through gamification
- Comprehensive ecosystem approach covering entire Las Vegas experience
- Data-driven optimization for both consumers and merchants

Implementation Timeline and Deliverables

Phase 1: Foundation Development (Weeks 1-4)

- System architecture design and database schema
- Core backend API development
- Basic security framework implementation
- Initial frontend wireframes and design system

Phase 2: Core Functionality (Weeks 5-8)

- Real-time scraping and data processing implementation
- Gamification engine development
- Multi-tenant customization framework
- Basic testing and quality assurance

Phase 3: Advanced Features (Weeks 9-12)

- Vacation planning system integration
- Advanced analytics and reporting
- Comprehensive security implementation
- Extensive testing and optimization

Phase 4: Deployment and Documentation (Weeks 13-16)

- Production deployment preparation
- User training materials and documentation
- Final testing and bug resolution

- Project presentation and knowledge transfer

Deployment and Training Requirements

Casino and Merchant Training Program

- User experience training for merchant dashboard systems
- Consumer engagement strategy workshops
- Technical integration support and documentation

Data Management and Analytics Tools

- Real-time data collection and monitoring systems
- Advanced analytics and reporting dashboards
- Performance metrics and KPI tracking tools

Quality Assurance and Maintenance Framework

- Automated bug detection and logging systems
- Error reporting and resolution workflows
- System monitoring and performance optimization tools
- Continuous improvement and update mechanisms

Confidentiality and Intellectual Property

Non-Disclosure Agreement Requirements

All participating students must execute comprehensive non-disclosure agreements covering:

- Proprietary technology and methodologies
- Business strategies and market intelligence
- Consumer data and analytics insights
- System architecture and implementation details

Code Access and Collaboration Limitations

- Students will not have access to proprietary codebase after the semester ends
- Collaboration limited to testing and functionality validation
- All code disclosure restricted to final academic team report
- External discussions prohibited to anyone outside team, except faculty, until project is completed

Academic Compliance

All confidentiality measures will comply with UNLV academic requirements while protecting proprietary business information and maintaining the integrity of ongoing parallel development efforts.

Success Metrics and Evaluation Criteria

Quantitative Success Indicators

- Improved conversion rates compared to traditional discount systems
- Enhanced consumer engagement metrics and session duration
- Increased merchant revenue and customer acquisition
- System performance benchmarks (response time, scalability, reliability)

Qualitative Success Indicators

- User satisfaction scores from both consumers and merchants
- Ease of integration and deployment feedback
- Innovation and creativity in solution approach
- Professional documentation and presentation quality

This comprehensive capstone project offers students the opportunity to work on cutting-edge technology while addressing real-world business challenges in the rapidly evolving digital commerce landscape.