School of Art and Sciences

Department of Computer Science

B.Sc. in Computer Science

COMP 4811: Final Year Project1

# Proposal Form

|  |  |  |
| --- | --- | --- |
| Title: | Development and Implementation of an ECommerce Web Platform AliCart | |
| Project author: | Markhabo Rakhmatshoeva |  |
| Supervisor: | Dr. Ayman Aljarbouh |  |
| Cosupervisor | Dr. Issam EI Moughrabi |  |
| Main subject Area(s): | 1. Accessibility of goods  2. Affordability of products  3. Expansion of product variety  4. Challenges of physical shopping  5. Online shopping adoption  6. Trust and reliability in ecommerce  7. Customer support and service | |
| Keywords: | ECommerce, Online shopping, Customer support, Trust and reliability, Safe delivery, Accessibility, Affordability, Variety of items, Food and clothing, Technology, Fashion industry, Branded clothing | |
| Project type: | AliCart is a project centered on Innovation and New Business Model development, focusing on Software Development to create an ecommerce platform tailored for the unique needs of Badakhshan, Tajikistan. It addresses significant Problem Solving challenges in regional accessibility and market limitations, offering a sustainable solution that connects local producers and consumers through technology. | |
| Methodologies: | Agile methodology, Responsive Web Design (RWD), Quality Assurance (QA) and Testing, DevOps, Customer Development, Waterfall model | |
| Short project description: | AliCart is an ecommerce website designed to simplify the lives of people in Badakhshan, Tajikistan. Our mission is to make a wide variety of items, from food and clothing to technology, readily accessible and affordable.  In Pamir, Badakhshan, accessing more than basic necessities can be challenging. The fashion industry is underdeveloped, and branded clothing, primarily available in the capital city of Dushanbe—a 13hour car ride away—is scarce and expensive. For daily essentials, residents often travel to Khorog, regardless of their proximity. For example, villagers from my community must switch public transport twice to reach the Khorog bazaar, despite being only 20 minutes away. Additionally, with most people engaged in 9 to 5 jobs, finding time for shopping or errands is difficult, leaving little time for rest over the weekend.  AliCart aims to alleviate these challenges by enabling customers to order from the convenience of work or home, with the assurance of safe delivery. We understand the limitations in Khorog, where selections are narrow, prices are high, and the quality often does not justify the cost. We are committed to offering a broad range of options and will source items upon request if they are not available on our site.  While online shopping is not yet widespread in my community, and there is a reluctance to use wellknown platforms like Amazon and Wildberries due to fears of scams, AliCart is different. Our customers know us from our physical shops in Khorog, which helps establish trust and reliability. We also provide 24/7 customer support and are readily available at our physical location to assist with any inquiries, ensuring issues are resolved promptly, typically within a day.  Additionally, AliCart will be a platform where local vendors can sell their products. For example, artisans in Pamir who produce handicrafts but lack a marketplace can now sell their items on our site. Many in Pamir rely on remittances from family members in Russia due to low local salaries, and selling locally produced goods like fruits and vegetables can provide a significant income boost. Vendors can simply upload their products, list their contact information, and connect directly with customers.  While there are a few similar websites in Tajikistan, mostly in the capital or nearby cities, none currently serve Pamir, Badakhshan. Given that my family already owns three wellknown and trusted shops in Pamir, I believe launching AliCart here will be successful and greatly benefit the community. | |
| Project Aim and Objective(s): | AliCart is designed to simplify shopping by providing an accessible and convenient ecommerce platform for the residents of Badakhshan, Tajikistan. The aim is to enhance the quality of life by making a wide range of products available from the comfort of home or workplace, thereby reducing the need for long and often inconvenient trips to distant markets.  Objectives:  **Increase Accessibility:** Make a diverse array of products, including food, clothing, and technology, easily accessible to people in remote and underserved areas of Badakhshan.  **Enhance Affordability and Variety**: Offer competitive pricing and a broader selection of goods compared to what is available locally, addressing the high cost and limited variety issues in regional markets such as Khorog. | |
| Equipment and critical resources required: | To successfully launch and operate AliCartseveral critical resources and pieces of equipment are essential. Here’s a detailed breakdown:  1. Technology Infrastructure:  Web Servers: Reliable servers to host the ecommerce platform, ensuring it can handle high traffic and provide continuous uptime. For this project, Beget is used and it is one of the most reliable hosting with certificate to keep the website secured.  Database Systems: Robust databases to store and manage user data, product information, transaction details, and vendor data securely.  Content Delivery Network (CDN): A CDN to ensure fast loading times of the website content across Badakhshan and potentially broader areas.  2. Software and Development Tools:  Secure Payment Gateway: Integration of secure payment processing systems to handle transactions safely and support multiple payment methods.  3. Logistics and Supply Chain Management:  Warehousing: Adequate storage facilities to keep inventory that is ready for dispatch.  Delivery Vehicles: Reliable transportation means, such as vans or motorbikes, especially equipped for the hilly and rugged terrain of Badakhshan.  4. Human Resources:  Technical Team: Skilled IT stuff who can take the responsibility for the website and to keep it updated and secured. Meanwhile for a year it will be me,  Customer Service Team: Trained customer support personnel available 24/7 to assist with inquiries and resolve issues. Besides, these people have to manage inventory. handle fulfillment, and ensure timely delivery of products.  5. Marketing and Advertising:  Advertising Budget: Funds allocated for promoting the platform through various Instagram and Facebook account to increase visibility and attract customers.  6. Security Measures:  Data Protection Solutions: Tools and protocols to protect sensitive customer and business data  7. Legal and Compliance:  Legal Counsel: Expertise in local and international ecommerce laws to ensure compliance with all regulations.  8. Training and Development:  Employee Training Programs: Regular training for all staff to keep them updated on the latest technologies and customer service practices.  Vendor Onboarding Resources: Resources to help new vendors understand how to list their products and manage their online presence effectively. Short reels of how to use the platform for both vendors and customers will be created to ease the process. | |
| Recommended pre requisites / Knowledge required and Supporting 3rd Year Study units: | Web Development  Database Management UI/UX Design  Server Administration Cybersecurity  Machine Learning Data Analysis  Digital Marketing  Project Management  Business Management | |
| Foreseeable Ethical issues and how these will be tackled (if applicable): | Data Privacy: Protect customer data  Fair Pricing: Maintain transparent and competitive pricing.  Counterfeit Products: Implement quality control and verify product authenticity.  Ethical Sourcing: Partner with ethical suppliers.  Accessibility: Ensure the platform is accessible.  User Reviews: Check daily or in every two days  Local Business Impact: Support local businesses.  Customer Data Handling: Obtain clear consent and protect customer data. Customer Trust: Invest in fraud prevention and security.  Inclusivity: Offer diverse product selections and promote inclusivity.  Worker Rights and Welfare: | |
| Copyright note: (specify copyrights) | There are two options:   * Opensource software protected by the Apache License 2.0 (permissive software license)   UCA Copyright | |
| Expected outcomes: | For the AliCart ecommerce platform project, several positive outcomes are anticipated, assuming effective implementation and management. Here are the expected outcomes:  1. Enhanced Accessibility and Convenience: Customers in Badakhshan will have easier access to a broader range of products, from basic necessities to luxury items, all available online. This convenience eliminates the need for long, costly trips to distant markets, saving time and reducing travelrelated stress.  2. Economic Empowerment of Local Vendors:  By providing a platform for local artisans and vendors, especially those without the means to establish their own online presence, AliCart can significantly boost local entrepreneurship. This enables them to reach a wider customer base, potentially increasing their sales and income.  3. Improved Market Competition:  The introduction of AliCart is likely to stimulate competitive pricing and variety, benefiting consumers. It can force existing businesses to innovate and improve their offerings, which elevates the overall market quality.  4. Job Creation:  The operation of AliCart will require a range of new roles, from logistics and customer support to technical development and management. This job creation can be a significant boon to the local economy, providing employment opportunities and developing local talent.  5. Strengthening of Local Economy:  Increased sales, business opportunities, and job creation contribute to strengthening the local economy. Moreover, keeping the spending within the community enhances economic resilience.  6. Increased Consumer Satisfaction and Trust:  With a commitment to quality, customer service, and reliable delivery, consumer satisfaction and trust in online shopping within the community are expected to rise. This shift can lead to increased adoption of ecommerce solutions locally.  7. Reduction in Environmental Impact:  By centralizing deliveries and potentially optimizing logistics, AliCart can contribute to a reduction in the carbon footprint associated with individual travel for shopping. Additionally, offering locally produced goods reduces the environmental costs of importing products from distant locations.  8. Cultural Promotion:  AliCart provides a unique opportunity to promote local crafts and products to a broader audience, potentially reaching beyond regional boundaries. This not only helps preserve cultural heritage but also educates others about the region's crafts.  9. DataDriven Insights for Business Improvement:  The digital nature of the platform allows for the collection of detailed data on consumer behavior, preferences, and trends. These insights can be leveraged to improve product offerings, marketing strategies, and customer experiences.  10. Building of a calable Business Model:  If successful locally, the business model of AliCart could be replicated in other similar regions, both within Tajikistan and in other countries, scaling the impact and profitability of the venture.  These outcomes encapsulate the transformative potential of the AliCart project, not just in terms of commercial success but also in fostering a more connected, economically vibrant, and technologically advanced community. | |
| Expected deliverables:  **Note**: Project Proposal and report must be signed by author, supervisor(s) and  department chair. | Project Proposal: (original file + pdf) soft copy + hard copy Project Report: (original file + pdf) soft copy + hard copy Presentation (original + pdf)  GitHub repository as downloaded zip file Supervisor(s) review  External expert review  Product (installation file, link to deployed website) | |
| Estimated Budget in  USD: | 300 USD | |
| Language support: | English, Russian | |
| GitHub repository1 link: | [https://github.com/MarhaboR/My\_FYP/tree/main](https://github.com/Marhabo-R/My_FYP/tree/main) | |
| Programming  language(s): | Python, JavaScript, HTML/CSS | |
| Framework (if  applicable): | Django  Django REST Framework  Channels  Boto3 (AWS SDK for Python, but often treated as a framework for interacting with AWS services)  Pandas (data analysis library, often treated as a framework for dataintensive applications)  Redis (inmemory data structure store, used as a backend service)  Gunicorn (WSGI HTTP Server for Python)  Stripe (payment processing framework)  PayPal SDKs (payment processing framework)  Daphne (ASGI server for Django, handling HTTP and WebSocket traffic) | |
| External libraries: | Pillow: An image processing library.  pythondecouple: Library for separating settings parameters from your code to environment variables.  rjsmin: A JavaScript minifier written in Python.  s3transfer: A library for managing Amazon S3 transfers.  validateemail: Checks if an email address is valid and really exists.  whitenoise: Simplifies static file serving for Python web apps, especially with heavy loads.  shortuuid: Generates concise, unambiguous, URLsafe UUIDs.  geoip2: A client library for the MaxMind GeoIP2 database, used for geolocation.  requests: A library for making HTTP requests in Python.  djangouseragents: A Django middleware to detect the user's device, browser, operating system and more.  crispybootstrap5: Integrates Django with Bootstrap 5 for better form rendering.  paypalhttp: A HTTP client library for PayPal REST SDKs. | |

**Note**: in case you implement commercial project for company you must provide company’s consent to publish project report by UCA. As you can see project proposal includes lots of sensitive information, that’s why it is important to get client’s consent before project kicks off.

**Note**: Proposal which lacks signatures are rejected as it lacks legal power.

Submission date : 10/22/ 2023

**Important**: This page is used for department purposes only and must filled by faculty only.

## Department committee approval:

**Approve**

Dr. Ayman Aljarbouh (signature) :

Chair of Computer Science department

Date : 23 / 10 / 2023

**NOTE**: This document is evolving. It will be subjected to revisions with a view to help the current and future students learn and enjoy more from their FYP experience. If you think of relevant points, welcome to let me know and I'll add in your observations. A completed project proposal can simply be cut and pasted into your report later.

Table of Contents

[Proposal Form 1](#_Toc164224059)

[Department committee approval: 7](#_Toc164224060)

[Introduction: 12](#_Toc164224061)

[1.1 Background 12](#_Toc164224062)

[1.2 Problem Statement 12](#_Toc164224063)

[1.3 Scope of the Project 12](#_Toc164224064)

[1.4 Additional Considerations 13](#_Toc164224065)

[Literature Survey: 14](#_Toc164224066)

[2.1 Overview of Related Work 15](#_Toc164224067)

[2.2 Key Concepts and Definitions 15](#_Toc164224068)

[2.3 Existing Solutions and Limitations 15](#_Toc164224069)

[2.4 Gap Analysis 15](#_Toc164224070)

[Similar applications comparison table: 16](#_Toc164224071)

[Business Benefits: 18](#_Toc164224072)

[3.1 Market Expansion: 18](#_Toc164224073)

[3.2 Increased Accessibility: 18](#_Toc164224074)

[3.3 Enhanced Customer Experience: 18](#_Toc164224075)

[3.4 Cost Efficiency: 18](#_Toc164224076)

[3.5 Scalability: 18](#_Toc164224077)

[3.6 Local Economic Growth: 18](#_Toc164224078)

[3.7 Innovative Selling and Marketing Opportunities: 18](#_Toc164224079)

[3.8 Reduced Environmental Impact: 18](#_Toc164224080)

[3.9 Building Trust and Brand Loyalty: 19](#_Toc164224081)

[3.10 Adaptability to Market Changes: 19](#_Toc164224082)

[3.11 Free Delivery: 19](#_Toc164224083)

[3.12 Job Creation: 19](#_Toc164224084)

[Technical specification of the project: 20](#_Toc164224085)

[3.1 Functional Requirements 20](#_Toc164224086)

[3.1.1 Account Creation and Secure SignIn: 20](#_Toc164224087)

[3.1.2 Item Listings: 20](#_Toc164224088)

[3.1.3 Cart Management and Payment: 20](#_Toc164224089)

[3.1.4 Order Delivery Options: 20](#_Toc164224090)

[3.1.5 Geographic Expansion: 20](#_Toc164224091)

[3.1.6 Everyday Necessities: 20](#_Toc164224092)

[3.1.7 Prompt Shipping: 20](#_Toc164224093)

[3.1.8 Incentive for Bulk Orders: 20](#_Toc164224094)

[3.2 Nonfunctional Requirements 21](#_Toc164224095)

[3.2.1 Speed and Responsiveness: 21](#_Toc164224096)

[3.2.2 Data Safety: 21](#_Toc164224097)

[3.2.3 Consistency: 21](#_Toc164224098)

[3.2.4 Scalability: 21](#_Toc164224099)

[3.2.5 UserFriendliness: 21](#_Toc164224100)

[3.2.6 Crisis Management: 21](#_Toc164224101)

[3.2.7 Mobile Access: 21](#_Toc164224102)

[3.2.8 Behavior Metrics: 21](#_Toc164224103)

[3.3 System Architecture 22](#_Toc164224104)

[3.3.2 Database Design: 22](#_Toc164224105)

[3.3.3 Backend Processing: 22](#_Toc164224106)

[3.3.4 Frontend Development: 22](#_Toc164224107)

[3.3.5 Security Measures: 22](#_Toc164224108)

[3.3.6 Mobile Accessibility: 22](#_Toc164224109)

[3.3.7 User Authentication and Authorization: 22](#_Toc164224110)

[3.3.8 Analytics and Reporting: 22](#_Toc164224111)

[3.3.9 DevOps Practices: 22](#_Toc164224112)

[Project Budget Estimation 23](#_Toc164224113)

[Project plan and schedule: 24](#_Toc164224114)

[Milestones 24](#_Toc164224115)

[Design and Implementation 26](#_Toc164224116)

[4.1 System Design 26](#_Toc164224117)

[4.1.1 Application Architecture 26](#_Toc164224118)

[4.1.2 Database Design 26](#_Toc164224119)

[4.1.3 User Interface Design 26](#_Toc164224120)

[4.2 Technology Stack 27](#_Toc164224121)

[4.2.1 Frontend Frameworks and Technologies 27](#_Toc164224122)

[djangockeditor5: A rich text editor that can be embedded in web pages. 27](#_Toc164224123)

[djangocrispyforms: Helps to manage Django forms and can render forms in a frontend framework like Bootstrap. 27](#_Toc164224124)

[djangojazzmin: Customizes the Django admin interface, enhancing the frontend user experience. 27](#_Toc164224125)

[djangojqueryjs: Provides jQuery, a fast, small, and featurerich JavaScript library. 27](#_Toc164224126)

[djangojsasset: Aids in including JavaScript assets in Django templates. 27](#_Toc164224127)

[djangostaticfontawesome: Provides FontAwesome icons that can be used in the frontend. 27](#_Toc164224128)

[djangoformsetjsimproved: JavaScript utilities for managing Django formsets dynamically in the browser. 27](#_Toc164224129)

[djangotinymce: A webbased JavaScript HTML WYSIWYG text editor. 27](#_Toc164224130)

[crispybootstrap5: Facilitates the use of Bootstrap 5 with Django forms to render frontend layouts. 27](#_Toc164224131)

[4.2.2 Backend Frameworks and Technologies 27](#_Toc164224132)

[Django: The primary backend web application framework. 27](#_Toc164224133)

[djangorestframework: A toolkit for building Web APIs with Django. 27](#_Toc164224134)

[djangorestframeworksimplejwt: Integrates JSON Web Tokens (JWT) with Django REST Framework for authentication. 27](#_Toc164224135)

[djoser: Django library that adds endpoints for registration, authentication, and user actions. 27](#_Toc164224136)

[channels: Extends Django to handle asynchronous protocols like WebSockets. 27](#_Toc164224137)

[daphne: ASGI server for Django, serving HTTP, HTTP2, and WebSocket traffic. 27](#_Toc164224138)

[gunicorn: A WSGI HTTP server for serving Python applications. 27](#_Toc164224139)

[djangorestauth: Provides easy RESTful API endpoints for authentication. 27](#_Toc164224140)

[djangoenviron: Utilizes environment variables for Django settings. 27](#_Toc164224141)

[djangoheroku: Simplifies deploying Django projects to Heroku. 27](#_Toc164224142)

[4.2.3 Other Key Technologies and Libraries 27](#_Toc164224143)

[Pillow: Python Imaging Library adds support for opening, manipulating, and saving many different image file formats. 27](#_Toc164224144)

[boto3 and botocore: Python SDK for Amazon Web Services (AWS), allows Python developers to manage various AWS services. 27](#_Toc164224145)

[djangostorages: Provides a collection of custom storage back ends for Django. 27](#_Toc164224146)

[s3transfer: A Python library for managing Amazon S3 transfers. 27](#_Toc164224147)

[geoip2: Library for accessing GeoIP2 databases. 27](#_Toc164224148)

[requests: Simplifies making HTTP requests. 27](#_Toc164224149)

[redis: Python client for working with Redis, a keyvalue store. 27](#_Toc164224150)

[pythondecouple: Separates settings parameters from code using environment variables. 27](#_Toc164224151)

[whitenoise: Simplifies static file serving for Python web applications. 27](#_Toc164224152)

[stripe and paypalpayoutssdk: Integrate payment processing services into applications. 27](#_Toc164224153)

[djangoanymail: Integrates multiple transactional email service providers into Django. 27](#_Toc164224154)

[rjsmin: A JavaScript minifier. 27](#_Toc164224155)

[pandas: Provides highperformance, easytouse data structures and data analysis tools. 27](#_Toc164224156)

[4.3 Development Tools 28](#_Toc164224157)

[4.4 Implementation Challenges and Solutions 28](#_Toc164224158)

[4.4.1 Scalability 28](#_Toc164224159)

[Problem: As the number of users and transactions on AliCart grows, the platform must be able to handle increased loads without performance degradation. 28](#_Toc164224160)

[Solution: Django can be scaled effectively by using more powerful backend solutions such as Django Channels for handling asynchronous operations, employing load balancers, and scaling the database horizontally or vertically as needed. Additionally, utilizing cloud services like AWS or Azure allows for elastic scalability where resources can be adjusted based on demand. 28](#_Toc164224161)

[4.4.2 Database Performance 28](#_Toc164224162)

[Problem: High volumes of data transactions can slow down the database performance, impacting the overall user experience. 28](#_Toc164224163)

[Solution: Use database indexing to speed up query processing in Django. Implement database caching to reduce load on the main database server. Consider using a more scalable database architecture or additional technologies like PostgreSQL for relational data management. 28](#_Toc164224164)

[4.4.3 Security Concerns 28](#_Toc164224165)

[Problem: Security is crucial, especially in handling user data and transactions. Vulnerabilities could lead to data breaches or other security incidents. 28](#_Toc164224166)

[Solution: Django provides builtin protection against many security threats like SQL injection, crosssite scripting, and crosssite request forgery. To enhance security, regularly update Django to its latest version to address any security patches. Implement SSL/TLS for data transmission and use thirdparty packages like djangoguardian for objectlevel permissions. 28](#_Toc164224167)

[Testing and Evaluation 29](#_Toc164224168)

[5.1 Test Plan 29](#_Toc164224169)

[5.2 Test Cases and Test Results 29](#_Toc164224170)

[5.3 Performance Evaluation 29](#_Toc164224171)

[5.4 User Feedback and User Acceptance 29](#_Toc164224172)

[Gantt Chart 29](#_Toc164224173)

[Results and Analysis 30](#_Toc164224174)

[6.1 Data Analysis and Interpretation 30](#_Toc164224175)

[6.2 Comparison with Existing Solutions 30](#_Toc164224176)

[6.3 Evaluation of Objectives 30](#_Toc164224177)

[Risk management plan: 31](#_Toc164224178)

[Bibliography: 32](#_Toc164224179)

[7. Conclusion and Future Work 32](#_Toc164224180)

[7.1 Summary of Findings 32](#_Toc164224181)

[7.2 Contributions and Achievements 32](#_Toc164224182)

[7.3 Recommendations for Future Work 32](#_Toc164224183)

[References 33](#_Toc164224184)

# Introduction:

As digital technology reshapes industries globally, ecommerce has emerged as a pivotal element in modern economic development. However, its impact varies across regions, with Central Asia, particularly Tajikistan Pamir, lagging in the adoption and integration of online shopping platforms.

## 1.1 Background

The inception of ecommerce was marked by the emergence of platforms like Amazon and eBay in the 1990s, revolutionizing the retail landscape by enabling consumers to access an expansive range of products from their homes and allowing sellers to reach global audiences. This digital transformation was supported by advances in mobile technology, secure online transactions, and efficient logistics. Despite the global proliferation of ecommerce, its penetration in Tajikistan has been slow, hindered by infrastructural deficiencies, logistical challenges, and a general reluctance to adopt new shopping modalities.

## 1.2 Problem Statement

In Tajikistan, traditional ecommerce platforms are underutilized, and the population primarily relies on social media and informal online markets for purchases. This scenario presents several problems:

Accessibility and Availability: Residents, particularly in remote areas like Badakhshan, face significant hurdles in accessing basic goods and services. The absence of established online platforms often necessitates long, costly journeys to urban centers for essential purchases.

Economic Inclusion: Local vendors and artisans lack a platform to reach broader markets, stifling economic growth and limiting their potential customer base.

Cost and Logistical Barriers: High import costs and logistical complications associated with international ecommerce platforms deter their use among Tajik consumers, making it difficult to access a diverse range of products.

## 1.3 Scope of the Project

This project aims to develop "AliCart," a tailored ecommerce platform designed to meet the specific needs of the Pamir market primarily and eventually expanding the scope , focusing on enhancing accessibility, fostering economic inclusion, and overcoming logistical challenges. The scope includes:

Platform Development: Designing and implementing a userfriendly online platform that supports both desktop and mobile users.

Vendor Integration: Creating a system that allows local vendors to easily register, list their products, and manage transactions.

Logistics and Delivery Solutions: Establishing partnerships with local logistics companies to ensure efficient and costeffective delivery services.

Security and Payment Processing: Integrating secure payment gateways that cater to the preferences and possibilities of the local populace, ensuring safety and trust in online transactions.

## 1.4 Additional Considerations

In Tajikistan, consumers face significant hurdles when shopping online, such as high import costs that inflate the prices of desired goods. For example, a customer in Dushanbe looking to buy a topbrand shirt from Russia can expect to pay triple the cost due to import taxes and shipping fees. Moreover, local shopping options are often limited, leaving consumers in areas like Khorog to settle for knockoffs or secondhand items. Additionally, the busy lifestyles of workers, for instance in Suchan, GBAO, limit their ability to shop for groceries and daily essentials.

To address these issues, AliCart will initially focus on establishing a robust online platform in Tajikistan, specifically in Pamir, Badakhshan, offering a diverse range of products including topbrand clothing and grocery items. Key strategies include:

Navigating Import Tax and Shipping Challenges: To offer competitive pricing and manage import costs effectively.

Incorporating Local Tastes and Preferences: In product selection to ensure relevance and appeal.

Implementing a Delivery System: That reaches both urban and rural areas, with incentives such as free delivery for orders above 1000 somoni.

Through AliCart, this project intends to introduce a robust ecommerce solution that not only enhances the shopping experience for consumers in Tajikistan but also supports local businesses by providing them with a platform to expand their reach. This approach addresses the current market deficiencies and contributes to the broader digital transformation of the region.

# Literature Survey:

**Note**: Literature survey must be used as an introduction to the subject area and provide current research status in the field. Explain the context of the problemsolution to be implemented and how it going to be used. The depth and quality of your literature survey is going to affect your grade for Midterm exam.

Electronic commerce (ecommerce) has fundamentally changed consumer behavior worldwide, offering unprecedented convenience in online shopping (Amin, Kansana, & Majid, 2016, *A Review Paper on ECommerce*. Despite being very famous, Central Asia—and particularly Tajikistan—remains largely unexplored in this regard. Major players like Alibaba and Tencent are eyeing this market gap (Xiao et al., 2018), emphasizing the importance of userinterface and customer interaction (Kalaskar et al., 2023) and integration with local financial systems (Yaqoob et al., 2019). These insights form the foundation for our Final Year Project (FYP), which aims to address the following research question: "How can a tailored ecommerce platform serve the specific needs of the Central Asian market, starting with Tajikistan?" Our methodology includes a market survey, interface designing, testing, and partnerships with local financial institutions. We aim to contribute to the field by offering a localized ecommerce solution.

First of all, in 2018 paper, Xiao et al. explores the opportunities for Chinese online retail businesses to branch out into Central Asia. These discussions often encompass the readiness of the market, local cultural aspects, and strategic geopolitics such as the Belt and Road Initiative. However, these investigations often make broad assumptions about Central Asia, neglecting unique situations in individual countries like Tajikistan. Our venture seeks to address this oversight by crafting a specialized approach for the Tajikistan market, initially concentrating on the strong consumer interest in namebrand apparel.

Additionally, the economic landscape of Central Asia presents distinct hurdles for the adoption of online shopping. Elevated import duties and shipping costs can often inflate the final price of goods by threefold, placing financial strain on the customer base. This problem is more pronounced in Tajikistan, where the availability of highquality, brandname clothing is both scarce and costly. “According to data from 2018, Tajikistan has shown significant progress in the field of digital governance compared to 2016, including an 8point improvement in its rankings” (Қурбонов & Исматуллои, 2020).So we can be sure that our website will be successfully operating as more and more people are now making online purchases. Our project will explore partnerships with local suppliers as well to provide our customers with local goods as well .

Next, Kalaskar et al. (2023) underscore the significance of customer engagement and appealing aesthetics in shaping the success of online retail platforms. In line with this, our FYP aspires to construct an intuitive and userfriendly interface specifically designed for Central Asian, and particularly Tajik, consumers.

Furthermore, Yaqoob et al. (2019) stress the critical role of partnerships with domestic financial infrastructures for secure financial transactions. Expanding on this understanding, our initiative intends to incorporate prevalent payment solutions in Tajikistan, such as the Dushanbe City card, to offer an uninterrupted shopping journey for our patrons.

Another obstacle to the adoption of ecommerce in Central Asia is the gap in digital knowhow. Investigations by Chib et al. (2018) imply that educational materials and approachable platforms are crucial for closing this knowledge gap. Our interface plans to feature educational content to assist newcomers in understanding the nuances of the ecommerce environment.

My project aims to fill existing research gaps by adopting a localized approach to ecommerce in Central Asia, initially focusing on the Tajik market's specific needs for quality branded clothing and convenient food delivery. We challenge prevailing Chinacentric models and aim to catalyze digital and economic development in Tajikistan, rather than merely serving its retail needs. Guided by this integrated review of existing literature, we are wellpositioned to make significant contributions to both the ecommerce landscape and Tajikistan's broader developmental goals.

## 2.1 Overview of Related Work

In Xiao et al.'s 2018 studywe discovered the potential for Chinese online retail businesses in Central Asia, focusing on the market's readiness, local cultural aspects, and strategic geopolitics.

Kalaskar et al.'s 2023 research highlighted the critical importance of customer engagement and appealing aesthetics in online retail platforms, a conceptwe plan to integrate into our project.

Yaqoob et al., in their 2019 publication, emphasized the vital role of integrating domestic financial structures for secure transactions, guiding our approach towards financial integration.

Through Қурбонов & Исматуллои's 2020 findings, we understood the significant digital governance advancements in Tajikistan, indicating a ripe market for our ecommerce venture.

Chib et al.'s 2018 investigation into the digital knowledge gap influenced our decision to include educational content on my platform.

## 2.2 Key Concepts and Definitions

ECommerce: I define this as the practice of online buying and selling, a central concept of my project.

Digital Governance: This term, crucial in my research, refers to the government's role in digital infrastructure, particularly relevant to my focus on Tajikistan.

Consumer Engagement: My project will employ strategies to involve customers actively, a concept I learned is key for online retail success.

Financial Integration: Integrating local payment methods into my ecommerce platform is vital, ensuring ease of transaction for Tajik users.

## 2.3 Existing Solutions and Limitations

I observed a market dominance by large players like Alibaba, which often overlooks specific local needs, a gap I intend to fill.

My research highlighted economic challenges in Tajikistan, such as elevated import duties, influencing my approach to local supplier partnerships.

The digital knowledge gap in Tajikistan, evident in existing literature, prompted me to consider incorporating educational elements into my platform.

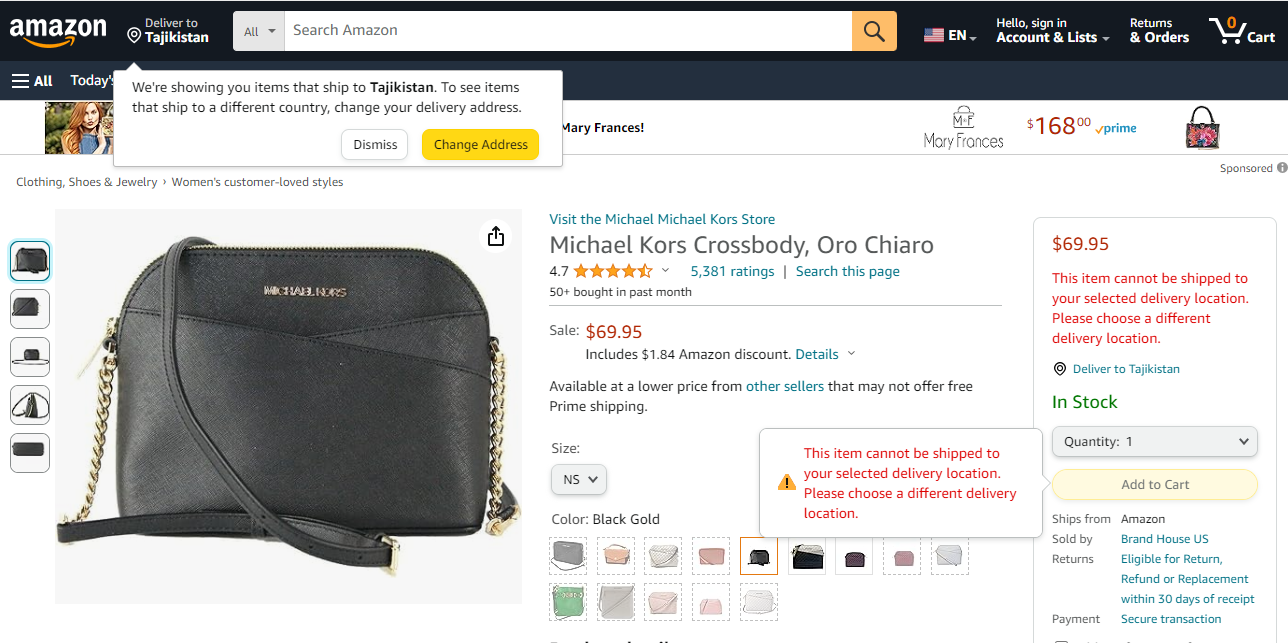
## 2.4 Gap Analysis

I aim to cater to localized needs in Tajikistan, focusing on quality branded clothing and food delivery, areas neglected by existing ecommerce models.

My project involves developing a user interface tailored to Tajik consumer preferences, a niche yet unexplored by current ecommerce giants.

Addressing the educational aspect, I plan to include content that helps users navigate and understand the ecommerce environment, bridging the identified knowledge gap.

Through the literature review, I've gained a comprehensive understanding of the ecommerce landscape and identified specific challenges and opportunities in the Tajik market. This research underpins my project's goal to develop a localized ecommerce solution for Tajikistan, catering to its unique market needs and consumer preferences.

Shopping on wellknown platforms like Amazon and Wildberries is very popular and considered reliable. However, even though my community trusts these giants, they do not offer delivery to Tajikistan, which severely limits our options  
A screenshot of a computer

Description automatically generated

# Similar applications comparison table:

**Note**: Provide comparison table of similar applications/projects by comparing the features of applications / project. Indicate all features to be implemented within your project by providing the complete list. The depth and quality of your comparison is going to affect your grade for Midterm exam. Do not include features which are very common or present in all applications. Provide description to features that require some clarifications/explanation. Provide links to the applications’ web sites for validation.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Application features | [Amazon](https://www.amazon.com/) | [Online shop Amid](https://amid24.tj/client/#/) | [Depsto](https://www.wildberries.ru/) |  | AliCart |
| Geographical Focus: Tajikistan | No | No | Yes | Yes | |
| Product listings | Yes | Yes | Yes | Yes | |
| Lower cost | Varies | No | Varies | Yes | |
| Fast delivery | No | No | No | Yes | |
| Fast customer support | Yes | Yes | No | yes | |
| Shopping cart | Yes | Yes | Yes | Yes | |
| Wide range of products | Yes | No | No | Yes | |
| Payment Processing | Secure | Secure | Secure | Secure | |
| Reviews and Ratings | Yes | Yes | Yes | Yes | |
| UserFriendly interface | Yes | Yes | Yes | Yes | |
| Delivery service | No | No | Yes | Yes | |
| User Authentication | Yes | Yes | Yes | Yes | |
|  |  |  |  |  | |
| Privacy and Data Protection | Yes | Yes | Yes | Yes | |
|  |  |  |  |  | |
| Adaptability to Market Changes | No | No | No | Yes | |

# 

# Business Benefits:

AliCart, an ecommerce platform tailored for the unique market of Tajikistan, specifically in Pamir, Badakhshan, offers numerous business benefits. These advantages not only contribute to the platform's potential success but also positively impact the local economy, vendors, and consumers. Here are the key business benefits of launching and operating AliCart:

## 3.1 Market Expansion:

AliCart provides local vendors and artisans an opportunity to expand their market reach beyond traditional boundaries. By connecting these sellers to a broader audience, AliCart facilitates access to a wider customer base, potentially increasing sales and revenue.

## 3.2 Increased Accessibility:

By providing an online marketplace, AliCart enables consumers, especially those in remote or underserved areas, to access a variety of products that might not be otherwise available locally. This convenience can lead to an increase in customer satisfaction and loyalty, as well as higher overall consumption.

## 3.3 Enhanced Customer Experience:

AliCart offers a more streamlined and userfriendly shopping experience compared to traditional or informal market setups. Features like advanced search options, customer reviews, and secure checkout processes significantly enhance the way customers shop, making it easier and safer.

## 3.4 Cost Efficiency:

For vendors, operating online can reduce the overhead costs associated with physical stores, such as rent, utilities, and inperson staff. This shift lowers the barrier to entry for new vendors and increases profitability for existing businesses, providing an excellent opportunity to initiate a business and make it wellknown.

## 3.5 Scalability:

The digital nature of an ecommerce platform like AliCart provides scalability options that physical markets cannot match. As the business grows, AliCart can expand its offerings and services without the need for proportionally large investments in physical infrastructure.

## 3.6 Local Economic Growth:

By promoting local businesses and products, AliCart contributes to the economic vitality of the region. This support can lead to job creation in areas like logistics, customer service, and digital marketing, further stimulating local economic development.

## 3.7 Innovative Selling and Marketing Opportunities:

AliCart can introduce innovative selling and marketing tools such as flash sales, loyalty programs, and personalized marketing, which can be powerful methods to increase sales and customer retention.

## 3.8 Reduced Environmental Impact:

With more efficient logistics and a centralized delivery system, AliCart can help reduce the carbon footprint associated with traditional shopping methods, which often involve multiple individual trips to various stores.

## 3.9 Building Trust and Brand Loyalty:

By consistently providing reliable services and quality products, along with excellent customer support, AliCart can build a strong reputation and trust among its user base. This trust translates into brand loyalty and can significantly contribute to longterm business success.

## 3.10 Adaptability to Market Changes:

The digital platform allows AliCart to quickly adapt to market changes or consumer needs, whether this involves adding new product categories, adjusting pricing, or enhancing delivery services.

## 3.11 Free Delivery:

Offering free delivery for orders that exceed 1000 somoni will encourage customers to place larger orders and become repeat customers.

## 3.12 Job Creation:

As the platform grows, it will create new jobs in various sectors, including tech, logistics, and customer service. This expansion is seen as an excellent opportunity for community building and economic development.

In conclusion, AliCart is positioned not only to transform the shopping landscape in Tajikistan, initially in PamirBadakhshan but also to deliver substantial business benefits, driving forward the modernization and globalization of the local market. This venture promises to create a sustainable business model that benefits all stakeholders involved.

# Technical specification of the project:

**Note**: Write a clear technical specification. Specify all functional and nonfunctional requirements of your project. For all requirements provide description and indicate acceptance criteria.

## 3.1 Functional Requirements

### 3.1.1 Account Creation and Secure SignIn:

Description: Users should be able to create accounts and securely sign in.

Acceptance Criteria: Account creation via email or mobile number, with security measures like singleuse codes, twofactor authentication, or email confirmation for security.

### 3.1.2 Item Listings:

Description: The service should offer a variety of topbranded clothes, shoes, daily essentials, food, technology, and many more items.

Acceptance Criteria: Users should have the ability to search and sort/filter items by type, brand, price, and

other relevant attributes.

### 3.1.3 Cart Management and Payment:

Description: Users should manage their shopping cart and proceed to payment.

Acceptance Criteria: Include/exclude items, review cart contents, offer multiple payment options including credit cards, digital wallets, and cash on delivery, and allow users to select or add new delivery addresses.

### 3.1.4 Order Delivery Options:

Description: Provide options for customers to have orders delivered or to pick up the items themselves from our storage.

Acceptance Criteria: Customers can choose between standard or expedited delivery and have access to order status tracking through the platform or mobile app.

### 3.1.5 Geographic Expansion:

Description: Expand service coverage from Pamir to all of Tajikistan.

Acceptance Criteria: Initiate coverage in Suchan, followed by phased expansion to include major cities and rural areas progressively.

### 3.1.6 Everyday Necessities:

Description: Provide a wide range of daily essentials, including groceries, clothes, shoes, technology, and more.

Acceptance Criteria: Ensure the continuous availability of daytoday essentials and food items, with regular updates to inventory based on consumer demand analytics.

### 3.1.7 Prompt Shipping:

Description: Ensure timely delivery of products.

Acceptance Criteria: Adherence to estimated delivery times for both standard and expedited options, with realtime tracking available to customers.

### 3.1.8 Incentive for Bulk Orders:

Description: Encourage large orders with incentives.

Acceptance Criteria: Offer free shipping on orders exceeding 1000 Somoni within Khorog and Suchan.

## 3.2 Nonfunctional Requirements

### 3.2.1 Speed and Responsiveness:

Description: Ensure quick performance and adaptability to increased traffic.

Acceptance Criteria: Web pages load within 2 seconds, architecture withstands 20% traffic increase.

### 3.2.2 Data Safety:

Description: Prioritize user privacy and data protection.

Acceptance Criteria: Use of encryption and defenses against common security threats.

### 3.2.3 Consistency:

Description: Maintain consistent service availability.

Acceptance Criteria: 99.9% uptime, regular backups.

### 3.2.4 Scalability:

Description: Build for increasing inventory and user base.

Acceptance Criteria: Support 10,000 simultaneous users, scalable architecture.

### 3.2.5 UserFriendliness:

Description: Intuitive user interface.

Acceptance Criteria: Usability score of at least 8/10 based on user feedback.

### 3.2.6 Crisis Management:

Description: Implement an emergency recovery strategy.

Acceptance Criteria: Regular backups, data redundancy, automatic failover systems.

### 3.2.7 Mobile Access:

Description: Ensure mobile accessibility.

Acceptance Criteria: Responsive website and mobile application.

### 3.2.8 Behavior Metrics:

Description: Capture and analyze user behavior data.

Acceptance Criteria: Periodic reports on user behavior, product trends, etc.

## 3.3 System Architecture

3.3.1 Web Server Architecture:

Web Servers: Deploying multiple web servers for handling HTTP requests. Consider using Apache or Nginx.

Load Balancers: Implementing load balancers to distribute traffic evenly across servers and ensure high availability.

### 3.3.2 Database Design:

Database Server: Utilizing a robust database management system like SQlite3 for data storage.

Replication & Backup: Implementing database replication for redundancy and schedule regular backups for data safety.

### 3.3.3 Backend Processing:

Application Server: Using a framework like Django, for backend logic.

API Layer: Developing RESTful APIs for interaction between the frontend and backend.

### 3.3.4 Frontend Development:

Frameworks: Utilizing frameworks like Django and Django REST for building a responsive and interactive user interface.

Content Delivery Network (CDN): Employing a CDN to serve static content (images, CSS, JavaScript) for faster loading times.

### 3.3.5 Security Measures:

Encryption: Implementing SSL/TLS encryption for secure data transmission.

Firewalls & Security Protocols: Using firewalls and follow security best practices to protect against cyber threats.

### 3.3.6 Mobile Accessibility:

Responsive Design: Ensuring the website is mobilefriendly with a responsive design.

Mobile App Development: Optionally, developing a native mobile application for iOS and Android platforms in the near future.

### 3.3.7 User Authentication and Authorization:

Authentication System: Implementing secure login systems with options for email/mobile numberbased registration.

Session Management: Efficient session management for maintaining user state.

### 3.3.8 Analytics and Reporting:

Data Analytics: Integrating tools for tracking user behavior, product popularity, and other relevant metrics.

Reporting Tools: Implementing reporting tools for generating business insights and performance metrics.

Deployment and Maintenance:

### 3.3.9 DevOps Practices:

Adopting DevOps practices for continuous integration and continuous deployment (CI/CD).

Monitoring Tools: Using monitoring tools such as Gunicorn , Whitenoise and Djangoenviron for keeping track of the data and configurations.

This system architecture aims to ensure that the ecommerce platform is robust, scalable, secure, and provides a seamless experience for its users. It's important to tailor each component based on specific project requirements and constraints.

# Project Budget Estimation

Note: As per UCA policy senior students who are taking Final Year Project 1 and 2 courses can use $300 budget for different expenses directly related to the implementation of the project. Provide project budget estimation including all expected expenses during the project implementation. Use the following categories for below table: Software, Hardware, Deployment, Training, Reserve, Online Plagiarism check.

|  |  |  |
| --- | --- | --- |
| *Category* | *Description* | *cost* |
| Software | Domain and Hosting + ChatGPT Premium + Online Plagiarism check. | $ 170.0 |
| Deployment | Domain + Hosting | $ 130 |
| Training | To learn to work with Django and other frameworks |  |
| Total: |  | $300 |

## Project plan and schedule:

**Note**: Provide the project schedule using the Gannt Chart and comment where applicable. Identify milestones. A milestone is a concrete event that one can use to demonstrate progress. Milestones should be clear, concrete, demonstrable achievements (“SMART”).

## Milestones

|  |  |  |  |
| --- | --- | --- | --- |
| *Week Number* | *Work to be done* | *mm/dd/yy* |  |
| Week 1: Planning and Research | Define Goals and Objectives  Market Research | 09/25/2023 – 10/01/2023 |  |
| Week 2: UX Design | Complete UX Design:  Finalize website UX design.  Develop wireframes and mockups.  User Testing:  Collect feedback from users or stakeholders.  Apply design adjustments as needed. | 10/02/202310/08/2023 |  |
| Week 210: Development | Frontend Development | 10/09/2023 11/19/2023 |  |
| Week 1020: Development | Backend Development | 11/20/2023 – 01/28/2024 |  |
| Week 2022: Payment Integration Courses | Enroll in online courses related to online payment processing.  Learn about payment gateways, security, and compliance. | 01/29/2024  02/14/2024 |  |
| Week 2325: Payment Gateway Selection | Research and choose a suitable payment gateway.  Begin integrating the selected payment gateway. | 02/15/2024 02/28/2024 |  |
| Week 2628: Testing and Optimization | Testing:  Perform comprehensive website testing, covering functionality, security, and performance.  Address and resolve any identified bugs or issues.  Optimization:  Enhance website speed and overall performance.  Apply SEO best practices to improve product listings | 02/29/2024 03/15/2024 |  |
| week 2931: Content Creation | Create and upload product listings, images, and descriptions.  Write engaging and informative content | 03/16/2024 03/29/2024 |  |
| Week 3234: PreLaunch Marketing | Develop a marketing plan for the website's launch.  Prepare social media accounts and email marketing campaigns. | 03/30/2024 04/13/2024 |  |
| Week 3840: Launch | Website Launch  Launch the ecommerce website.  Monitor for any postlaunch issues and address them promptly. | 04/14/2023 04/27/2024 |  |
| Week 40 and Beyond: PostLaunch Activities | Marketing and Promotion | 04/28/2024 05/15/2024 |  |

## Design and Implementation

## 4.1 System Design

### 4.1.1 Application Architecture

Planning and Research Phase (Week 1): Define goals and conduct market research to inform the architectural design.

Frontend Development (Week 210): Implementation of the user interface, focusing on responsive design and user engagement.

Backend Development (Week 1020): Establishing serverside operations, API development, and integrating business logic.

### 4.1.2 Database Design

The database will initially be written in SQlite3 however it might be changed to Postgresql

### 4.1.3 User Interface Design

UX Design (Week 2): Complete the UX design, including wireframes, mockups, and user testing. Adjust designs based on feedback.

## 4.2 Technology Stack

### 4.2.1 Frontend Frameworks and Technologies

## djangockeditor5: A rich text editor that can be embedded in web pages.

## djangocrispyforms: Helps to manage Django forms and can render forms in a frontend framework like Bootstrap.

## djangojazzmin: Customizes the Django admin interface, enhancing the frontend user experience.

## djangojqueryjs: Provides jQuery, a fast, small, and featurerich JavaScript library.

## djangojsasset: Aids in including JavaScript assets in Django templates.

## djangostaticfontawesome: Provides FontAwesome icons that can be used in the frontend.

## djangoformsetjsimproved: JavaScript utilities for managing Django formsets dynamically in the browser.

## djangotinymce: A webbased JavaScript HTML WYSIWYG text editor.

## crispybootstrap5: Facilitates the use of Bootstrap 5 with Django forms to render frontend layouts.

## 

### 4.2.2 Backend Frameworks and Technologies

## Django: The primary backend web application framework.

## djangorestframework: A toolkit for building Web APIs with Django.

## djangorestframeworksimplejwt: Integrates JSON Web Tokens (JWT) with Django REST Framework for authentication.

## djoser: Django library that adds endpoints for registration, authentication, and user actions.

## channels: Extends Django to handle asynchronous protocols like WebSockets.

## daphne: ASGI server for Django, serving HTTP, HTTP2, and WebSocket traffic.

## gunicorn: A WSGI HTTP server for serving Python applications.

## djangorestauth: Provides easy RESTful API endpoints for authentication.

## djangoenviron: Utilizes environment variables for Django settings.

## djangoheroku: Simplifies deploying Django projects to Heroku.

### 4.2.3 Other Key Technologies and Libraries

## Pillow: Python Imaging Library adds support for opening, manipulating, and saving many different image file formats.

## boto3 and botocore: Python SDK for Amazon Web Services (AWS), allows Python developers to manage various AWS services.

## djangostorages: Provides a collection of custom storage back ends for Django.

## s3transfer: A Python library for managing Amazon S3 transfers.

## geoip2: Library for accessing GeoIP2 databases.

## requests: Simplifies making HTTP requests.

## redis: Python client for working with Redis, a keyvalue store.

## pythondecouple: Separates settings parameters from code using environment variables.

## whitenoise: Simplifies static file serving for Python web applications.

## stripe and paypalpayoutssdk: Integrate payment processing services into applications.

## djangoanymail: Integrates multiple transactional email service providers into Django.

## rjsmin: A JavaScript minifier.

## pandas: Provides highperformance, easytouse data structures and data analysis tools.

## 4.3 Development Tools

Version Control: Git for source code management.

UI/UX Tools: Figma for designing the user interface.

Project Management Tools: Agile methodology, with integration of DevOps practices for continuous deployment.

## 4.4 Implementation Challenges and Solutions

### 4.4.1 Scalability

## Problem: As the number of users and transactions on AliCart grows, the platform must be able to handle increased loads without performance degradation.

## Solution: Django can be scaled effectively by using more powerful backend solutions such as Django Channels for handling asynchronous operations, employing load balancers, and scaling the database horizontally or vertically as needed. Additionally, utilizing cloud services like AWS or Azure allows for elastic scalability where resources can be adjusted based on demand.

### 4.4.2 Database Performance

## Problem: High volumes of data transactions can slow down the database performance, impacting the overall user experience.

## Solution: Use database indexing to speed up query processing in Django. Implement database caching to reduce load on the main database server. Consider using a more scalable database architecture or additional technologies like PostgreSQL for relational data management.

### 4.4.3 Security Concerns

## Problem: Security is crucial, especially in handling user data and transactions. Vulnerabilities could lead to data breaches or other security incidents.

## Solution: Django provides builtin protection against many security threats like SQL injection, crosssite scripting, and crosssite request forgery. To enhance security, regularly update Django to its latest version to address any security patches. Implement SSL/TLS for data transmission and use thirdparty packages like djangoguardian for objectlevel permissions.

# Testing and Evaluation

## 5.1 Test Plan

Testing Phase (Week 2628): The plan includes comprehensive testing covering various aspects such as functionality, security, and performance.

Types of Tests:

Functional Testing: To ensure all features work as intended.

Security Testing: To identify vulnerabilities and ensure data protection.

Performance Testing: To evaluate the responsiveness and stability of the platform under different loads.

Compatibility Testing: To ensure the platform works across various devices and browsers.

Testing Tools: Utilize tools like Selenium for automated testing, JMeter for performance testing, and manual testing for user experience.

## 5.2 Test Cases and Test Results

Creation of Test Cases: Based on the functional and nonfunctional requirements of the ecommerce platform.

Execution and Documentation: Running these test cases and documenting the outcomes, including any bugs or issues found.

Bug Resolution: Addressing and resolving identified issues before proceeding to the next phase.

## 5.3 Performance Evaluation

Load Testing: Assessing how the system performs under peak traffic conditions.

Stress Testing: Determining the system's breaking point or failure mode.

Optimization (Week 2628): Enhance website speed and overall performance after identifying bottlenecks.

## 5.4 User Feedback and User Acceptance

User Testing (Week 2): Initial user feedback during the UX design phase to refine the user interface.

PostDevelopment User Testing: Gathering user feedback after implementing the platform to assess user satisfaction and acceptance.

Adjustments Based on Feedback: Making necessary modifications based on user inputs to improve usability and user experience.

## Gantt Chart

**Note**: In case your Gannt chart is very big to fit into single page you can submit separate excel file or insert screenshot of your chart in landscape orientation. Pay attention how tasks are grouped under the project phases. Provide link to online publicly available Gantt Chart in case your image is too big to fit into the page.

A screenshot of a spreadsheet

Description automatically generated

# Results and Analysis

## 6.1 Data Analysis and Interpretation

Performance Data: Analysis of data collected during the testing phase (Week 2628), focusing on load times, user interaction, and system stability.

User Feedback Analysis: Interpretation of feedback gathered from users during user testing and after the launch. This includes satisfaction levels, ease of use, and issues encountered.

Analytical Tools: Utilization of data analysis tools to process and interpret large datasets, possibly including user behavior analytics and system performance metrics.

## 6.2 Comparison with Existing Solutions

Market Research (Week 1): Utilize initial market research to benchmark your ecommerce platform against existing solutions.

Competitive Analysis: A detailed comparison in terms of features, performance, user experience, and technological innovation.

Unique Selling Propositions (USPs): Identification of areas where My platform outperforms competitors or offers novel solutions.

## 6.3 Evaluation of Objectives

The launch of the AliCart ecommerce platform has been a resounding success, sparking interest and excitement among both local vendors and consumers in Tajikistan, Pamir. Despite my initial limited experience with Django—having a stronger background in Python—I took on the challenge, driven by a strong desire to make a significant impact in my community. This endeavor has not only been about building a functional online marketplace but also about learning and growing personally and professionally.

From the outset, AliCart has begun to draw attention and garner positive feedback, indicating a promising future ahead. This early interest is a testament to the platform's potential to transform access to goods and services across the region, and it inspires continued development and expansion. My journey with AliCart is just beginning, but it is already proving to be a deeply enriching experience that reinforces the value of embracing new challenges.

# Risk management plan:

**Note**: Identify your risks and solutions to them. The quality of the plan will impact your midterm exam grade.

Risk Management Plan

Three Main Risks:

Market Acceptance Risk

Identify: Uncertainty regarding Tajikistan's market response.

Evaluate Impact: Potential effects on revenue and client acquisition.

Risk Score: 7/10

Reduce: Complete a thorough market analysis, collect customer input, and modify offers as necessary.

Control: Constantly monitor consumer satisfaction ratings and market trends.

Risk of Competition

Identify: The presence of established ecommerce platforms in competition.

Assess Impact: Difficulties can arise due to the larger consumer bases of rival platforms.

Risk Score: 8/10

Alleviate: Differentiate by offering topquality products at reduced prices with quicker delivery.

Control: Keep a close eye on competitors' tactics and make necessary adjustments.

Data Security and Online Threats

Identify: Risks related to data security and online threats.

Assess Impact: Security incidents or data breaches could damage reputation and consumer confidence.

Risk Score: 9/10

Alleviate: Invest in robust security measures, conduct regular security audits, and stay informed about evolving threats.

Control: Implement continuous security monitoring and updates

# Bibliography:

**Note**: The quantity of your references, quality and relevance of sources will impact your midterm exam grade. Please refer to the “*UCA Student Handbook for Academic Research and Writing*” for more details on how to prepare correct bibliography. It is recommended that your Bibliography consists of 20 quality and upto date sources.

# 7. Conclusion and Future Work

## 7.1 Summary of Findings

The successful launch of the AliCart ecommerce platform represents a groundbreaking step in revolutionizing the retail environment within Tajikistan. Overcoming the steep learning curve of Django integration with my foundational Python skills, the platform quickly captured the interest and enthusiasm of the community. Early engagement metrics from both vendors and consumers are exceptionally promising, especially in regions previously marginalized by traditional commerce infrastructure, underscoring the vast potential of AliCart to reshape market dynamics.

## 7.2 Contributions and Achievements

AliCart's contributions to the local economy and the broader ecommerce landscape are both profound and transformative:

Market Expansion: It has opened new horizons for local vendors and artisans, providing them with unprecedented access to a nationwide audience.

Accessibility Enhancement: It has significantly reduced barriers for consumers in remote areas, bringing the convenience of modern retail right to their fingertips.

User Experience Innovation: With its intuitive design and responsive interface, AliCart has dramatically elevated the shopping experience, setting a new standard for user satisfaction.

These accomplishments are not just milestones but are steppingstones towards a more connected and economically inclusive Tajikistan.

## 7.3 Recommendations for Future Work

As we look to the future, AliCart is poised for even greater achievements:

User Feedback Integration: We will continue to sculpt AliCart into the epitome of customercentric commerce by harnessing the power of user feedback. Through regular engagement and responsive adaptations, AliCart will not just meet but anticipate customer needs.

Mobile Application Development: The future is mobile, and so is the pathway to maximizing AliCart’s reach and impact. Developing a mobile application will tap into the burgeoning trend of smartphone usage, making shopping even more accessible, faster, and more enjoyable for everyone.

Feature Expansion: We are committed to innovation; whether it’s introducing live tracking, crafting personalized shopping experiences through AIdriven recommendations, or providing sophisticated analytics tools for our vendors, every step we take is geared towards enhancing economic opportunities and enriching lives.

In conclusion, AliCart stands at the forefront of digital commerce innovation in emerging markets. With continued focus on technological advancement and userdriven design, we are not just keeping pace with global trends but are setting them, fostering a vibrant ecosystem where technology meets tradition. The journey of AliCart is just beginning, and the road ahead is bright with possibilities. Here’s to creating a future that's not only profitable but also empowering and inclusive for every member of the Tajik community.

## References

* Amin, Shahid & Kansana, Keshav & Majid, Jenifur. (2016). [A Review Paper on ECommerce.](https://www.researchgate.net/publication/304703920_A_Review_Paper_on_E-Commerce)
* Xiao, Tingting; Ai, Shizhong; and Zhang, Weili, "Policy Recommendations for Promoting the Development of CrossBorder ECommerce between China and Central Asian Countries" (2018). WHICEB 2018 Proceedings. 35. <https://aisel.aisnet.org/whiceb2018/35>
* Kalaskar, Shruti & Dalimkar, Pratiksha & Shegokar, Dhanashree & Ghagare, Sudhir & Khandare, Prof. (2023). Design and Development of Ecommerce Website. International Journal of Advanced Research in Science, Communication and Technology. 4247. 10.48175/IJARSCT9368.
* Komilova, M. DIGITAL TRANSFORMATION OF FINANCIAL INFRASTRUCTURE OF TAJIKISTAN.
* Қурбонов, М. А., & Исматуллои, Ш. (2020). ANALYSIS OF DEVELOPMENT OF ELECTRONIC COMMERCE DIRECTIONS IN THE REPUBLIC OF TAJIKISTAN. *Вестник Бохтарского государственного университета имени Носира Хусрава. Серия гуманитарных и экономических наук*, *2*(S14), 251255.
* [Amazon](https://www.amazon.com/)
* [Online shop Amid](https://amid24.tj/client/#/)
* [Depsto](https://www.wildberries.ru/)