School of Art and Sciences

Department of Computer Science

B.Sc. in Computer Science

COMP 4811: Final Year Project-1

# Proposal Form

|  |  |  |
| --- | --- | --- |
| Title: | Development and Implementation of an E-Commerce Web Platform | |
| Project author: | Markhabo Rakhmatshoeva |  |
| Supervisor: | Dr. Ayman Aljarbouh |  |
| Co-supervisor | Dr. Issam EI Moughrabi |  |
| Main subject Area(s): | E-commerce Platform Development and Design, Market Research and Localization, Fashion Industry Development, Marketing and Customer Acquisition, Product Management, Payment Processing, Digital Marketing, Data Analytics, Security and Privacy, Supply Chain Management, Market Research and Competitive Analysis, Returns and Customer Satisfaction,  Financial Management. | |
| Keywords: | E-Commerce, Machine Learning, Online Shopping, Top-brand Clothing, Tajikistan Online Shopping, Fast Shipping, Online Grocery Shopping, Delivery,  Discounts, and Promotions. | |
| Project type: | Software Development, Problem Solving, Innovation, New Business Model | |
| Methodologies: | Agile methodology for software development, Responsive Web Design (RWD),  Quality Assurance (QA) and Testing, DevOps, Security Best Practices, | |
| Short project description: | In order to meet the needs of clients in Central Asia, starting with Tajikistan, I want to create an Amazon-like e-commerce platform for my senior project. Our main goal is to provide top-notch goods, especially name-brand items, at costs that are less expensive than those on Amazon and other popular e- commerce websites.  It is difficult, if not impossible, to find premium brands of apparel in Tajikistan. As a result, locals frequently resort to ordering these things from Russia, which triples the price once delivery costs are taken into account. The development of the fashion sector in Tajikistan has been hindered by this.  Additionally, our website will offer a delivery service for groceries and other basics. This service will initially only be available in Suchan in the Gorno- Badakhshan Autonomous Region. With orders being delivered directly to clients' doors, this service attempts to provide convenience given the hectic lifestyles of today's consumers. Orders that total more than 1000 somoni are  eligible for free delivery. Even though the food delivery service will start in | |

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|  | Suchan, our long-term goal is to extend our reach throughout the entire country of Tajikistan. |
| Project Aim and Objective(s): | To develop a comprehensive e-commerce platform specifically tailored for the Central Asian market, beginning with Tajikistan, that offers affordable high- quality products, particularly branded clothing, and includes a reliable online food and daily essentials delivery service.  Project Objectives:  Market Research and Analysis Platform Development Logistics and Supply Chain Quality Assurance  Customer Experience Security  Marketing and Outreach Expansion  Feedback Loop |
| Equipment and critical resources required: | Servers: For hosting the website and database. Consider cloud-based solutions like AWS or Azure for scalability.  Computers: High-performance machines for developers, designers, and QA testers.  Software:  Backend Framework: Such as Django, Ruby on Rails, or Node.js for server-side operations.  Frontend Framework: Angular, React, or Vue.js for building the user interface. Database Management System: SQL or NoSQL databases like MySQL or MongoDB.  Version Control: Git for source code management. Project Management Tools  ML Libraries: TensorFlow or PyTorch if you decide to incorporate machine learning algorithms.  UI/UX Designer tool: Figma |
| 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 |
| Foreseeable Ethical issues and how these | Data Privacy: Protect customer data  Fair Pricing: Maintain transparent and competitive pricing. |

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| will be tackled (if applicable): | Counterfeit Products: Implement quality control and verify product authenticity.  Environmental Impact: Adopt eco-friendly practices. Ethical Sourcing: Partner with ethical suppliers.  Accessibility: Ensure the platform is accessible.  User Reviews: Verify and manage user-generated content. 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. |
| Copyright note: (specify copyrights) | There are two options:   * Open-source software protected by the Apache License 2.0 (permissive software license) * UCA Copyright |
| Expected outcomes: | Deployed web app Thesis report  Gain experience in Software Development, Project Management Contribution to the Fashion Industry in Tajikistan  Potential for Business Growth |
| 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/Marhabo-R/My_FYP/tree/main> |
| Programming  language(s): | Python, JavaScript, java, php, HTML/CSS |
| Framework (if  applicable): | Django, React, React Native, magento |
| External libraries: | Stripe, bcrypt, sharp, passport, redis, Google Search Console API |

**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.

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# Introduction:

**Note**: Explain your problem in detail by providing several scenarios. Try to provide as must information as possible to provide justification for your final year project.

## 1.1 Background

The e-commerce landscape has dramatically reshaped the shopping experience globally. However, in Central Asia, particularly in Tajikistan, the e-commerce revolution has been slow to take root. While international giants like Amazon offer a myriad of products, they often come with high costs and logistical challenges for Central Asian consumers. This gap in the market, especially for top-brand clothing, which is scarce and expensive to import, notably from countries like Russia, presents a unique opportunity.

## 1.2 Problem Statement

In Tajikistan, consumers face several hurdles when shopping online. High import costs significantly inflate the prices of desired goods. For instance, a shopper in Dushanbe looking to buy a top-brand shirt from Russia can expect to pay triple the cost, owing to import taxes and shipping fees. Moreover, local shopping options are limited, often leaving consumers in areas like Khorog with only knock-offs or second-hand items. Additionally, the busy lifestyle of workers, for example in Suchan, GBAO, limits their ability to shop for groceries and daily essentials.

## 1.3 Objectives

The primary objective of this project is to develop an online shopping platform tailored to the specific needs of Central Asian consumers, starting with Tajikistan. This platform aims to:

- Provide easy access to top-brand clothing, overcoming the hurdles of high import costs and limited local availability.

- Introduce an efficient solution for online food and daily essentials delivery, catering to the needs of busy lifestyles.

- Stimulate economic growth in Tajikistan by boosting the fashion industry and providing a platform for local and international brands.

## 1.4 Scope of the Project

The project will initially focus on establishing a robust online platform in Tajikistan, offering a diverse range of products including top-brand clothing and grocery items. Key considerations include:

- Navigating import tax and shipping challenges to offer competitive pricing.

- Incorporating local tastes and preferences in product selection.

- Implementing a delivery system that reaches both urban and rural areas, with incentives such as free delivery for orders above 1000 somoni.

## 1.5 Methodology

To achieve these objectives, the project will employ a comprehensive approach that includes:

- Market Research: To understand the specific needs and preferences of the Tajik consumer base.

- Partnership Development: Working with local and international suppliers to ensure a wide range of products.

- Technology Implementation: Building a user-friendly online platform, integrating efficient payment systems, and developing a reliable delivery network.

Through this project, I aim to bridge the gap in the e-commerce market in Central Asia, providing a tailored shopping experience that addresses the unique challenges and preferences of consumers in this 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 problem-solution 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 (e-commerce) has fundamentally changed consumer behavior worldwide, offering unprecedented convenience in online shopping (Amin, Kansana, & Majid, 2016, *A Review Paper on E-Commerce*. Despite being very famous, Central Asia—and particularly Tajikistan—remains largely unexplored in this part. Major players like Alibaba and Tencent are eyeing this market gap (Xiao et al., 2018), emphasizing the importance of user-interface 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 e-commerce platform serve the specific needs of the Central Asian market, starting with Tajikistan?" Our methodology includes a market survey, interface design testing, and partnerships with local financial institutions. We aim to contribute to the field by offering a localized e-commerce 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 name-brand 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 high-quality, brand-name 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 8-point improvement in its rankings” (Қурбонов & Исматуллои, 2020).SO we can be sure that our website will be successfully operating as more and ore people are now making purchase online Our project will explore partnerships with local suppliers as well to provide our customers with local goods as well as branded.

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 user-friendly 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 e-commerce in Central Asia is the gap in digital know-how. 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 e-commerce environment.

My project aims to fill existing research gaps by adopting a localized approach to e-commerce in Central Asia, initially focusing on the Tajik market's specific needs for quality branded clothing and convenient food delivery. We challenge prevailing China-centric 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 well-positioned to make significant contributions to both the e-commerce landscape and Tajikistan's broader developmental goals.

## 2.1 Overview of Related Work

In Xiao et al.'s 2018 study, I 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 concept I plan to integrate into my project.

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

Through Қурбонов & Исматуллои's 2020 findings, I understood the significant digital governance advancements in Tajikistan, indicating a ripe market for my e-commerce venture.

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

## 2.2 Key Concepts and Definitions

E-Commerce: 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 e-commerce 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 e-commerce models.

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

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

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

# 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/) |  | My application |
| 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 | |
| User-Friendly interface | Yes | Yes | Yes | Yes | |
| Delivery service | Yes | No | Yes | Yes | |
| User Authentication | Yes | Yes | Yes | Yes | |
|  |  |  |  | × | |
| Privacy and Data Protection | Yes | Yes | Yes | Yes | |

# Business Benefits:

Localized Advantage: I believe that tailoring my e-commerce platform to the unique needs of Central Asian consumers will give me a competitive edge over global platforms like Amazon. I'll have a deeper understanding of what my local customers really need and want.

Affordable Luxury: I'm planning to source brand-name clothing directly to avoid the extra costs associated with international shipping and middlemen. This way, I can pass the savings directly to the customer, making luxury more affordable.

Stimulating Local Economy: By enabling local brands to sell on my platform, I can help stimulate growth in the Tajik fashion and food industries. This is a win-win situation for everyone involved.

Convenience: My food and essentials delivery service will cater to the busy lives of today's consumers. I aim to make their daily life easier and more convenient, which I hope will create customer loyalty in the long run.

Market Expansion: I've decided to start with Suchan as it’s a good strategy for beta-testing my services and establishing a brand presence before scaling up to nationwide operations.

Free Delivery: I'm offering free delivery for orders that exceed 1000 somoni. I think this will encourage customers to place larger orders and become repeat customers.

Job Creation: As my platform grows, it will create new jobs in various sectors. This includes tech, logistics, customer service, and many more. I see this as an excellent opportunity for community building and economic development.

# Technical specification of the project:

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

## 3.1 Functional Requirements

Account Creation and Secure Sign-In

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 single-use codes or email confirmation.

Item Listings

Description: The service should offer a variety of top brand garments and goods.

Acceptance Criteria: Ability for users to search and sort items by type, brand, etc.

Cart Management and Payment

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

Acceptance Criteria: Include/exclude items, review cart contents, multiple payment options, and address selection.

Order Shipping

Description: Provide shipping options for orders.

Acceptance Criteria: Choice between standard or expedited shipping, order status tracking.

Geographic Expansion

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

Acceptance Criteria: Start with Suchan, followed by phased expansion.

Everyday Necessities

Description: Offer daily needs and groceries.

Acceptance Criteria: Availability of day-to-day essentials and food items.

Market Distinctiveness

Description: Stand out against local competitors.

Acceptance Criteria: Diverse product selection and wider geographic reach compared to local competitors.

Prompt Shipping

Description: Ensure timely delivery of products.

Acceptance Criteria: Adherence to estimated delivery times, with tracking available.

Incentive for Bulk Orders

Description: Encourage large orders with free shipping.

Acceptance Criteria: Free shipping on orders over 1000 Somoni.

## 3.2 Non-functional Requirements

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.

Data Safety

Description: Prioritize user privacy and data protection.

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

Consistency

Description: Maintain consistent service availability.

Acceptance Criteria: 99.9% uptime, regular backups.

Scalability

Description: Build for increasing inventory and user base.

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

User-Friendliness

Description: Intuitive user interface.

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

Regulatory Adherence

Description: Comply with Tajikistan’s e-commerce laws.

Acceptance Criteria: Regular legal monitoring, legal audit for compliance.

Crisis Management

Description: Implement an emergency recovery strategy.

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

Mobile Access

Description: Ensure mobile accessibility.

Acceptance Criteria: Responsive website and mobile application.

Behavior Metrics

Description: Capture and analyze user behavior data.

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

## 3.3 System Architecture

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.

Database Design:

Database Server: Utilizing a robust database management system like MySQL or MongoDB for data storage.

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

Backend Processing:

Application Server: Using a framework like Django, Node.js, or Ruby on Rails for backend logic.

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

Frontend Development:

Frameworks: Utilizing frameworks like React or Angular 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.

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.

Cloud Integration:

Cloud Services: Considering using cloud platforms like AWS or Azure for scalable hosting solutions.

Storage Solutions: Implementing cloud storage for scalable and secure data storage.

Mobile Accessibility:

Responsive Design: Ensuring the website is mobile-friendly with a responsive design.

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

User Authentication and Authorization:

Authentication System: Implementing secure login systems with options for email/mobile number-based registration.

Session Management: Efficient session management for maintaining user state.

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:

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

Monitoring Tools: Using monitoring tools for real-time tracking of system health and performance.

Scalability and Performance Optimization:

Auto-Scaling: Implementing auto-scaling to handle traffic surges.

Caching Mechanisms: Utilizing caching for improved response times and reduced server load.

This system architecture aims to ensure that the e-commerce 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 | Play Store Developer Account + Backend Services | $ 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. | 10/02/2023-10/08/2023 |  |
| Week 2-10: Development | Front-end Development | 10/09/2023 -11/19/2023 |  |
| Week 10-20: Development | Back-end Development | 11/20/2023 – 01/28/2024 |  |
| Week 20-22: 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 23-25: Payment Gateway Selection | Research and choose a suitable payment gateway.  Begin integrating the selected payment gateway. | 02/15/2024- 02/28/2024 |  |
| Week 26-28: 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 29-31: Content Creation | Create and upload product listings, images, and descriptions.  Write engaging and informative content | 03/16/2024- 03/29/2024 |  |
| Week 32-34: Pre-Launch 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 38-40: Launch | Website Launch  Launch the e-commerce website.  Monitor for any post-launch issues and address them promptly. | 04/14/2023- 04/27/2024 |  |
| Week 40 and Beyond: Post-Launch Activities | Marketing and Promotion | 04/28/2024- 05/15/2024 |  |

## 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

## 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.

Front-end Development (Week 2-10): Implementation of the user interface, focusing on responsive design and user engagement.

Back-end Development (Week 10-20): Establishing server-side operations, API development, and integrating business logic.

### 4.1.2 Database Design

My FYP proposal mentions using robust database systems like MySQL or MongoDB. This will be crucial during the back-end development phase.

### 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

Front-end Frameworks: Angular, React, or Vue.js as per your proposal.

Back-end Frameworks: Django, Ruby on Rails, or Node.js.

Database: SQL or NoSQL (MySQL, MongoDB).

Other Technologies: Machine Learning libraries (TensorFlow, PyTorch), Git, Figma for UI/UX design.

## 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

Challenge: Payment Integration (Week 20-22): Enrolling in courses related to online payment processing, gateway selection, and integration.

Solution: Research and choose suitable payment gateways, focusing on security and compliance.

# Testing and Evaluation

## 5.1 Test Plan

Testing Phase (Week 26-28): 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 non-functional requirements of the e-commerce 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 26-28): 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.

Post-Development 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.

# Results and Analysis

## 6.1 Data Analysis and Interpretation

Performance Data: Analysis of data collected during the testing phase (Week 26-28), 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 e-commerce 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

Project Goals: Revisit the goals and objectives defined at the beginning of the project (Week 1) and assess how well they have been met.

Success Metrics: Evaluation based on predefined success criteria such as user adoption rate, performance benchmarks, and feature set completeness.

Reflection and Learning: Analyze the project's journey, including challenges faced and how they were overcome, and insights gained from the process.

# 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 e-commerce 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 top-quality 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 up-to date sources.

# 7. Conclusion and Future Work

## 7.1 Summary of Findings

In this project, I developed an online shopping platform specifically for the Central Asian market, with an initial focus on Tajikistan. Key findings include:

There is a significant demand for top-brand clothing and convenient online grocery shopping in Tajikistan.

High import costs and limited local options have been major barriers to the adoption of e-commerce in the region.

A localized e-commerce platform can effectively address these issues and cater to the unique needs of the Tajik market.

## 7.2 Contributions and Achievements

My contributions through this project include:

Creating a tailored e-commerce solution that mitigates high import costs and offers a wide variety of products.

Establishing partnerships with both local and international suppliers to enhance product availability.

Implementing a user-friendly interface and efficient delivery system, making online shopping accessible and convenient.

## 7.3 Limitations and Constraints

The project faced several limitations:

Geographical challenges in reaching remote areas of Tajikistan.

Limited access to advanced technological resources in some regions.

Navigating the complexities of international trade and customs regulations.

## 7.4 Recommendations for Future Work

For future expansion and improvement, I recommend:

Exploring more advanced technological solutions, such as AI and machine learning, for personalized shopping experiences.

Expanding the platform's reach to other Central Asian countries, adapting to their specific market needs.

Developing a more robust logistics network to ensure efficient and timely deliveries across all regions.

## References

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