**1.1 Introduction (AZZAM ESAM 202209451)**

Project Overview:

The back-end of this E-commerce new company, Which will be the seed of the future e-commerce platform that will make e-shopping better and easier for all parties! This platform supports browsing products, adding them to a shopping cart and purchasing by credit cards, bank transfer or even cash on delivery. The platform will further include a tracking function, so that customers can track their deliveries from when they are ordered to the point of final delivery.

Technically, the system should be designed to process thousands of transactions per day at high speeds without any performance loss. It will use sophisticated algorithms to analyzing user data and recommend products based on their behavior as well as the preferences. The system will also connect to real-time inventory management, giving the details of in-stock products, avoiding stockouts.

The platform will also connect with shipping and delivery systems to improve logistical efficiency, which in turn could eventually translate into higher speed of deliveries. The two presented solutions will be available to purchase immediately through a streamlined UI that reduces the number steps you need to take.

Client/Organization:

This new organization is a startup: Marketplace(TypeError 1) for everything online shopping. The priority here is going to be all about ensuring a seamless and fast shopping for users within the local market with the expansion to regional and international markets in steps later on. Its offering will include electronics, fashion and homeware among others.

The firm wants to bring local shipping companies and suppliers into its fold in a bid to move even faster, all while making deliveries cost-effectively. Payment options are flexible and secure, allowing customers to shop their way and enabling merchants to provide choice of payment types that encourage their customer trust and privacy.  
  
Stakeholders:

Investors: Will fund the initial phases of the projects and help financing running operations until the company is profitable. We will be supplying regular performance reports on financial and operational basis.

End users: This will be individuals and small organization that want to buy products in a very simple way They will regularly poll students to solicit feedback and update the platform for their needs.

Technical Team: The software engineers, user experience designers and database administrators who will work towards building the system keeping it high performing.

Coordination & Logistics: Manages the inventory, shipping and delivery functions. The team will be trained on the systems that interface the available inventory to the platform for immediate product availability updates and accurate shipment alignments.

Customer service team: A standby round-the-clock customer service team to handle customer queries related to payment, orders, or shipping.

**1.2 Background (AZZAM ESAM 202209451)**  
  
Client Operations:

The new company will provide e-commerce through an end-to-end online platform. We will start in the local market starting with the most searched categories such as electronics, fashion and household appliances. Early market research indicated that consumers in the area enjoy shopping online, but they complain of shipping times and payment options. However, Savyour plans to provide better options in a somewhat different way as well — built into its API — by offering commerce solutions (with multiple payment methods including cash on delivery) along with fast and reliable shipping based on the results provided.

For business expansion, we are considering responding to the delivery costs by collaborating with local suppliers who we can deliver ourselves and speed up shipping by delivering onshore. Also, local warehouses will be integrated with the platform for easier inventory management. For example, if some product categories were seeing high demand, then we will stock in those categories to avoid stockouts and cut down the inventory on low-demand items so that extra cost is minimalized.

Current System:

The fact that the company is still in its startup phase means that there is no prior system. The forthcoming system will also be built from the ground up to be flexible and scalable, handling orders and inventory in real time. Definition of a dynamic database to manage availability and stock extremely accurately or in real time after each sale. By utilizing dynamic pricing algorithms, accounting for the availability and response of supply and demand metrics, these price adjustments will be automated via a quicker market-to-market approach to drive enhanced profits

Higher level system integration with shipping services (Available via APIs) for real time shipment tracking by the end user. A built-in data analysis system also helps track user behavior and create products suggestions tailored exactly for the user's shopping behavior.

Business Objectives:

Create an All-Round Shopping System – Shopping module will contain features like product listing, shopping cart management, multiple payment options and live-tracking. Purchase steps are very reduced and user experience should be on planet earth.

Streamline Your Logistics Operations: We integrate our solution directly into your multi-channel inventory/shipping platform, to offer just-in-time inventory and on-demand shipping that is monitored in real time. Through association with local and overseas shippers, the company will deliver goods to satisfy the unique requirements of customers.

Maximum Growth: with the help of latest digital marketing technologies, which targets both local and international market. Funds will be earmarked for promoting digital marketing campaigns through various search engines and social media platforms to access the maximum targeted audience.

The highest safety standards and data security — including encryption, secure financial transactions in order to prevent the risk of compromising client data which must be stored on an absolutely secure basis. This will include robust protocols to prevent fraud and maintain high levels of ATM security like industry-leading encryption technology.

Secure and Flexible Payment Options: We will offer a variety of flexible and secure payment options, including credit cards, bank transfers, e-wallets, and cash on delivery. Payment transactions will be integrated with a multi-layered security system to ensure the safety of financial transactions .

1.3 Problem Definition: (Saud 202207164)

* 1.3.1 Specific Issues: the issues that the new online shopping system aims to address are:
  + Security: customers don’t order online due to some security concerns.
  + personalization: current systems don’t provide customers with personalized products.
  + order processing: processing orders manually usually leads to errors, which in turn leads to customer dissatisfaction.
  + Trust: most customers won’t try new brands unless they have a guarantee i.e. a warranty.
  + Customer service: bad client follow-up may lead to bitter customers leaving bad reviews (bad reputation).
  + Global availability: confining the business to a specific region limits growth.
* 1.3.2 Impact Analysis: these issues have many negative consequences associated with them, which include:
  + Revenue Lost: limited customer base will result in missed revenue and opportunities.
  + Security leaks: data breach results in customer trust issues and lawsuits.
  + Unsatisfied customers: bad customer service or lack of personalization leads to dissatisfied customers that won’t come back.
  + Operations Inefficiency: bad order processing and inventory records lead to increased costs.
* 1.3.3 Desired Outcome: The desired results the new system is expected to achieve are:
  + Robust Security: integrate a secure system to protect client’s private data to avoid data leaks and lawsuits, also build trustworthy reputation.
  + Better Customer Experience: providing personalized products and services will enhance customer experience, leading to customer satisfaction.
  + Global Reach: Global shipping provides unlimited customer growth and revenue.
  + Optimized Operations: Optimizing operations will decrease overhead costs by ensuring accurate inventory records (no overstocking or understocking), logistics etc.

**1.4 Project objectives (Muntadher Hani 20198780)**

**Measurable Goals**

The main company's primary aim is to provide an integrated system that meets the customers' needs and satisfy their demands.

Considering this, the system should offer a range of suitable services for different types of customers.

The system will provide various kinds of services which encourages continuous use, such as recommending the top-selling products locally or even internationally, allowing users to track their orders, providing multiple payment methods to reduce customer frustration, or even offering filtering options to save users time.

The system will allow the user to sign up and log in to the website through multiple methods (Google account, Facebook, Apple, or even manually) to minimize users’ time. It will also enable users to change or reset their password and offer a 'remember me' option to stay logged in.

The system should also display complete information about the selected product by the user, which includes product name, description, available quantity, price, colors and sizes (if applicable), and customer rating.

Users will have full control over updating their profile settings, including email, phone number, and shipping addresses, and even receive advertisements.

Also, the system will grant users full permission to purchase, rate, and provide public feedback on products.

To prevent any confusion, the system will offer both methods of communication, a 24/7 customer service that will ensure users receive real-time assistance, and a ticket system for users who can wait longer for a response, which will enhance communication and understanding between the company owners and the user.

Therefore, the system will not only focus on the main functions, but it will also cover other aspects to ensure customer trust and satisfaction.

On the other hand, the system will give the ability to the staff members to add new products, remove old products, or adjust the quantity of the existing products.

Staff members will also have the ability to check users orders in case to either ensure everything is working as planned, or even to assist the users with specific needs such as payment status, shipping addresses, order status, to ensure efficiency and to minimize users time.

Administrators will have the complete authority to add new staff members or remove old staff members and even see the logs of staff members’ actions, which will give the system the flexibility to monitor every action.

A refund function should be added to make it easier for users to inform the product seller about any issues related to their purchases, which will avoid any type of frustration and will make the connection between the product seller and the consumer much easier.

The system should be a role-based access control system to split the work between the workers and ensure that the staff members have access only to the necessary areas relevant to their roles while giving them the full freedom to control the system within their fields.

However, despite of all the services and functions that will be provided, the system should be planned, implemented, and maintained during the specified period while avoiding any possible delay.

**Alignment with business goals**

The project objectives focus not only on fulfilling the system with the needed functionalities in the technical field but also on the client’s business side.

By providing appropriate functionalities to the system, the main goal is to encourage users to engage continuously with the system while providing all the wanted functionalities that will lead the user to reach their demands, which on the other hand will help the overall client’s business.

The project objectives are aligned with the overall business goals as follows:

- By providing all the different kinds of services, more clients and customers will be interested in investing in the system.

- All the services that should be provided will help keep the user interested in the system, in turn, continuously using it which impacts the client’s business directly.

- Implementing some optional features might affect and reduce users’ time, such as a “remember me” option.

- Adding different types of payment methods will give the user an idea about how much the business cares about the customer, which means building an effective relationship between the two sides.

- Recommending the popular products locally will help to increase the sales which will lead to higher profits.

- Providing comprehensive information about products will enhance the user trust, which will give them the confidence to invest in the business and will ease the decisions making.

- Giving the users the freedom to track their orders will show them how much the business cares about the user, which in turn increases the strength of the relationship.

- By allowing the users to submit feedback, reviews, and ratings, more trust will be built between the client and the consumers.

-A refund function will support the business goals to build confidence with users, as a result, the users will remain engaged with the system, hence an increase in profits.

- A 24/7 customer service or even a tickets feature will help to avoid any kind of possible frustration or confusion and will encourage the user to engage with the system more frequently, therefore it will support the client’s business goals.

- Giving the staff the freedom to add, remove, and adjust quantity will allow the system to keep the business maintained over time.

- Giving the staff members the ability to check users’ orders will ensure easier monitoring between the two sides, leading to more efficient problem-solving which will help prevent any possible unwanted issues, then avoidance of losing a customer.

- A feature that allows adding new staff members, remove current ones, and even monitor their actions will lead to an efficient system without the need to return to the software developers, which will conclude easier control, so faster maintenance for the business.

Therefore, by putting these points into calculations, the system should be aligned with the overall client’s business goals.

**1.5 Process Model: (Qahtan Fahmi Altam 202003619)**

Model Selection

Rationale for Choosing Agile: The Agile process model has been selected for this e-commerce project due to several key factors:

1. Flexibility and Adaptability: The e-commerce landscape is rapidly evolving, and customer preferences can shift quickly. Agile allows for iterative development, enabling the team to adapt to changes in requirements based on user feedback and market trends.
2. Continuous User Feedback: Given that the target audience includes end users who will provide valuable insights, Agile encourages regular interaction with stakeholders. This feedback loop ensures that the product evolves according to user needs.
3. Incremental Delivery: Agile promotes delivering functional increments of the product, allowing the team to launch features progressively. This is particularly beneficial for an e-commerce platform, as it can begin operations with core functionalities while gradually introducing additional features.
4. Team Collaboration: The Agile model fosters a collaborative environment, which is essential given the diverse roles involved (technical team, logistics, customer service). Regular stand-ups and reviews encourage communication and alignment among team members.

**Model Description :** Agile Process Model Overview:

The Agile process model consists of several key phases, roles, and artifacts:

Phases:

1. Concept Phase:

• Identify high-level requirements.

• Gather initial stakeholder input.

• Define the project vision and goals.

1. Inception Phase:

• Create user stories based on user needs.

• Prioritize features using a product backlog.

• Estimate effort for each user story.

1. Iteration/Development Phase:

• Conduct sprints (typically 2-4 weeks).

• Develop features based on prioritized user stories.

• Hold daily stand-up meetings to track progress and address obstacles.

1. Testing Phase:

• Perform continuous testing throughout development.

• Conduct user acceptance testing (UAT) with stakeholders.

• Gather feedback and make necessary adjustments.

1. Release Phase:

• Deploy completed features to production.

• Collect user feedback post-launch.

• Prepare for future iterations based on user input.

1. Maintenance Phase:

• Monitor system performance.

• Address bugs and implement enhancements based on ongoing user feedback.

Roles:

• Product Owner: Responsible for defining the product vision, prioritizing the backlog, and ensuring that the team delivers value to stakeholders.

• Scrum Master: Facilitates the Agile process, removes impediments, and ensures adherence to Agile principles.

• Development Team: Cross-functional group responsible for delivering increments of the product within each sprint.

• Stakeholders (including end users): Provide feedback and insights throughout the development process.

Artifacts:

• Product Backlog: A prioritized list of features, enhancements, and bug fixes.

• Sprint Backlog: A subset of the product backlog selected for implementation in a specific sprint.

• Increment: The working product delivered at the end of each sprint.

• Burndown Chart: Visual representation of work completed versus work remaining in a sprint.

**Visual Representation:** Below is a simplified flowchart representing the Agile process model:

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|   Maintenance Phase |  
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**Justification**

The selection of the Agile process model is justified based on the following considerations:

1. Project Characteristics: The e-commerce platform requires frequent updates and modifications based on user feedback. Agile’s iterative nature allows for continuous improvement and quick adjustments to meet changing market demands.
2. Team Dynamics: The cross-functional team structure aligns well with Agile principles, promoting collaboration among developers, designers, and customer service representatives. This dynamic encourages knowledge sharing and collective problem-solving.
3. Client Preferences: The client values rapid delivery and responsiveness to user needs. Agile’s focus on delivering small, functional increments aligns perfectly with these expectations, allowing the client to see progress regularly and adjust priorities as needed.

In summary, adopting the Agile process model will enable the project team to create a responsive, user-centered e-commerce platform that evolves in line with stakeholder input and market trends while fostering collaboration among diverse team members.