UNIVERSIDAD DE GUADALAJARA

CENTRO UNIVERSITARIO DE LOS VALLES

Software Configuration Management Project

EcoCafe: Online platform for the sale of restaurant or cafe products

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Introduction

Software Configuration Management (SCM) is a fundamental discipline in software development that is responsible for managing and controlling changes in a project. In the context of EcoCafe, our online food ordering platform, the effective implementation of SCM is essential to ensure the stability, quality, and continuous evolution of the system.

SCM facilitates the efficient management of changes in the software. This includes the request, evaluation, implementation, and tracking of changes, which helps minimize risks and maintain system stability. At the end of this process, there will be evidence of change descriptions and the results of change requests proposed by the client.

Software configuration management process

The Software Configuration Management (SCM) process comprises a set of practices and procedures aimed at managing and controlling changes in software throughout its lifecycle. Below is an outline of the SCM process:

- Configuration Identification
- Configuration Control
- Configuration Status Accounting
- Configuration Auditing

Configuration Identification:

In this step, software configurations are identified and documented. This includes defining the baseline configuration of the software, which serves as a reference point for future changes. Each configuration item (CI) is uniquely identified and labeled to ensure traceability.

Configuration Control:

Change control involves the systematic management of changes to software configurations. It includes processes for submitting change requests, assessing their impact, approving or rejecting changes, and implementing approved changes in a controlled manner. Change control helps prevent unauthorized or unplanned alterations to software and ensures that changes are properly evaluated before implementation.

Configuration Status Accounting:

Configuration status accounting (CSA) involves maintaining accurate and up-to-date records of the configuration items, their versions, and their relationships. CSA provides visibility into the current state of the software configuration, including its components, changes, and historical data. This information is essential for tracking the evolution of the software and assessing its integrity and compliance with requirements.

Configuration Auditing:

Configuration audits are conducted to verify compliance with established configuration management processes and standards. Audits may be performed internally by the

development team or externally by independent auditors. The goal of configuration auditing is to identify discrepancies, inconsistencies, or non-compliance issues and take corrective actions to address them.

History´s changes

In this section, the different versions of the documentation of the changes that have been developed in this semester in the EcoCafe project are presented. The table contain the next fields.

Date: Initial date of the change made

Document: Name of the document that has the change.

Configuration items | description: Have the item and description.

Previous document version: The name of the document´s version that was modified.

Comments: Specify what was seen about this change.

Table 1 First project base-line

Date	9/02/2024	Document	Base-line EcoCafe 0.1
Configuration Items |description	General description		Initial release
	Functional Requirements		Initial release
	Non-Functional Requirements		Initial release
Previous document version	None		
Comments:	No comments		

Table 2 Update base-line

Date	18/02/2024	Document	Base-line EcoCafe 0.2
Configuration Items |description	Functional Requirements		updated
	Non-Functional Requirements		updated
	Design		Initial release
Previous document version	Base-line EcoCafe 0.1		
Comments:	No comments		

Table 3 Initial documents for Configuration Control

Date	29/02/2024	Document	Change Request Control v0.1
Configuration Items |description	Add Policies for making decision		Initial release
Previous document version	None		
Comments:	Policies for making decision		

Table 4 First update document of Configuration Control

Date	1/03/2024	Document	Change Request Control v0.2
Configuration Items |description	Update Policies for making decision		Update
Previous document version	Change Request Control v0.1		
Comments:	Updating policies for decision making		

Table 5 Second update document of Configuration Control

Date	8/03/2024	Document	Change Request Control v0.3
Configuration Items |description	Creation of criteria for decision making		Initial release
Previous document version	Change Request Control v0.2		
Comments:	No comments		

Table 6 Third update document of Configuration Control

Date	14/03/2024	Document	Change Request Control v0.4
Configuration Items |description	Update of criteria for decision making		Initial release
Previous document version	Change Request Control v0.3		
Comments:	Updating criteria form decision making.		

Table 7 Initial documents Status Accounting

Date	22/03/2024	Document	Status Accounting v0.1
Configuration Items |description	Create status accounting		Initial release
Previous document version	None		

Comments:	No comments

Table 8 First update of status accounting

Date	11/04/2024	Document	Status Accounting v0.2
Configuration Items |description	Evaluation of variables in status accounting		Initial release
Previous document version	Status Accounting v0.1		
Comments:	Evaluation of variables		

Table 9 Second update of Status Accounting

Date	26/04/2024	Document	Status Accounting v0.2
Configuration Items |description	Plan for evaluate the actual status of project		Initial release
Previous document version	Status Accounting v0.1		
Comments:	Evaluation of variables		

Table 10 Initial documents of Audit

Date	11/05/2024	Document	Audit
Configuration Items |description	Check list for auditing		Initial release
Previous document version	None		
Comments:	Check list		

Configuration identification

This section presents the entire process and documentation through which the project passes in its lifecycle during the implementation of SCM.

Base-Line

This document presents the baseline of the EcoCaffe project and encompasses a set of key elements that reflect the project's status at a specific moment. These elements will include the project description, functional and non-functional requirements, design, implementation, and testing (H BERSOFF, 1984). The process will be updated in a GitHub repository.

The baseline will serve as a reference point for measuring and evaluating the project's performance over time.

This document contains the following sections of the project that may be considered as potential configuration items.

1. **General description:** It provides an overview of the project as a whole. It offers several elements such as, purpose, scope, objectives, restrictions and limitations.
2. **Functional Requirements (FR) and Non-Functional Requirements (NFR):** This section is responsible for managing the functional and non-functional requirements of the project, which form the foundation for the success of a software project.
3. **Design:** This section includes the system architecture, component and module specifications, as well as class diagrams and user stories. It also encompasses the user interface and database design.
4. **Code:** This section describes the process of translating the design into executable code. It includes coding algorithms, creating classes, and functions. Additionally, it may address setting up the development environment, version control, and code documentation to facilitate its maintenance and understanding.
5. **Test:** The software testing section encompasses the planning, execution, and evaluation of tests to ensure the quality and reliability of the product. We describe and propose the environments for conducting the tests.

General Description of the EcoCafe Platform

EcoCafe is a comprehensive online food ordering platform designed to provide a convenient and sustainable experience to users within the city. With the aim of transforming the way people order their food, EcoCafe combines innovative technology with ecological practices to deliver a quality, fast, and environmentally-friendly service.

Key features

1. **Online Food Sales:** EcoCafe allows users to explore a wide catalog of food options, easily place orders through the web platform or mobile application, and receive fast and secure deliveries at their desired locations.
2. **Variety and Customization:** The platform offers a wide variety of culinary options, ranging from traditional dishes to vegetarian, vegan, and healthy choices. Users have the ability to customize their orders according to their dietary preferences and individual tastes.
3. **Advanced Technology:** EcoCafe utilizes cutting-edge advanced technology to ensure a smooth and seamless experience for users.
4. **Commitment to Sustainability:** As part of its commitment to the environment, EcoCafe promotes sustainable practices in all its operations. This includes the use of biodegradable packaging, minimizing food waste, and collaborating with local and eco-friendly suppliers.

5. **User Experience:** The platform focuses on providing an exceptional user experience at every step of the process, from menu navigation to order delivery. Emphasis is placed on ease of use, accessibility, and customer satisfaction in all interactions.

Project objectives:

1. Develop and launch an online food ordering platform that meets the expected standards of quality and usability by users.
2. Ensure the availability and reliability of the platform to handle a high volume of orders efficiently.
3. Establish strategic partnerships with local restaurants and suppliers to expand the product catalog and ensure the freshness and quality of food.
4. Promote environmental awareness and sustainability through eco-friendly practices in all platform operations.

The EcoCafe platform represents a new approach to how people access and enjoy food, combining the convenience of technology with a commitment to the environment and customer satisfaction.

The software perspective for EcoCafe

Focuses on the design, development, and implementation of a robust and adaptable technological platform that meets the changing needs of users and the business. The platform is conceived as a scalable, secure, and high-performance system that enables an exceptional user experience and efficient management of operational processes. In general, the product will allow the following functionalities:

- Create a user account on the platform.
- Allow users to log in to access system functionalities.
- Navigate through the café's product menu.
- Select products and add them to the shopping cart.
- Complete the purchase.

Users who will use the platform:

Type of users	Description	Privileges	Time of use
Client	User who decides to enter the platform with the aim of placing an order.	Some functionalities regarding placing orders (add to cart, delete item from cart, view cart, place order).	Whenever required
Administrator	User with all privileges on the platform.	all	Whenever required

Employed	User who can only access the platform during their shift to perform specific operations.	The functionalities you've mentioned are: - Answer calls - Cancel orders - Track orders -About page (providing information about the platform)	Turn of work

Restrictions

- Internet access is required on devices to access the platform.
- The platform will not function on any version of the Windows Explorer browser.
- The device must have a minimum of 2 GB of RAM.
- Users must be registered on the platform to use it.

Assumptions and dependencies

- Software requirements may change during development following the project's SCM policies.
- EcoCafe relies on reliable delivery services to ensure timely and secure delivery of food orders to users at their desired locations.
- The platform will be tested by both the team and clients at each agreed-upon deliverable.
- t is assumed that EcoCafe users will have access to a reliable internet connection to use the platform and place orders online.
- The availability and quality of food options on the platform depend on successful collaboration with suppliers and local restaurants willing to participate in the EcoCafe program.

Specific requirements

In this section, the client's requirements will be documented to meet the quality standards of the platform.

User Interface

The EcoCafe user interface is characterized by its intuitive and user-centered design, offering a smooth and engaging browsing experience. Upon accessing the platform through the web or mobile application, users are greeted with a clean and easy-to-understand homepage.

Software Interface

Web application: Server AWS

Functionals Requirements

User Profile Module

1. **Register user:** Allow users to register on the platform by providing basic information such as name, email and password.
2. **Login:** Provide secure login features.
3. **Logout:** Offer logout functions whenever they want.
4. **Recover password:** Include a mechanism for users to recover their passwords if they forget.
5. **Customize Profile:** Allow users to create and manage personalized profiles with information such as name, address, phone number, etc.
6. **Select language:** Allow you to select the site language.
7. **Manage email notifications:** Allow users whether or not they want email notifications
8. **Manage Password:** Allow users to securely change and update their passwords.
9. **Show activity history:** Record and display a history of user activities, such as orders placed, products purchased, etc.
10. **Manage payment methods:** Allow users to add, modify or delete payment methods associated with their account.

Products Catalog Module

1. **Add Product:** Allow users to add new products to the system, entering information such as name, description, price, quantity in stock, etc.
2. **Edit Product:** Provide the ability to edit existing product information, such as updating prices, descriptions, or images.
3. **Show Products:** Shows the products registered by the seller in the database
4. **Delete Product:** Provide the option to remove products from inventory when necessary.
5. **Search and Filter:** Implement search and filter functions to allow users to quickly find products based on specific criteria, such as category, price, etc.
6. **Product Categorization:** Allow the classification of products into categories or labels to facilitate organization and search.
7. **Stock control:** Automatically update stock quantity when a sale is made or new inventory is received.
8. **Specify preparation ingredients:** Allows you to describe the ingredients that each product has on the menu.
9. **Low Stock Alerts:** Set up alerts or notifications when the quantity of a product in stock falls below a predefined threshold.
10. **Change History:** Maintain a history of product changes, recording who made the modification, when, and what was modified.

Dashboard Module

1. **View total revenue:** Display total sales revenue.
2. **Display number of orders:** Show order number totals.
3. **Graph profits:** Show the profits from sales made each month.
4. **Graph best-selling products by category:** Shows the best-selling products according to their category.
5. **Graph least-selling products by category:** Shows the least-selling products according to their category.
6. **View Conversion Rate:** Show current conversion rate.
7. **Real-time monitoring of system performance:** Provide real-time information on current system performance and transactions.
8. **Graph Sales and Order Summary:** Present a summary of recent sales and pending orders.
9. **Show Customer Analysis:** Include information about new customers, repeat customers, and customer behavior trends.
10. **Show Product Performance:** Show product performance, highlighting best sellers, least sellers, and new products.

Sales Module

1. **Add Products to Cart:** Allow users to add products to cart from the product details page or from the product list.
2. **Remove Products from Cart:** Provide the option to remove individual products or completely empty the cart.
3. **Modify Quantity of Products:** Allow users to adjust the quantity of products in the cart before proceeding to checkout.
4. **View Cart Summary:** Show a clear and detailed summary of the products in the cart, including names, images, prices and quantities.
5. **Calculate Total and Subtotal:** Automatically calculate the subtotal of the purchase and show the total with taxes and shipping costs, if applicable.
6. **Save Cart Status:** Allow users to save their cart so they can return and complete the purchase later.
7. **Validate availability in Stock:** Check the availability of the products in the cart to avoid purchasing out-of-stock products.
8. **Integrate Checkout Process:** Facilitate an easy transition from the cart to the checkout process and checkout.
9. **Confirm shipping information:** Request or confirm shipping information, such as address and delivery method, during the checkout process.
10. **Apply discounts and Promotion Codes:** Allow users to apply discount codes or special promotions to the cart.

Orders and Billing Module

1. **Place Order:** Allow users to complete the purchasing process.
2. **Select Shipping Address:** Offer the option to select a shipping address or add a new one during the checkout process.
3. **Select Payment Method:** Allow users to choose between various payment methods, such as credit cards, PayPal, bank transfers, etc.
4. **Order confirmation:** Display a clear order confirmation, including product details, shipping address and payment method.
5. **Generate Invoice:** Automatically generate a detailed invoice for each confirmed order.
6. **Send Email Confirmation:** Send order confirmation emails to users, including order details and tracking links.
7. **Manage Order Status:** Provide different order statuses, such as "In Process", "Shipped", "Delivered", etc.
8. **Track order status:** Allow users to track the status of their order in real time through a tracking number.
9. **Generate Shipping Labels:** Facilitate the generation of shipping labels for easy logistical processing.
10. **Make Refunds:** Allow users to initiate return and refund processes.

Non-Functional Requirements

Design

The main colors for UI must be:

Orange: #fca311

Black: #262626

Blue: #14213d

The background of the system must have an image that identifies the cafeteria.

The Font Family must be by tags the following:

- <H1> apple-system
- <H2> apple-system
- <p> Courgette
- <a> Cantarell

Performance

The homepage load time should not exceed 3 seconds, ensuring a fast and efficient user experience.

The application must be able to handle a simultaneous load of 5,000 users completing a transaction within a time frame of 5 minutes during peak hours.

Availability

The system must be available 99.9% of the time, allowing a maximum planned downtime of 43.2 minutes per month for maintenance.

Scalability

The system should be able to handle a 100% increase in the number of concurrent users during high-traffic events, such as special sales or promotions.

The system architecture should be designed to scale horizontally to accommodate a 200% increase in the user base within a three-month period.

Security

The application must use SSL/TLS encryption to protect user-sensitive information during transmission, complying with web security standards.

The website must implement HTTPS for data protection.

Reliability

The system must have an error rate below 0.1%, ensuring reliable operation and minimal technical issues.

Usability

The user interface must be intuitive, with an average learning time to make a purchase of less than 5 minutes for new users.

The application should provide clear and concise error messages, allowing users to easily understand and resolve problems without external assistance.

Accessibility

The application must comply with WCAG 2.0 accessibility standards, allowing users with disabilities to access and use the platform effectively.

All images and media must have alt text.

Browser Compatibility

The system must be compatible with the latest versions of Google Chrome, Mozilla Firefox, Safari, and Microsoft Edge.

Interoperability

The application must integrate with external shipping services to provide users with real-time tracking information.

The application must have API endpoints that adhere to RESTful principles, allowing seamless integration with third-party services and applications.

Maintainability

The source code must follow best development practices and be modular to facilitate updates and bug fixes.

Code should be well-documented, and a version control system (e.g., Git) must be used to track changes, enabling efficient collaboration and future maintenance.

Backups and recovery

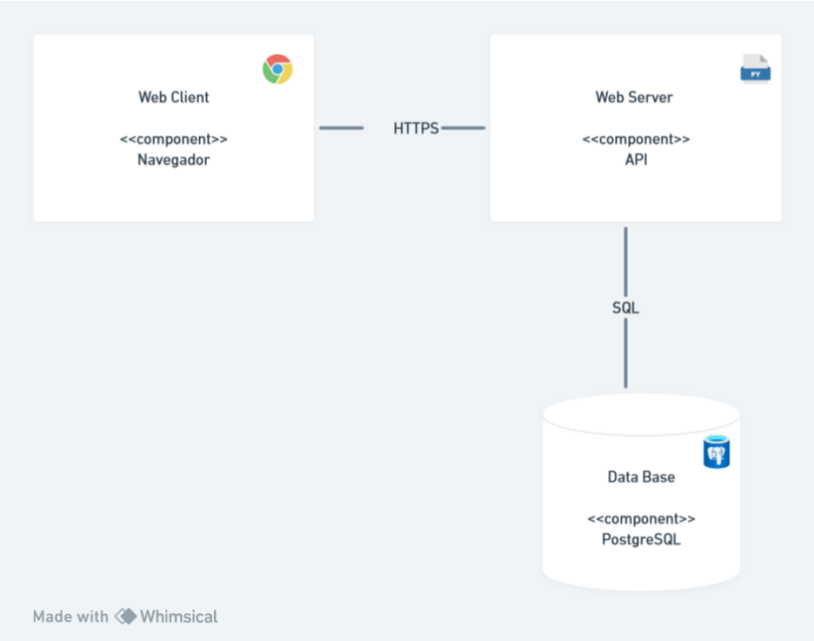
Automatic backups of the database will be performed every night and retained for at least 30 days to facilitate data recovery.

Design

In this section, we use UML language for system design. Detailed diagrams of components, use cases.

The component diagram is a visual representation that shows the structure and relationships between the components of a software system. It serves to provide a high-level view of the different elements that make up the system, including their interactions and dependencies.

Table 11 Component Diagram



The use case diagram is a visual representation that describes the interactions between users (actors) and the software system. It serves to identify and understand the different usage scenarios of the system, showing the actions that users can perform and how they interact with the system to achieve their goals.

Table 12 Use case diagram for the client

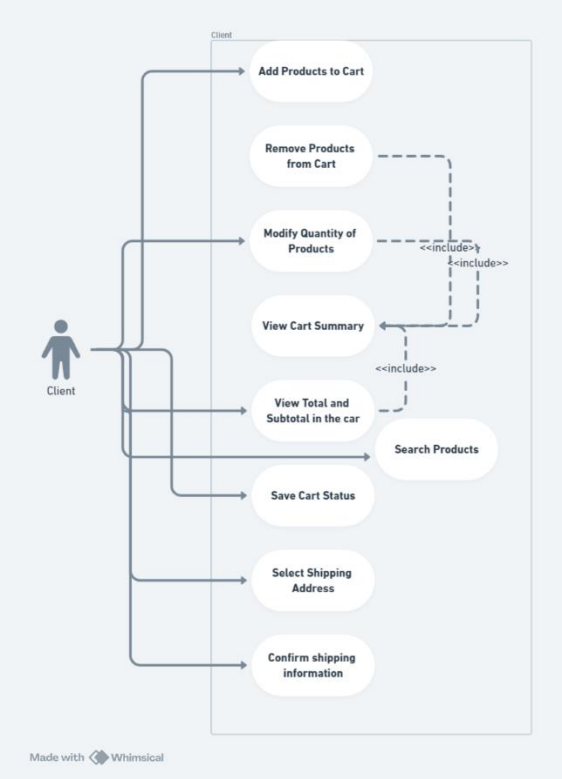


Table 13 Use case diagram for the User Profile Module

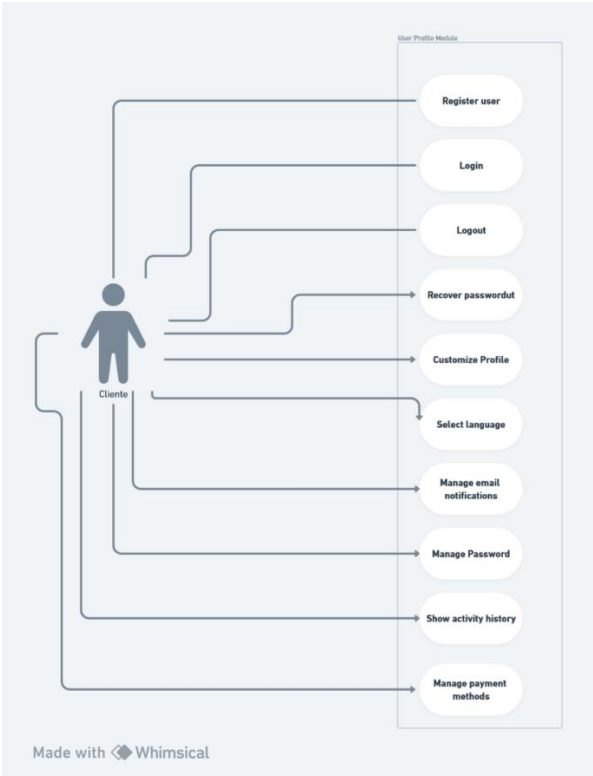


Table 14 Use case diagram for the Administrator

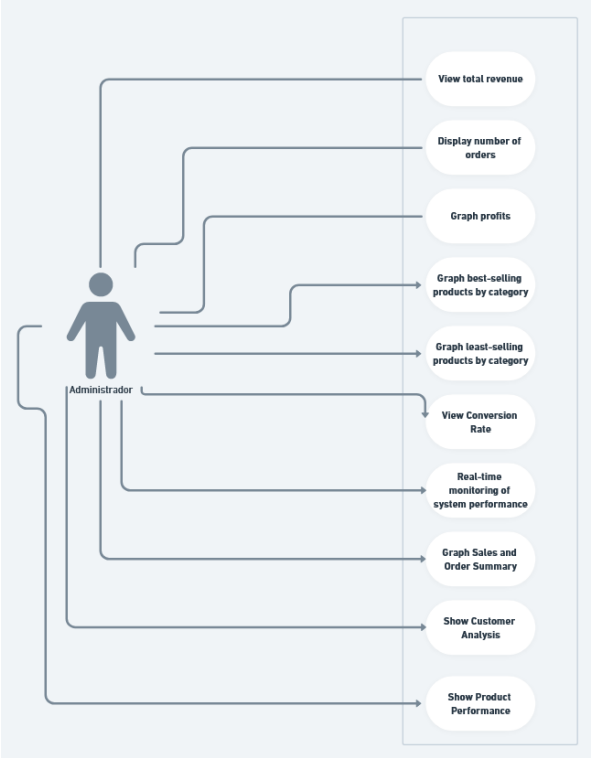
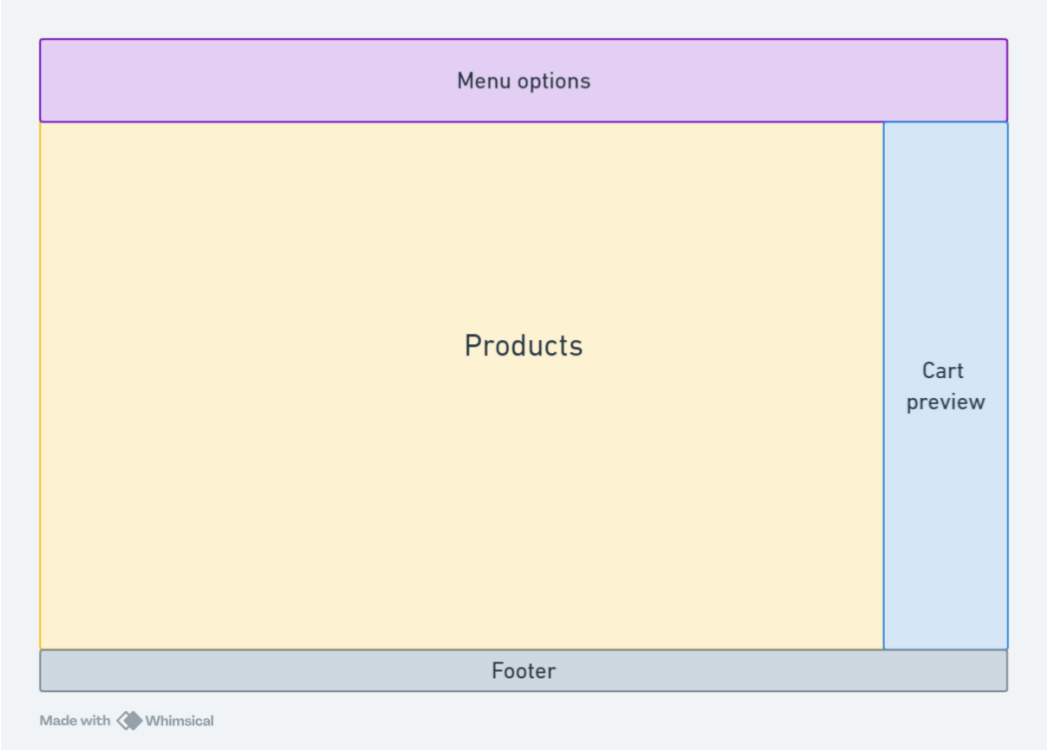


Table 15 Main interface



Modules

1. **User Profile:** This module allows users to register, log in, and manage their personal information such as name, address, and contact preferences. Additionally, they can view their order history, save favorite addresses, and update their payment information.

2. **Product Catalog:** In this module, users can explore a wide variety of products available for sale, including meals, beverages, and special options. They can browse categories, view product details such as descriptions, prices, and photos, and add items to the shopping cart.

3. **Sales Module:** The sales module facilitates the management of commercial transactions between users and the platform. It includes functions to securely process payments, manage inventory, update prices, and administer promotions and discounts.

4. **Orders and Billing:** In this module, orders placed by users are managed, from initial confirmation to final delivery. Invoices and receipts are generated for each order, the order status is updated in real-time, and deliveries are coordinated with courier services.

5. **Dashboard:** The Dashboard provides administrators and management team with an overview and real-time insights into the performance and key metrics of the platform. It allows for sales tracking, data analysis, user management, and platform configuration.

Code

In this section, we will present some of the most important classes, applications, and functions of the project.

Class

- Car
- Dashboard

Applications

- Products
- Dashboard
- EcoCafe
- App
- Security
- User

Functions

Add_items_car() : Add a menu item to the shopping cart.

Delete_item_car() : Delete a product from the menu to the shopping cart.

Increase_product() : Increase the quantity of a product that is in the shopping cart.

Dismiss_product() : Decrease the quantity of a product that is in the shopping cart.

Register_user(): Create a user in the platform database.

Login_user() : Sign in with your existing credentials.

Order_products(): Order the products you already have in your shopping cart to the specified address.

Software Testing

This section defines the tests that must be carried out on the software to ensure its quality. We will specify the hardware and software, and the describe some tests.

Hardware Specification

Table 16 Specification for the equipment where the tests will be taken.

Characteristic	Specification
Device name	DARIAN
Brand and Model	Asus Q503UA
Processor	Intel(R) Core (TM) i5-6200U CPU @ 2.30GHz 2.40 GHz
RAM	8 GB
ROM	512 GB
Graphics Card	Intel(R) HD Graphic 520
Video Memory	4GB

Software Specification

Table 17 Software specification

Software	Specification
Python	3.9.3
Pytest	7.1.2
Visual Studio Code	1.89
Operating System Window	11 PRO (21H2)

Control Version

For version control, we will use GitHub. GitHub provides a complete history of changes in the code, making it easy to identify and revert unwanted changes. It also allows multiple people to work on the same project simultaneously.

Test cases

Module	Requirements	Test
User Profile	Register user	Register a user successfully
User Profile	Login	Authenticate with the credentials of a real user to continue logging into the platform and the platform's functionalities successfully
User Profile	Logout	Leave the platform once you finish the actions within the platform successfully
User Profile	Recover password:	Allow the user to recover the password by creating a new one after some security methods successfully
User Profile	Select language	Allow the user to change the platform to the language of their preference
Product Catalog	Add Product	Create a new product on the platform successfully
Product Catalog	Show Products	Show all details of a successfully selected product
Product Catalog	Search and filter products	Perform a search for a specified product using the search field successfully
Product Catalog	Edit Product	Update a product on the platform successfully
Product Catalog	Delete Product	Delete a product on the platform successfully
Sales Module	Add Products to Cart	Add a product to the logged in user's cart successfully
Sales Module	Remove Products from Cart	Delete a product from the logged in user's cart successfully
Sales Module	Modify Quantity of Products	Successfully increase or decrease in the user's cart

		the quantity that a specific product has
Sales Module	View Cart Summary	Show all the products that the user has in their cart successfully
Sales Module	Calculate Total and Subtotal	Calculate the total amount of the prices of the products in the cart to display it in the user interface
Orders and Billing	Select Shipping Address	Make a selection of the location to which you want the order
Orders and Billing	Select Payment Method	Select a payment method for the user's order
Orders and Billing	Order confirmation	Send a confirmation to the telephone number where you specify the summary of the order, the total paid and to whom it is placed.
Orders and Billing	Send Email Confirmation	Send a confirmation to the registered email where you specify the summary of the order, the total paid and in whose name it is placed.
Orders and Billing	Generate Shipping Labels	Generate a shipping label with a unique ID for delivery of the shipment to the selected location
Dashboard	View total revenue	Show the total income that the platforms had in sales in a certain time selected by the administrator
Dashboard	Display number of orders	Show the number of orders that have been placed at the time of the query
Dashboard	Graph profits	Show a graph with the net profits for each month
Dashboard	Graph best-selling products by category	Show a graph with the best-selling products by category
Dashboard	Graph Sales and Order Summary	Show a graph with the sales made and the content of the orders that correspond to those sales

Project Change Request Control

Proposed Change Requests

Change Request ID	Requestor	Date	Status
CR1_1	Omar Ali Zatarain Durán	18/02/2024	Reject
CR1_2	Omar Ali Zatarain Durán	18/02/2024	Approved
CR2	Omar Ali Zatarain Durán	27/04/2024	Reject
CR3	Omar Ali Zatarain Durán	27/04/2024	Approved

Authorized Change Requests

Change Request ID	Owner	Date	Status
CR-1_2	Darián García Mejías	15/05/2024	100%
CR-3	Darián García Mejías	15/05/2024	100%

Policy Rules

All changes applied to the platform regarding the previously created baseline must adhere to the following policies. They must be reviewed, analyzed, authorized, implemented, tested, and published based on the software configuration management plan.

This document seeks to establish the policies and procedures governing change management within our company. The steps to request, evaluate and support alterations to the EcoCaffe sales management system will be detailed, along with the definition of the responsibilities of the parties involved in each phase of the process.

The main aim of this document is to guarantee that alterations to the system are carried out in a structured and deliberate fashion, with the intention of reducing any detrimental effects on the system's quality and stability.

Committee

The committee in charge of evaluating changes in the EcoCaffe project is made up of the following members:

- **President:** The President is the executive leader of the company, responsible for establishing the strategic vision and goals of the organization. He focuses on making key decisions, representing the company to external stakeholders and ensuring that business objectives are met.
- **Project Manager:** The Project Manager is responsible for planning, coordinating and supervising the execution of specific projects, including the online food sales platform. Leads the development team, ensuring milestones are met and product quality is maintained within established scope, time, and budget.
- **Human Resources Department:** The Human Resources Department is responsible for managing the company's human talent. This includes employee recruitment, selection, training, development and retention. It is also responsible for promoting a healthy work environment and encouraging teamwork and collaboration.
- **Finance Department:** The Finance Department is responsible for the company's financial management, including budget planning, expense tracking, financial reporting, and financial risk management. Works closely with other departments to ensure the economic viability of projects.
- **Technology Adviser:** The Technology Advisor provides strategic guidance in the use of technology to achieve business objectives. He stays abreast of the latest trends and technological advances, advising on the selection of the most appropriate tools, architectures and development approaches for the online food sales platform.

Change Request Logging Policy.

Objective: Establish a process to formally log all change requests on the platform.

Procedure:

- All team members or the stakeholders (customers and users) can submit change requests using a standardized form.
- Requests must include a detailed description of the proposed change, its justification, and the expected impact.
- Requests are logged in an issue tracking system or collaborative work board for review and tracking purposes.
- The project owner should share with all the members of the committee change board the change request.
- The sum of the change request must not exceed 5 weeks of extra time for the project.
- Every person on the committee board members should expose
- The committee will vote about their approval or disapproval position regarding the CR, in case there is a tie in the votes, only the CEO can take the final decision.
- The CR must have a final decision in a maximum of no more than 4 days.
- The first status is new request.
- The second status is in review by project manager.
- The third status is reviewed.

- The four status is assessing.
- The five status is accepted.
- The six status is denied.
- The seven status is in process
- The last status is finish.

Assessment and Prioritization Policy:

Objective: Evaluate and prioritize change requests based on their impact, urgency, and alignment with strategic objectives.

Procedure:

- An evaluation committee, including the Project Manager, the Technology Advisor, and representatives from other relevant areas, periodically reviews change requests (configuration items).
- Requests are evaluated based on criteria such as impact on user experience, technical complexity, and financial feasibility.
- A priority is assigned to each change request based on its relative importance to the business and its urgency.
- It's necessary create the SWOT matrix for calculate risk and opportunity.
- The priority of changes requests are urgent or critical, regular or basic.
- It's necessary calculate the impact and establish as high medium and low.

Approval and Implementation Policy:

Objective: Establish a clear and transparent process for the approval and implementation of change requests.

Procedure:

- Change requests approved by the evaluation committee are assigned to a designated responsible party for implementation.
- Before implementing a change, an impact analysis is conducted to assess potential side effects on other areas of the system.
- Once the change is implemented, comprehensive testing is performed to verify its proper functioning and its impact on the platform.

Communication and Notification Policy:

Objective: Keep all stakeholders informed about the status of change requests and any actions taken.

Procedure:

- A communication system is established to automatically notify requesters and other stakeholders about the progress of their change requests.

- Timely feedback is provided to requesters regarding the status of their requests, including reasons for approval or rejection.
- All decisions made and actions taken regarding change requests are documented and maintained in a record.

Project Prioritization Policy:

Objective: Establish a process for prioritizing projects and features of the online food selling platform, considering their impact on the company's strategic objectives.

Responsibilities:

- The President leads the discussion on aligning projects with the company's strategic vision.
- The Project Manager provides feasibility analysis and estimates of time and resources.
- The Finance Department evaluates the financial feasibility of projects.

Prioritization Criteria:

- Impact on user experience.
- Technical feasibility and required resources.
- Potential return on investment.

Decision-Making Process: The committee evaluates and votes on project prioritization, considering the established criteria.

Risk Management Policy:

Objective: Identify, assess, and mitigate risks associated with the company's projects and decisions.

Responsibilities:

- The President leads the discussion on strategic risks and risk tolerance.
- The Project Manager identifies specific risks in projects and proposes mitigation measures.
- The Technology Advisor advises on technical and security risks.

Risk Management Process:

- Identification of potential risks (The committee proposes a classification of risk levels as critical risk, high risk, moderate risk and low risk. They will be attended according to the risk of the most critical to the lowest).
- Evaluation of the probability and impact of each risk.
- Development of mitigation strategies and contingency plans.

Review and Update: The committee periodically reviews identified risks and updates mitigation strategies as necessary.

Logical order for decision making

1. Change Request: Any team member or key stakeholder can submit a modification request.
2. Change Acknowledgment: The Project Manager records the change request and distributes it among relevant team members. The committee reviews the request to understand its scope and potential impact.
3. Technical Analysis: The technical lead assesses the technical feasibility of the change and determines its potential impact on the current architecture and design. It is analyzed whether new tools or technologies are required to implement the proposed change.
4. Strategic Evaluation: The manager, HR representative, finance department, and stakeholders evaluate the strategic impact of the change in relation to business objectives, budget, required personnel, and timelines for execution.
5. Change Analysis Meeting: The committee convenes to discuss the results of technical, resource, and strategic evaluations. Risks associated with the change are analyzed, and the priority for addressing them is determined.
6. Decision Communication: The team structures the decision made on the change request and communicates it to the team. The following three scenarios may occur:
   a) Approval: The change is approved, and its implementation is planned.
   b) Rejection: The change request is denied, and the reasons for this decision are outlined.
   c) Postponement: The decision is deferred for future review as it is not a priority in the current project stage.

Decision-making criteria

In this part of the documents, we will standardize the way in which the development of the change request will be prioritized. We will create a table with scores to know the order of implementation of the change request depending on the criteria.

Impact on the system

Does the change meet a valid customer need or request?

Is it aligned with the agreed requirements in the contract or project specifications?

Very High	High	Medium	Low	Very Low
For the change it is necessary to modify more than 30% of the current	For the change it is necessary to modify less than 20% of the current	For the change it is necessary to modify between 20 and 30% of the	For the change it is necessary to modify between 10% and 20% of	For the change it is necessary to modify less than

requirements and add new requirements	requirements and add new requirements	current requirements.	the current requirements.	10% of the current requirements.

1. When the level is “Very High” the committee likely to be rejected this change
2. When the level is “High” the committee likely to be rejected this change
3. When the level is “Medium” the committee likely to be approved this change.
4. When the level is “Low” and “Very Low” the committee likely to be approved this change.

Cost

Is the change cost effective and within the project budget?

Does it require a significant investment of time or resources?

Level of Impact

Very High	High	Medium	Low	Very Low
The change request includes increasing the initial project budget by more than 15% of the project.	The change request includes increasing the initial project budget by 5 to 15% of the project.	The change request includes increasing the initial project budget by 5% or less of it.	The change request involves budget, but does not exceed the project budget.	The change request does not involve a budget increase.

1. When the level is “Very High” the committee likely to be rejected this change
2. When the level is “High” the committee likely to be rejected this change
3. When the level is “Medium” the committee likely to be approved this change.
4. When the level is “Low” and “Very Low” the committee likely to be approved this change.

Compatibility with existing architecture

Is the change consistent with the existing architecture and software design?

Does it introduce conflicts or integration problems?

Level of Impact

Very High	High	Medium	Low	Very Low
It includes new technologies that the team does not master and more than 5 architectural changes.	It includes new technologies that the team does not master and between 1 and 5 architectural changes.	Includes new technologies that the team masters and between 1 and 5 changes.	The change request includes changes to technologies that the team masters and a change to the architecture.	There is no variation in the existing architecture.

1. When the levels is Very High the committee likely to be reject this change
2. When the levels is High the committee likely to be reject this change
3. When the levels is Medium the committee likely to be reject or approved this change
4. When the levels is Low or Very Low the committee likely to be approved this change

Impact on schedule:

Does the change affect the project schedule?

Can it be done without delaying the delivery of the product?

How long would the final product delivery go?

Level of Impact

Very High	High	Medium	Low	Very Low
The change can be managed but it needs more than 30% of the time initially established.	The change can be managed but it takes between 15% and 30 % of the time initially established.	The change can be managed but it takes between 7% and 15 % of the time initially established.	The change can be managed but it takes between 1 and 7% of the time initially established.	The change can be managed within the initially defined schedule.

1. When the levels is Very High the committee likely to be reject this change

2. When the levels is High the committee likely to be reject this change
3. When the levels is Medium the committee likely to be reject or approved this change
4. When the levels is Low or Very Low the committee likely to be approved this change

Consistency with Business Strategy

Is the change aligned with the strategic objectives of the organization or the client?

Does it contribute to achieving the desired results?

Level of Impact

Very High	High	Medium	Low
The change is a main functionality of the system	The change directly impacts the main functionalities of the system	The change creates attributes/elements that will be used by the main functionalities	The change does not impact the main functionalities of the system

5. When the levels is Very High the committee likely to be rejected this change
1. When the levels is High the committee likely to be rejected this change
2. When the levels is Medium the committee likely to be reject or approved this change
3. When the levels is Low the committee likely to be approved this change

Technical Feasibility

Is it feasible to implement the change from a technical point of view?

Are additional resources or specialized skills required to make the change effectively?

Level of Impact

Very High	High	Medium	Low	Very Low
It is necessary to adopt new personal, technologies and tools where the team is not prepared	It is necessary to adopt new technologies and tools where the team is prepared	It is necessary to use new libraries or functionalities of the technologies used by the project	Only new implementations with codes are necessary.	No need to deploy with code, just configure the configuration.

4. When the levels is Very High the committee likely to be rejected this change
5. When the levels is High the committee likely to be rejected this change
6. When the levels is Medium the committee likely to be reject or approved this change
7. When the levels is Low or Very Low the committee likely to be approved this change

Effort

How much effort team members need to make to take on the change.

Level of Impact

Very High (Five Story Points)	High (Four Story Points)	Medium (Three Story Points)	Low (Tow Story Points)	Very Low (One Story Points)
All team members must take on new knowledge coupled with real-time development.	Half of the team must take on new knowledge coupled with real-time development.	Less than 50% of the equipment will need to be trained in a new technology with an allotted time fund.	Only selected team members should train in a new technology with an allotted time fund.	For all team members it is enough with the knowledge and time currently allocated to take on the change.

1. When the level is "Five Story Points" the committee likely to be approved this change
2. When the level is "Four Story Points" the committee likely to be approved this change
3. When the level is "Three Story Points" the committee likely to be approved this change.
4. When the level is "Tow Story Points" the committee likely to be approved this change.
5. When the level is "One Story Points" the committee likely to be rejected this change.

Government Laws

How many company rules must be modified or altered to take on the change?

Level of Impact

Very High	High	Medium	Low	Very Low
The change goes against more than 50% of the rules established in the company	The change goes against between 25% and 50% of the rules	The change goes against less than 25% of the rules set in the company	The change only needs the modification of some of the established rules	Change can be assumed without violating any of the established rules

	established in the company			

6. When the level is "Very High" the committee likely to be approved this change
1. When the level is "High" the committee likely to be approved this change
2. When the level is "Medium" the committee likely to be approved this change.
3. When the level is "Low" the committee likely to be approved this change.
4. When the level is "Very Low" the committee likely to be rejected this change.

Human Resources

How many new human resources does change need to take place?

Level of Impact

Very High	High	Medium	Low	Very Low
Need to recruit at least 10 new professionals	Less than 10 new professionals need to be recruited, but more than 5	Fewer than 5 new recruits needed	The change can be assumed with the current staff, but evaluating the times	Change can be assumed with current staff.

1. When the level is "Very High" the committee likely to be approved this change
2. When the level is "High" the committee likely to be approved this change
3. When the level is "Medium" the committee likely to be approved this change.
4. When the level is "Low" the committee likely to be approved this change.
5. When the level is "Very Low" the committee likely to be rejected this change.

Establishment of Change Request Priorities

An assessment of the impact of each previously described criterion will be conducted to decide the impact generated by each change request.

A table with the 8 criteria and the impact assessment will be created, and the overall impact will be the assessment that repeats the most. In the example in table 2 the general impact is low since it is repeated 3 times.

For decision-making, the following aspects will be prioritized:

- First: Change request with the closest overall impact to very low (In the event that two impact levels have the same number of evaluations, the chosen one is decided with the following steps). After the change request with the closest overall impact to

low. After the change request with the closest overall impact to medium. After the change request with the closest overall impact to high.

- Second: Change requests with more strengths.
- Third: Change requests with more opportunities.
- Fourth: Change requests without threats or opportunities.
- Fifth: Change requests with fewer weaknesses.
- The final decision is made by the project manager after all elements have been analyzed (time, budget, impacts, SWOT matrix, changes in the baseline).
- If the cost is greater than the budget, the CR is automatically rejected.

Change Request 1_1

Change Request ID	CR-1_1	**Requestor**	Omar Ali Zatarain Durán
Date	18/02/2024	**Project Manager**	Darián García Mejías
Description of Change Request:			
An online service for placing new orders and collecting them through delivery services (Rappi, Uber Eats, Didi). This implies an app version for the client side, and due to a security breach, the messaging through the app should be encrypted.			

Matrix SWOT CR-1_1

Table 18 Matrix SWOT for CR 1_1

STRENGTHS +	*1. WEAKNESSES –*
1. **Experience in App Development:** You already have experience in developing applications for online food delivery. 2. **Greater Access and Convenience for Customers:** Customers can easily place orders from anywhere.	1. **Limited Resources:** Time and personnel resources may be limited to quickly implement message encryption and develop a new version of the application. 2. **Technological Complexity:** Implementing message encryption may be technical and require specialized knowledge 3. **Market expansion:** By partnering with food delivery platforms, the café can expand its market beyond its physical location, reaching customers in broader geographic areas and potentially increasing its customer base.

OPPORTUNITIES+	*THREATS-*
1. **Increased reach and visibility:** By partnering with platforms like Rappi and Uber Eats, the café can reach a broader audience of potential customers who use these apps to place food orders. 2. **Sales growth:** By being present on these popular food delivery platforms, the café can experience an increase in sales by attracting customers who prefer to order food online and receive home deliveries. 3. **Attraction of new customers:** Presence on food delivery platforms can help the café attract new customers who may not be familiar with its physical location but discover the business through delivery apps.	1. **Increased competition:** By joining food delivery platforms, the café may face greater competition as it will be competing with other businesses that are also present on these platforms. 2. **Logistical challenges:** Food delivery can present additional logistical hurdles such as delivery timing, inventory control, and coordination with delivery drivers, all of which can impact service quality and customer satisfaction if not effectively managed. 3. **Sales commission:** Platforms like Rappi and Uber Eats typically charge commissions for sales made through their platforms, which can reduce the café's profit margins.

Table 19 Impact Analysis of criterian CR-1_1

CRITERIAN	Very High	High	Medium	Low	Very low
Impact on the system		✓			
Cost	✓				
Human Resources			✓		
Compatibility with existing architecture	✓				
Schedule		✓	✓		
Technical Feasibility					
Effort		✓			
Government Laws		✓			
GENERAL IMPACT		✓			

Table 20 Configuration Items to be modified CR-1_1

Configuration Items	Version	Modified
Requirements	1.0	✓
Design	1.0	✓

Code	1.0	✔
Test	1.0	✔

New Requirements

1. Receive the orders for the other platforms
2. Confirm the processing of the order
3. Send orders for processing in kitchen
4. Send confirmation notification to platforms
5. Send email confirmation to customer
6. Print orders for processing
7. Receive payment for the order
8. Confirm the payment (notification)
9. Display orders from other platforms on the dashboard.
10. Display sales profits from other platforms.
11. Display the quantity of products sold through partner platforms

Orders and Billing Module:

1. Is necessary add some requirements in the orders and billing module to receive customers orders from platforms as Uber Eat, Rappi and Didi and the Dashboard Module for display data of sales.
2. Example: Receive orders from Rappi.
3. Data Base: It's necessary create new table for orders of Uber Eats, Rappy, Didi.
4. Design: Is Affected, because this procces is in back-end from the platforms.
5. Implementation: We need a new class for the new requirements (order_otherplatforms).

Design:

Table 21 Component Diagram 1.1

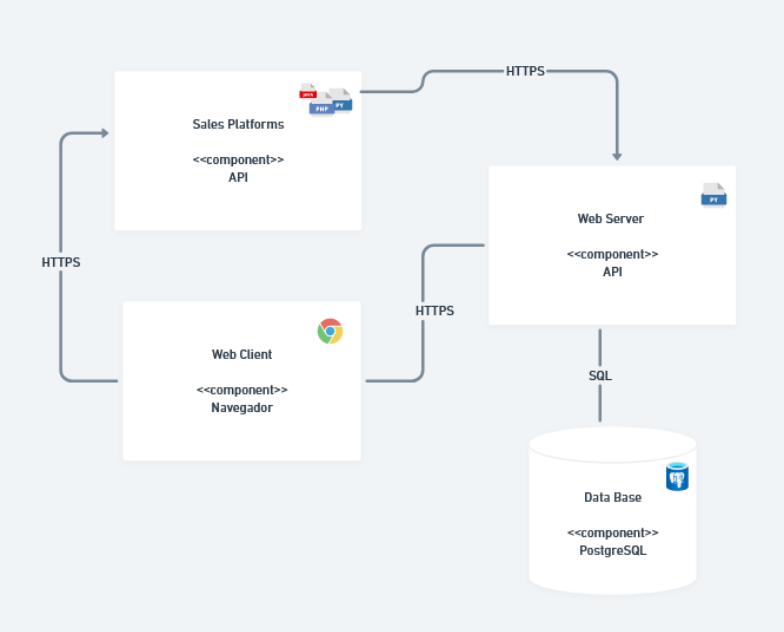


Table 22 Time for Implementing the CR-1_1

Funtional Requirements	Requirements specification	Design	Implementation	Software testing:
Orders and Billing Module (8 requirements)	2	2	10	7
Dashboard Module (3 requirements)		1	5	3
	2	3	15	10
CR-1_1	30 days			

Table 23 Cost Estimation for the Change Request 1_1

Days	Other associated costs	New Developer Senior	Analyst salary update
Every day		826 mx	983.33 mx

30 days		24780 mx	Salary + 4500 mx
Association with platforms (Uber Eats, Didi, Rappi)	8249 mx		
Employee cost for the change request		37.529 mx	

Risk

- **Data Security Risks**: Potential failures in message encryption that compromise user data privacy.
- **System Integrity Risks**: Errors or failures in the implementation of the ordering service and encryption that affect system stability.
- **Performance Risks**: Increased processing load and latency due to encryption, negatively impacting performance.
- **Integration Risks**: Technical issues during integration with external delivery services that may cause service disruptions.

Table 24 Decision Made for the CR-1_1

	Decision
Approved	
Rejected	✓
Comments	
The change presents complexity in most of the aspects to be evaluated, the overall impact is high and has high budgets therefore is not accepted.	

Change Request 1_2

Change Request ID	CR-1_2	**Requestor**	Omar Ali Zatarain Durán
Date	18/02/2024	**Project Manager**	Darián García Mejías
Description of Change Request:			
Implementation of several ways of payment (credit card, debit card, pay pal, aliexpress, bitcoin)			

Matrix SWOT 1_2

Table 25 Matrix SWOT for CR-1_2

STRENGTHS +	*WEAKNESSES –*
Reuse of an already implemented payment gateway. **Potential for Attracting New Customers.** **Expansion of Payment Options**.	**Integration Complexity:** Integrating multiple payment gateways can be complex. **Increased Security Risks:** Supporting more payment methods also increases security risks.
OPPORTUNITIES+	*THREATS-*
Competitive Differentiation: The ability to offer a wide range of payment methods can differentiate your application from the competition. **International Expansion:** By supporting global payment methods such as PayPal and Bitcoin, it can open the door to international expansion. **Increase in Sales:** Improving the payment experience and reducing entry barriers can lead to an increase in sales.	**Intense Competition:** Other competitors in the market may also implement multiple payment methods. **Security and Fraud Risks:** Integrating multiple payment gateways increases exposure to security and fraud risks.

Table 26 Impact Analysis of criterian CR-1_2

CRITERIAN	Very High	High	Medium	Low	Very low
Impact on changes in the system					✓
Cost			✓		
Human Resources			✓		
Compatibility with existing architecture				✓	
Schedule			✓		
Technical Feasibility				✓	
Effort				✓	
Government Laws		✓			
GENERAL IMPACT				✓	

Table 27 Configuration Items to be modified CR-1_2

Configuration Items	Version	Modified
Requirements	1.1	✓

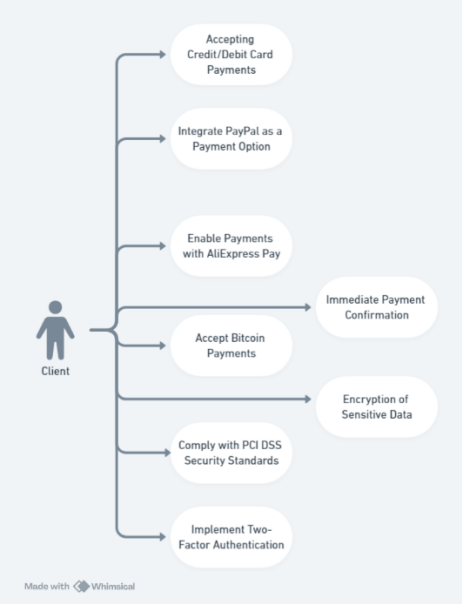
Design	1.1	✓
Code	1.1	✓
Test	1.1	✓

New Requirements

- Accepting Credit/Debit Card Payments
- Integrate PayPal as a Payment Option
- Enable Payments with AliExpress Pay
- Accept Bitcoin Payments
- Comply with PCI DSS Security Standards
- Implement Two-Factor Authentication
- Encryption of Sensitive Data
- Immediate Payment Confirmation

Design

Table 28 Use Case Diagram for CR 1_2



Code

Reuse and Adjust Existing Payment Gateways: Code is written to integrate payment gateway APIs, such as Stripe for credit/debit cards, PayPal API for PayPal payments, and AliExpress API and Bitcoin libraries to support those payment methods.

Update Business Logic: The system's business logic is adjusted to correctly process different types of transactions, handle refunds, and manage order status based on the payment method used.

Table 29 Approximate code example

```
import stripe
import paypal
import aliexpress
import bitcoin

# Configurar las credenciales de autenticación para cada pasarela
stripe.api_key = 'your_stripe_api_key'
paypal.client_id = 'your_paypal_client_id'
paypal.client_secret = 'your_paypal_client_secret'
# Configurar otras opciones de autenticación para AliExpress y Bitcoin
```

Test

It's necessary to create some test cases for the new functionalities of the system regarding online payment.

- Test Case 1: Credit/Debit Card Payment Process
- Test Case 2: PayPal Payment Process
- Test Case 3: Bitcoin Payment Process
- Test Case 4: Payment Error Handling

Table 30 Time for Implementing the CR-1_2

Funtional Requirements	Requirements specification	Design	Implementation	Software testing:
Orders and Billing Module (8 requirements)	3	4	10	4
CR1_2	21 days			

Table 31 Cost Estimation for the CR-1_2

Days	New Developer	----------
Every day	490 mx	
21 days	10290 mx	
Employee cost for the change request	10290 mx	

Risk

Integration Complexity: Integrating and managing multiple payment gateways can be complex, requiring thorough testing and ongoing maintenance. The complexity may lead to delays in implementation or unexpected issues during deployment.

Security Vulnerabilities: Each payment method introduces its own set of security considerations and potential vulnerabilities. Failure to properly secure the payment processing system could lead to data breaches, fraud, and financial losses.

Table 32 Decision Made for the CR-1_2

	Decision
Approved	✓
Rejected	
Comments	
The CR is approved because: the risks, the budget, the overall impact is low	

Change Request 2

Change Request ID	CR-2	**Requestor**	Omar Ali Zatarain Durán
Date	26/04/2024	**Project Manager**	Darián García Mejías
Description of Change Request:			
The government requests statistics on the sales of sugary products (candies, cakes, sodas, fruit juices, desserts). These statistics should be sent through an online service provided by the government. This implies that the statistics should have the format specified by the government's online service. The statistics should be daily, weekly, and monthly.			

Table 33 Matrix SWOT for CR-2

STRENGTHS +	*WEAKNESSES –*
Well-defined Categories: The platform already has a defined category for sugary products. **Predefined Data Structures:** The data structures in the database are well-defined and sufficient to meet this change request.	**Technical Complexity:** Implementing the specific format and the automatic sending of statistics can be technically complex. **Administrative Burden:** The collection, processing, and sending of daily, weekly, and monthly statistical data will increase the administrative and operational workload.

OPPORTUNITIES +	*THREATS -*
Better Relationship with the Government: Complying with government requests can improve the relationship with the authorities. **Positioning as a Responsible Company:** The company can position itself as socially responsible and concerned about public health. **Identification of New Business Opportunities:** Statistics can be important for revealing consumption trends and opportunities to introduce new products or specific promotions.	**Data Security Risks:** Sending sales data through an online service carries risks of security and privacy. **Changes in Government Requirements:** Government requirements may change over time, necessitating updates.

Table 34 Impact Analysis of criterian CR-2

CRITERIAN	Very High	High	Medium	Low	Very low
Impact on changes in the system		✓			
Cost			✓		
Human Resources			✓		
Compatibility with existing architecture		✓			
Schedule			✓		
Technical Feasibility		✓			
Effort			✓		
Government Laws		✓			
GENERAL IMPACT		✓			

Table 35 Configuration Items to be modified CR-2

Configuration Items	Version	Modified
Requirements	1.1	✓
Design	1.1	✓
Code	1.1	✓
Test	1.1	✓

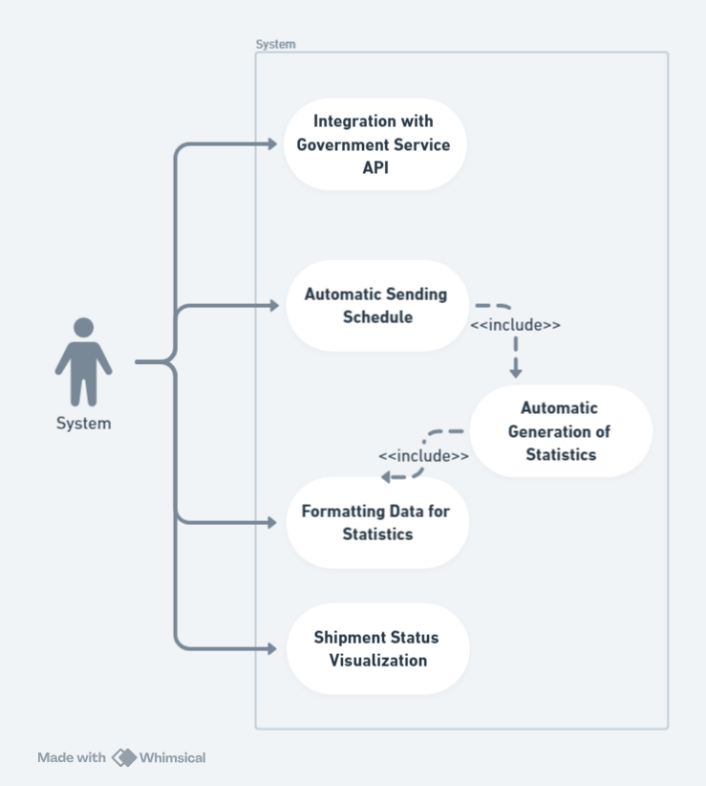
New Requirements

- **Automatic Generation of Statistics:** The system must be able to automatically generate daily, weekly, and monthly statistics on the sales of sugary products.

- **Automatic Sending Schedule:** The automatic sending of statistics must be scheduled daily, weekly, and monthly.
- **Formatting Data for Statistics:** It's necessary to format processed data according to the specific format required by the government platform.
- **Integration with Government Service API:** The system must integrate with the API provided by the government's online service for sending statistical data
- **Shipment Status Visualization:** Authorized users should be able to check the status of automatic statistics shipments.

Design

Table 36 Use Case Diagram for CR-2



- Design of a user interface to configure and visualize the generated statistics.
- Design of a report generation system that complies with the format specified by the government service

Code

- Development of modules for collecting and processing sales data specific to sugary products.
- Implementation of functions to format the data according to the requirements of the government's online service.
- Coding of secure methods for the automated sending of statistics.

Test

- Integration tests to ensure that the data is sent correctly and in the required format.
- Security tests to ensure that the data is transmitted securely and without the risk of leaks.
- Data accuracy tests to validate that the generated statistics are correct and reliable.

Table 37 Time for Implementing the CR-2

Funtional Requirements	Requirements specification	Design	Implementation	Software testing:
Orders and Billing Module (5 requirements)	5	10	18	6
CR-2	39 days			

Table 38 Cost Estimation for the CR- 2

Days	New Developer	----------
Every day	490 mx	
39 days	19110 mx	
Employee cost for the change request	19100 mx	

Risk

- **Complex Integration with Government Service:** The integration of the government's API may be more complicated than expected, requiring continuous adjustments and testing.
- **Changes in Government Requirements:** The requirements and formats of the government service may change, necessitating continuous system updates.
- **Dependence on Government Service Availability:** If the government's online service experiences interruptions, the statistics cannot be sent.

Table 39 Decision Made for the CR-2

Decision	
Approved	
Rejected	✓

Comments
The change is rejected because risks and threats were identified with more weight than the opportunities it offers us, and it also has a high impact on the schedule for its implementation.

Change Request 3

Change Request ID	CR-3	**Requestor**	Omar Ali Zatarain Durán
Date	26/04/2024	**Project Manager**	Darián García Mejías
Description of Change Request:			
The client requests that the menu be offered according to the time of day (breakfast, lunch, and dinner). Also, the offer should be based on the stock availability of ingredients. This implies that the kitchen should have a station that records the amount of each ingredient used and computes the availability of future dishes.			

Table 40 Matrix SWOT for CR-3

STRENGTHS +	*WEAKNESSES –*
Improvement in Operational Efficiency: The automation of ingredient tracking and menu updating reduces errors and improves efficiency in the kitchen. **Adaptation to Demand:** A dynamic menu allows for better adaptation to customer needs. **Waste Reduction:** Better inventory control and real-time tracking help reduce food waste.	**Training Required:** Kitchen staff will need training to work with this part of the system. **Technical complexity** due to real-time inventory management of ingredients."
OPPORTUNITIES +	*THREATS -*
Improved Customer Satisfaction **Increased menu loyalty** due to its constant ingredient updates.	**Human Errors:** There is a possibility of human error when updating inventory, which can result in menu errors for the customer. **Data Security:** Inventory management must be well protected against unauthorized access and potential security breaches.

Table 41 Impact Analysis of criterian CR-3

CRITERIAN	Very High	High	Medium	Low	Very low
Impact on changes in the system				✓	
Cost				✓	
Human Resources			✓		
Compatibility with existing architecture				✓	
Schedule			✓		
Technical Feasibility				✓	
Effort			✓		
Government Laws					✓
GENERAL IMPACT				✓	

Table 42 Configuration item to be modified in CR-3

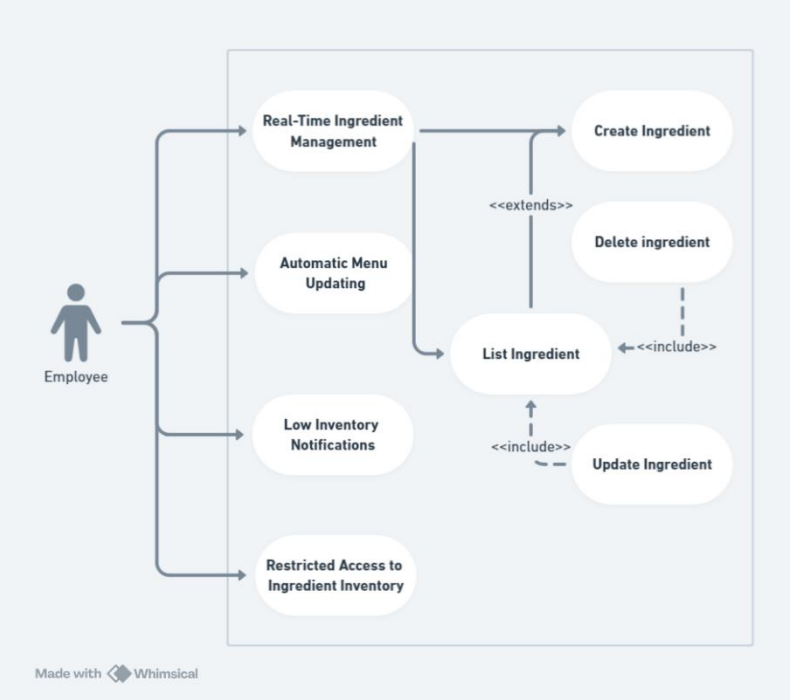
Configuration Items	Version	Modified
Requirements	1.1	✓
Design	1.1	✓
Code	1.1	✓
Test	1.1	✓

New Requirements

- Real-Time Ingredient Management
- Automatic Menu Updating
- Low Inventory Notifications
- Restricted Access to Ingredient Inventory

Design

Table 43 Use Case Diagram for CR-3



- Updating the interface so that customers can view the available menu according to the time of day and ingredient availability.
- Designing an interface for kitchen staff to record ingredient usage and availability.
- Designing an interface to record and update the quantity of available ingredients in real-time.

Code

- Development of the Inventory Management Module
- Implement dynamic menu
- Implementation of notifications to maintain interaction in real time

Test

- Menu Change Depending on the Time of Day: Verify that the menu changes correctly between breakfast, lunch and dinner.
- Real-Time Inventory Update: Verify that inventory is updated in real time by recording ingredient usage.
- Deactivating Dishes Due to Lack of Ingredients: Verify that dishes are automatically deactivated when there are not enough ingredients available.

Table 44 Time for Implementing the CR-3

Funtional Requirements	Requirements specification	Design	Implementation	Software testing:
Products Catalog Module (4 requirements)	2	4	8	5
CR3	19 days			

Table 45 Cost Estimation for the CR-

Days	Employee developer	----------
Every day	200 mx +salary	
19 days	3800 mx + salary	
Employee cost for the change request	3800 mx + salary	

Risk

- **Menu Update Errors:** If the menu update is not done correctly, there could be inconsistencies between the availability of ingredients and the dishes offered.

- **Lack of Synchronization with Actual Inventory:** If the system is not properly synchronized with the actual inventory of ingredients, there could be discrepancies between what the system displays and what is available in the kitchen.

- **Impact on Customer Experience:** If dishes advertised on the menu are not available when a customer places an order, this could negatively impact the customer experience and damage the reputation of the business.

- **Resistance to Change:** Some team members may resist change, especially if they are used to manual processes or simpler systems.

Table 46 Decision Made for the Change Request 3

	Decision
Approved	✓
Rejected	
Comments	

The change is approved because the budget is very low and there are few risks in its implementation and it has very valuable opportunities and strengths.

Status Accounting

In this section, a detailed description of the current status of the change requests that have been approved and subsequently implemented by the company will be provided. The information presented will relate to the modified configuration items, including the costs, time, human resources, and other factors involved. Problems that arose during the implementation will also be documented.

These are the elements that will be taken into account to determine the current status of the change requests.

- **Date of approval:** The date when the CR was approved.
- **Date implemented:** The date when the CR was implemented on the project.
- **CR ID:** The identification for the change request.
- **CR description:** The description of the CR asked by the client.
- **CI affected:** The configuration items that were affected by the implementation of this CR.
- **Estimated budget:** The budget in pesos initially planned for its implementation.
- **Performed budget:** The actual budget in pesos used to implement the CR.
- **Estimated time:** The time in days that was initially planned for its implementation.
- **Performed time:** The actual time in days required to implement the CR.
- **Estimated people:** The initial number of persons required for its implementation.
- **Involved people:** The name of the persons that were involved during the CR implementation.
- **Performance of human resources:** The way each person involved in the project made their tasks.
- **Issues:** The information about the issues presented during the CR implementation, like the time, the responsible, the one that detected the problem, the risks found, the solutions and outcome to overcome this issue.
- **Outcome:** The final resolution for the CR implementation.

Status Accounting Report

Table 47 Status accounting report for the implementation of CR-1_2 to the EcoCafe project.

Date of approval	18/02/2024	**CR ID**	CR-1_2
Date implemented	28/02/2024		
CR description	Implementation of several ways of payment (credit card, debit card, pay pal, aliexpress, bitcoin)		
CI affected	• Requirements • Design • Code • Test		
Estimated budget	10290 mx	**Estimated time**	21
Performed budget	8820 mx	**Performed time**	18
Difference budget	-1470 mx	**Difference time**	-3
Estimated people	1		
Involved people	1		
Performance of human resources	The programmer finished the CR ahead of time, with a difference of 3 days.		
Issues			
The activities were completed 3 days earlier than authorized, including the development of the necessary tests. Applied on time and after executing them in the system, there were some errors that involved one more day of modifications and tests to the code. • Author: Programmer • Personnel involved: Roberto Arenado • Risks: there were no risks. • Solutions: The remaining time was readjusted for other activities.			
Outcome			
The CR was fully implemented and the client was satisfied with what they were looking for.			

Table 48 Status accounting report for the implementation of CR-3 to the EcoCafe project.

Date of approval	26/04/2024	**CR ID**	CR-3
Date implemented	2/05/2024		
CR description	The client requests that the menu be offered according to the time of day (breakfast, lunch, and dinner). Also, the offer should be based on the stock availability of ingredients. This implies that the kitchen should have a station that records the amount of each ingredient used and computes the availability of future dishes.		
CI affected	• Requirements		

	• Design • Code • Test		
Estimated budget	3800 mx	**Estimated time**	19
Performed budget	4200 mx	**Performed time**	21
Difference budget	+400 mx	**Difference time**	+2
Estimated people	1		
Involved people	1		
Performance of human resources	The programmer finished CR-3 in 21 days, having a delay of 2 days.		
Issues			
The activities were completed 2 days after authorization, including the development of the necessary tests. After applying the tests 20 days into development, there were some errors that involved one more day of code modifications and testing. • Author: Programmer • Personnel involved: Dariel García Mejías • Risks: time and budget for the CR was exceeded • Solutions: 2 day was given to fully approve this CR.			
Outcome			
The CR took longer because the developer was absent from work one day due to important personal problems. But with 2 more days of work, the implementation and validation of the change could be completed.			

Auditing

This is a checklist document that has some specific tasks to assure the quality of the SCM process and final product after applying it.

1. Check that the documents of the baselines match the final product.
2. Check that the product fulfills the standards and the documents made for it.
3. Verify that the tests for the system were applied again to ensure the software is working appropriately.
4. Check that the new test results added by the CRs and the other CRs give an acceptable result.
5. If the tests encounter problems, follow these steps:
    a. Verify the documentation of the current status of the CR, and if the error existed, check the reason for the error.
6. Verify that each CR in the Change Request Control document has a final decision (accepted or rejected)
7. Verify that each CR in the Accepted Change Request Control document has completed its implementation.
8. Verify the quality of data documented within the SCM process

9. Review the code generated by the approved change requests for implementation.
    a. Check the correct implementation of the new requirements identified in the change requests.
    b. Review the developed unit tests.
10. Review the architecture and component diagrams.
11. Ensure that all important design decisions have been documented.
12. Verify that the technical documentation includes detailed information on the system's configuration, installation, and maintenance.

Audit Activities

1. **Check that the documents of the baselines match the final product.**

The final version of the project baseline is 100% complete and perfectly corresponds with the final product.

2. **Check that the product fulfills the standards and the documents made for it.**

The document complies with the standards and norms applied by the company for the project development.

3. **Verify that the tests for the system were applied again to ensure the software is working appropriately.**

The described tests show the expected outputs, indicating that the software is functioning correctly.

4. **Check that the new test results added by the CRs and the other CRs give an acceptable result.**

The tests included for the new change requests show satisfactory results.

5. **Verify that each CR in the Change Request Control document has a final decision (accepted or rejected)**

All change requests have been properly evaluated, and their status of approved or rejected is defined.

6. **Verify that each CR in the Accepted Change Request Control document has completed its implementation.**

The two approved changes are completed correctly

7. **Verify the quality of data documented within the SCM process.**

All the information within every document was check to verify it was clearly written.

8. Review the code generated by the approved change requests for implementation.
    a. Check the correct implementation of the new requirements identified in the change requests.
    b. Review the developed unit tests.

All codes of the new change requests were reviewed and tested alongside the codes of the performed tests, without encountering any problems or errors.

9. Review the architecture and component diagrams.

All use case diagrams were available in each change request. Component diagrams were only available in change requests that required them.

10. Ensure that all important design decisions have been documented.

Yes, all decisions have been documented

11. Verify that the technical documentation includes detailed information on the system's configuration, installation, and maintenance.

At the moment, this type of documentation is not available for the system, as being an online platform, it is not necessary for the client to install it, but rather to use the services through the web with internet access.

Work Cited

H BERSOFF, E. (1984). Elements of Software Configuration Management.