Universidad de las Fuerzas Armadas

CLASS NAME :*OBJECT ORIENTED PROGRAMMING*
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NRC: *14575* ***HOMEWORK #:****3*
TOPIC: PROJECT DEFINITIONS

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Software application for the food establishment “Food and Roll”

Problem

The Food and Roll restaurant needs a program that automates and records fast food orders from its customers since the waiting time, both to place the order and to receive it, is not very fast. For the program to start its tacks, it is crucial to have the menu and the restaurant’s address, with the ability to obtain the necessary data both for the food and the customers. In addition, the restaurant’s chefs should be able to easily access the program to prepare the order. To keep it simple, the program will only order confirmation, avoiding handling financial matters.

Overview

In the fast food industry, customers base their choices on two key points: the food itself and the time it takes to receive it, in addition to any comments or reviews from other customers who have visited the restaurant. While they may recommend the restaurant to friends through conversation,seeing the application with its different functionalities that it aims to cover can motivate them to become new customers. Even better, when the system can receive the customer's order seamlessly without the need to visit the restaurant, ensuring the order through a payment receipt that includes the name given to the order, the items ordered, an estimated time for the order, and the total amount to be paid upon picking up the food.

Background

“Food and Roll”, a company born from the dream of a young entrepreneur passionate about gastronomy and fast food, experienced great success in its time. However, due to the COVID-19 pandemic, the restaurant world changed drastically, resulting in increased competition in the food and roll market. Given the pandemic, many restaurants faced the difficult task of digitizing themselves to continue operating and meeting the needs of their customers.

As “Food and Roll” wasn’t a competitive digital restaurant, it was necessary to improve its own services and adapt to the new demands of the market. Thus, in the field of technology, the range of products and the quality of service offered by Food and Roll have become more innovative and attractive. Additionally, the company has sought to strengthen ties with its customers through digital means and has developed new marketing strategies to remain competitive in the fast food market.

The software project for “Food and Roll” originates as a response to a careful assessment of the changing dynamics in the fast-food industry and the emerging needs of customers. In a context where customer’s preference for online ordering options has experienced a notable increase, and the demand for digital solutions in gastronomy has become increasingly pronounced, a strategic opportunity was identified to redefine the interaction between “Food and Roll” and its customers.

The problem is rooted in the daily experience of customers interacting with the establishment. The growing trend of customers opting for online ordering options, driven by the desire to avoid unnecessary waits, and the pressing need to optimize table management, especially during peak demand, stand out as essential factors. Recognizing the urgency to streamline the ordering process, facilitate menu visualization, and provide efficient table reservation options, the vision of an application was formulated that would not only address these operational challenges but also enhance the overall customer experience. This historical approach reinforces the need for “Food and Roll” to adapt to a constantly changing digital environment while emphasizing the strategic relevance of the initiative in the current landscape.

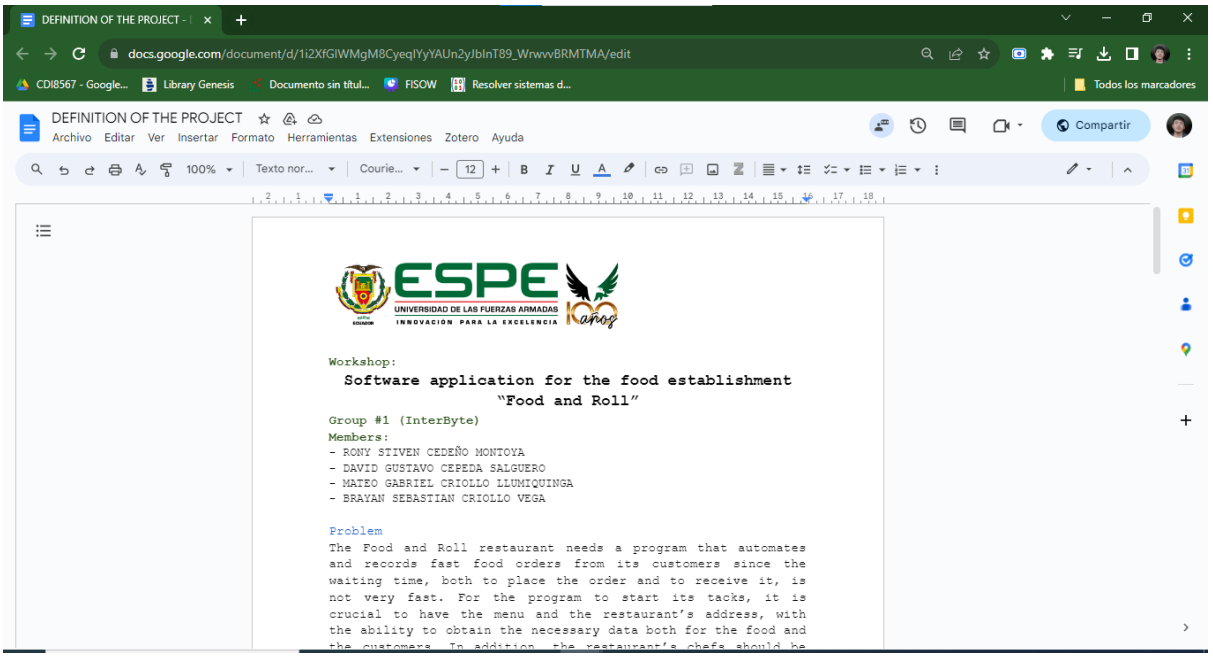
Functionality

The development of a mobile application for order management in a fast-food restaurant aims to enhance customer service, making the ordering process more comfortable for the customer, which could have a positive impact on the overall outcome. An order management app can be beneficial in numerous scenarios, for example:

1. Menu Consultation:
    - Customers can view the restaurant´s daily manu.
2. Managing Selected Dishes:
    - Customers can view and edit the dishes they have previously selected.
3. Placing Orders:
    - Customers can generate a direct order from the app.
4. Payment Inquiry:
    - Quickly informing the customer of the consumption value.
5. Managing Customer Orders:
    - Administrative users can view and edit customers orders.
6. Managing Dishes and Extras:
    - Administrative users can easily add or modify the menu and dishes.

Link of Google Docs: DEFINITION OF THE PROJECT

Screenshot:



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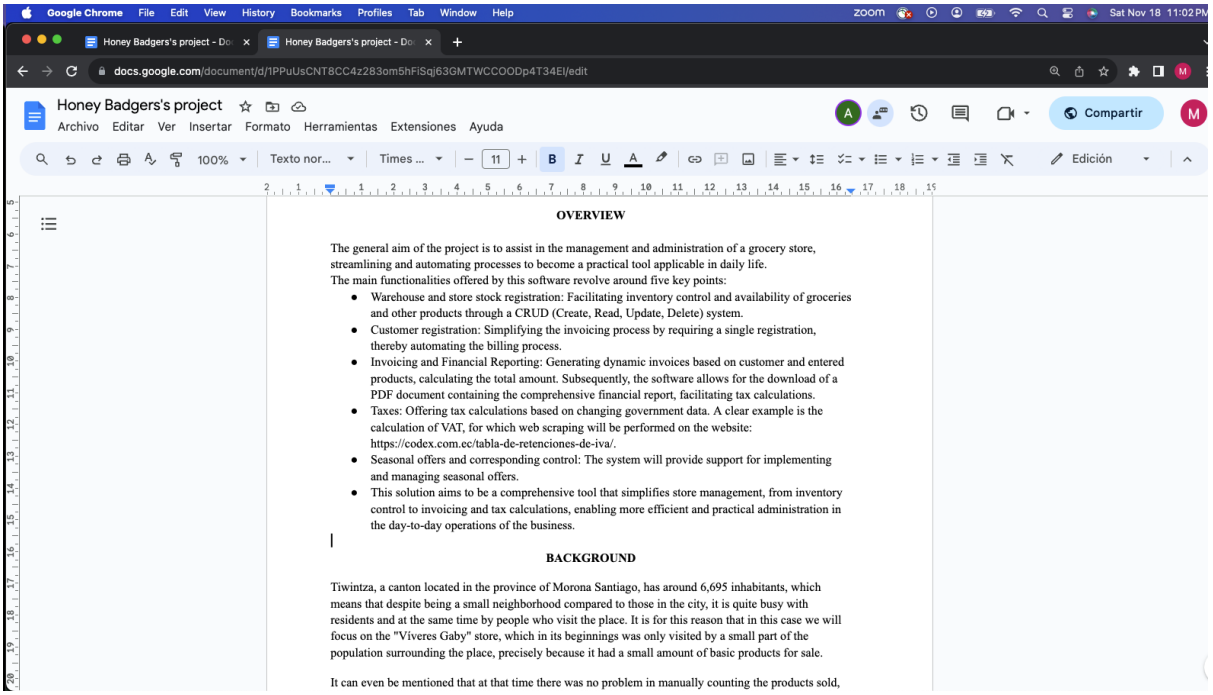
Link:
https://docs.google.com/document/d/1PPuUsCNT8CC4z283om5hFiSqj63GMTWCCOODp4T34EI/edit?usp=sharing

Screenshot:



Content:

PROBLEM

'Viveres Gaby', located in the province of Morona Santiago, Canton of Tiwintza, experiences a high influx of customers. As time progresses, the manual handling of stock distribution between the warehouse and retail becomes increasingly complex. Additionally, the operator needs to manually adjust prices for each product when seasonal discounts are applied. On another note, there is a need to address the requirements for a billing and accounting system. This system aims to enable users to automatically generate comprehensive accounting reports while simultaneously recording customer and product data for subsequent management.

OVERVIEW

The general aim of the project is to assist in the management and administration of a grocery store, streamlining and automating processes to become a practical tool applicable in daily life.
The main functionalities offered by this software revolve around five key points:

- Warehouse and store stock registration: Facilitating inventory control and availability of groceries and other products through a CRUD (Create, Read, Update, Delete) system.
- Customer registration: Simplifying the invoicing process by requiring a single registration, thereby automating the billing process.
- Invoicing and Financial Reporting: Generating dynamic invoices based on customer and entered products, calculating the total amount. Subsequently, the software allows for the download of a PDF document containing the comprehensive financial report, facilitating tax calculations.
- Taxes: Offering tax calculations based on changing government data. A clear example is the calculation of VAT, for which web scraping will be performed on the website: https://codex.com.ec/tabla-de-retenciones-de-iva/.
- Seasonal offers and corresponding control: The system will provide support for implementing and managing seasonal offers.

- This solution aims to be a comprehensive tool that simplifies store management, from inventory control to invoicing and tax calculations, enabling more efficient and practical administration in the day-to-day operations of the business.

BACKGROUND

Tiwintza, a canton located in the province of Morona Santiago, has around 6,695 inhabitants, which means that despite being a small neighborhood compared to those in the city, it is quite busy with residents and at the same time by people who visit the place. It is for this reason that in this case we will focus on the "Víveres Gaby" store, which in its beginnings was only visited by a small part of the population surrounding the place, precisely because it had a small amount of basic products for sale.

It can even be mentioned that at that time there was no problem in manually counting the products sold, or keeping a detailed record of the profits that were generated daily. However, everything mentioned above began to complicate with the passage of time, since the “Víveres Gaby” store began to be recognized little by little, thus obtaining a constant growth in its clientele and an increase in the purchase of more merchandise to supply the store. With this increase in demand, manual inventory management has become increasingly complex and prone to errors, and in the same way, we can talk about the distribution of stock, since this requires meticulous tracking, but the lack of an automated system that helps perform this task.

A clear example of everything mentioned occurred shortly after the implementation of the venture, where only 3 to 4 people at most came in to purchase the products, for this reason it was easy to register one by one, all of them. the purchases they made. However, after 1 year, the store already had more merchandise and for this reason many people came to purchase products, whether health, food, among others. And that is where the problem was reflected, since even though the saleswoman was able to count all the products sold and the profits obtained, it was very tiring and as the days went by it became even more complicated. further.

Another relevant and very important point is the need to apply discounts to products on important dates such as Christmas, New Year's Eve, Mother's Day, among others. Well, this involved the salesperson making that discount percentage manually and in the same way at the beginning, it was easy due to the little merchandise the store was stocked with, but once it increased, it was difficult because she did not have the ability to quickly highlight discounts since the number of buyers was robust and many mistakes could be made due to the pressure of the moment due to the number of buyers.

In this sense, this situation not only affects operational efficiency, but can also result in lost revenue or customer dissatisfaction if discounts are not applied accurately and in a timely manner.

Additionally, the absence of an integrated billing and accounting system has led to a manual and laborious process to maintain accurate financial records. Generating complete accounting reports has become a time-consuming and error-prone task, making it difficult to make informed decisions.

SEASONAL DISCOUNTS

Products will not have a fixed price; it is intended that these prices can decrease based on determining variables such as holidays, seasonal fruits, tax reduction, Black Friday, Christmas, among others.

The main idea behind this section of the program is to allow the user to control product prices by sections, applying discounts for a defined delimited time. Thus, if a product purchase is registered, the system will be capable (autonomously) of setting its price based on a percentage.

The conditions that determine the price of a product on a seasonal discount are defined as follows:

Time: Which dates will be suitable for applying the offer.
Percentage or promotion: Where the algorithm will determine the final price of the product for public sale (PVP) regarding:
Percentage: Percentage Discount
Multiplicity: 2x1, 3x2, among others.

Seasonal discounts are also recorded in a history contributing to financial analysis. The key points preserved as very important for this section are:

Persistent Data Integration
Continuous Evaluation and Optimization: Losses will always be notified when they occur.
Automation: Users must provide minimal information for execution.
User Guide: Users will always be kept informed about program operation.
Example of tables that could be implemented:
First, we define the promotions of multiplicity that could be contributed.

Multiply discount	
MultiplyId	mnemonicName
1	2x1
2	3x2
3	3x1

Afterward, we define a promotion; in this case, let's suppose that mangoes are in season, so the manager has decided to apply a 2x1 discount.

Sales							
mnemonicName	Multiply OfferId	unitCost(usd)	previousPVP(usd)	salePVP(usd)	earn(usd)	startDate	endDate
mango	1	0.15	0.4	0.2	0.05	11/18/23	1/4/24

Regarding percentage discounts, a reduction is implemented and calculated based on it.

Sales							
mnemonicName	discountRate(%)	unitCost(usd)	previousPVP(usd)	salePVP(usd)	earn(usd)	startDate	endDate
chicken	10	4	5.99	5.4	1.4	2/3/24	5/3/24

An important point to note is that discounts can also represent an economic loss for the store, as many offers may solely aim to attract clientele.

BILLING SYSTEM

The billing system will require some important topics to be able to function correctly with respect to the store in general and its customers. We have several specific needs that we must meet such as:

- **Inventory management:** to maintain precise control of the inventory of products both purchased and sold, this system will have real-time programming, with replenishment alerts and notifications of products that are about to expire.
- **Electronic Billing:** to comply with tax regulations and streamline the billing process, generating electronic invoices that have an integrated local tax system and secure storage in a database
- **Customer management:** being able to build a customer database, record their purchase history, among other requirements.
- **Supplier management:** in order to maintain an efficient relationship with them, having a strict record of them, order tracking, price comparison and evaluation of supplier performance.
- **Integration of barcode readers:** to streamline the product registration process at the point of sale by having compatibility with barcode readers to facilitate product entry and avoid manual errors.
- **Accounting integration:** being able to facilitate the accounting process and avoid possible duplication of records, creating an export of accounting data in standard formats integrating an already existing accounting software system.

These specific needs and functionalities provide a foundation for the invoice system, addressing crucial aspects to improve efficiency and operational management of the store.
The design of this billing system has a design of structures and reference tables starting with the database:

- **Product Table**: Contains detailed information about products, including name, barcode, price, quantity in stock, and supplier.

PRODUCT TABLE	
PRODUCT	COST
Tuna	$80,65
Milk	$100,00
Sugar	$120,50
Oil	$78,80
Cholotates	$30,25
Drinks	$120,78

- **Customer Table:** Stores customer data such as name, address and contact details.

CUSTOMER TABLE		
CUSTOMER	PHONE NUMBER	ADDRESS
ALAN ANDRES SANTOS ESCOBAR	987468532	alan85@mail.com
FRANCIOSCO ANIBAL ANDRADE LOZANO	967254833	franc_loz98@gmail.com
MATEO GABRIEL JACOME NICOLALDE	987356475	gabriel-023jacome@outlook.com
CRISTIAN ALEJANDRO GARCES MEDINA	982328861	alejogarves97@gmail.com
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- **Transaction Table**: Records each sales transaction, linking products and customers, and providing temporal details.

Likewise, the billing system will have a user interface that contains specifications such as:

- Intuitive and friendly design: with an easy-to-navigate point-of-sale interface, with intuitive icon and color options to indicate statuses (out of stock products).

- Search and filtering functionalities: quick search for products by name or barcode and filters to classify products by category, prices, among other aspects.

And lastly and most importantly we have the main functionalities of the billing system which are:

- Generation of electronic invoices.
- Registration of products and prices.
- Customer and supplier management.
- Inventory control in real time.

However, we must not forget that an important part of this billing system has to do with the technologies used, which have to do with the choice of the programming language, the selected database and the development and testing tools at the time of implementation. All of these things will achieve an improvement in speed in the billing system, a reduction in administrative times and an increase in customer satisfaction.

INVENTORY MANAGEMENT

Inventory management, or stock management, is a process used to control the quantity of products or goods available. This process involves the planning, organization, and monitoring of all stages related to the entry, exit, and storage of products in a company or business. For the Inventory Management process at "Viveres Gaby," the following stages are presented:

1. **Initial Stock Registration:**
   Each product available in the store is recorded in the system with information such as name, product type, base price, and supplier. Additionally, the system automatically applies discounts to designated products during discount seasons.

Product	Product Type	Base Price	Supplier	Initial Stock	Current Stock	Sales (to date)	Applied Discounts	Low Stock Alert
Pipas	Snack	$0.50	Supplier A	60 units	25 units	35 units	Seasonal Discount	15 units
Pound of chicken	Food	$1.50	Supplier B	50 units	15 units	35 units	-	10 units
Sardina Real	Canned Food	$1.75	Supplier C	30 units	4 units	26 units	-	10 units
Satellite Internet Tickets	Service	$0.50	Supplier D	100 units	25 units	75 units	Seasonal Discount	20 units
Pilsener	Alcoholic Beverage	$2.00	Supplier E	180 units	60 units	120 units	Seasonal Discount	20 units

Díaz S. (2023). Inventory Management at "Viveres Gaby." Víveres Gaby Store.

2. **New Stock Entry:**
   When new merchandise arrives, products are scanned or registered in the system, indicating the quantity received and automatically updating the inventory.

3. **Automatic Stock and Sales Update:**
   The system will update sales in real-time by selecting products and the quantity sold, automatically adjusting the available stock level as sales are made. All transactions, whether it be receiving merchandise, sales, or discount applications, are recorded in a historical database for future analysis.

4. **Low Stock Alerts:**
   The system issues automatic alerts when the stock level of a product reaches a defined quantity.

5. **Stock Monitoring:**
   The business owner has access to control panels that allow real-time monitoring of the inventory, identifying sales trends, and making informed decisions.

This comprehensive inventory management process at "Viveres Gaby" ensures efficient and automated management, minimizing manual errors, improving accuracy in data recording and calculations, and optimizing product availability to meet customer demand.

Group: Error 404

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- JUAN MATEO IZA BARRIONUEVO

Introduction of the Project

Problem:

We need a system that is capable of efficiently tracking the entry and exit of merchandise at an ice cream distributor called “Glacial Branch 3”, keeping the inventory updated in real time and generating a detailed record of sales transactions, both wholesale and minor, it is also necessary to generate sales notes to have a detailed report on capital and stock, simplifying the administrative management of the ice cream shop.

Overview:

In the management of inventories linked to sales notes, the output and input records of products generate data that can be used to provide a clear idea of the amount of inventory they have for each of them, this to avoid purchasing unnecessary products or ordering supplies with greater advance notice and planning. Also, they will allow the user to maintain a clear accounting of their monthly income and profits focused on the type of clients they have (be they majority clients or common clients). This process will seek to optimize through the implementation of software focused on said problem.

Background

The main action of the ice cream parlor is the purchase and sale of ice cream already made. To understand better the situation, we need to understand how the ice cream parlor works, the actions carried out and its daily processes. The ice cream parlor works with wholesale and retail buyers, so there are different prices at which the product is sold. In addition, the ice cream parlor has a warehouse and a place where the products are stored. On the other hand, it shows the customer the stock it has in stock. Generally, the factory that supplies ice cream to our ice cream parlor supplies us twice a week, which is on Tuesdays and Thursdays. In our stock we have 31 different ice creams, each of which has its own unit prices and depending on the sector north/south of Quito or the type of customer (they could be wholesale or retail clients), therefore our ice cream parlor distributes its products to stores and schools, etc.

In our ice cream parlor, we work using sales notes, which are made by hand to know the investment of the week, the profits of the week, the clients who work with us, among other processes, which we need to be automated to speed up daily deliveries. Keep in mind that we buy around 50 boxes of ice cream per week, which we distribute it to different stores, while we also store to sell to ordinary people.

For example, a box of Salcedo ice cream contains 45 units, the cost each is 0.32 ctvs, which would be a total of $14.4 (45 * 0.32) of investment, the sales price of the product is 0.45 ctvs each, then the profit margin would be the following, ((PV-Costs)/Pv*100))(0.45-0.32)/0.45 * 100), approximately there is a profit margin of 28.88% for each ice cream sold. Since the investment is a fixed cost, the break-even point can be calculated (Investment/Contribution margin per unit) but first the total contribution margin is calculated = 0.45-0.32 = 0.13 ctvs. Thus, the equilibrium point remains as 14.4/0.13 = approximately 111 units to cover the entire investment.

Price table from “FÁBRICA GLACIAL” to the “SUCURSAL GLACIAL 3” ice cream shop.

Product	Units by box	Unit Price	Box Price

Sabores	45	0.45	14.40
Surtido	45	0.31	13.95
Maxibon PQ	32	0.35	11.20
Maxibon GR	56	0.35	20.30
Cono	38	0,32	12.00
Copa	36	0.36	12.96
Vasito Kid	45	0.27	12.15
Coco	45	0.32	14.40
Mora	45	0.32	14.40
Ron	45	0.31	13.95
Chicle	45	0.31	13.95
Chocolate	45	0.31	13.95
Galletas	45	0.32	14.40

Frutas	45	0.34	15.30
Marmoleado	45	0.32	14.40
Piña	45	0.32	14.40
Guanabana	45	0.32	14.40
Peke	65	0.17	11.05
Peke sabores	65	0.19	12.35
Milky	70	0.14	9.80
Choconew	55	0.20	11.00
Tunga Tunga	65	0.17	11.05
Gemelo L/N	40	0.18	7.20
Gemelo L/CH	40	0.18	7.20
Paleta de agua	70	0.10	7.00
Sanduche	30	0.40	12.00

Batu	32	0.26	8.32
Crio genio	42	0.17	7.14
Pasión	35	0.20	7.00
Maracuyá	35	0.20	7.00
Mango	35	0.20	7.00

Price table for “GLACIAL BRANCH 3” to the “CLIENTES AL MAYOR NORTE” ice cream shop.

Product	Units by box	Unit Cost	Box Price
Sabores	45	0.45	20.25
Surtido	45	0.45	20.25
Maxibon PQ	32	0.50	11.20
Maxibon GR	56	0.50	20.25
Cono	38	0,45	17.10
Copa	36	0.50	18

Vasito Kid	45	0.38	17.10
Coco	45	0.45	20.25
Mora	45	0.45	20.25
Ron	45	0.45	20.25
Chicle	45	0.45	20.25
Chocolate	45	0.45	20.25
Galletas	45	0.45	20.25
Frutas	45	0.45	20.25
Marmoleado	45	0.45	20.25
Piña	45	0.45	20.25
Guanabana	45	0.45	20.25
Peke	65	0.25	16.25
Peke sabores	65	0.25	16.25

Milky	70	0.20	14.00
Choconew	55	0.25	13.75
Tunga Tunga	65	0.25	16.25
Gemelo L/N	40	0.30	12.00
Gemelo L/CH	40	0.30	12.00
Paleta de agua	70	0.15	10.50
Sanduche	30	0.50	16.00
Batu	32	0.38	12.16
Crio genio	42	0.25	10.50
Pasión	35	0.30	10,50
Maracuyá	35	0.30	10.50
Mango	35	0.30	10.50

Price table for “GLACIAL BRANCH 3” to the “CLIENTES AL MAYOR SUR” ice cream shop.

Product	Units by box	Unit Cost	Box Price
Sabores	45	0.45	20.25
Surtido	45	0.40	18.00
Maxibon PQ	32	0.50	11.20
Maxibon GR	56	0.50	20.25
Cono	38	0,45	17.10
Copa	36	0.50	18.00
Vasito Kid	45	0.38	17.10
Coco	45	0.45	20.25
Mora	45	0.45	20.25
Ron	45	0.45	20.25
Chicle	45	0.45	20.25
Chocolate	45	0.45	20.25

Galletas	45	0.45	20.25
Frutas	45	0.45	20.25
Marmoleado	45	0.45	20.25
Piña	45	0.45	20.25
Guanabana	45	0.45	20.25
Peke	65	0.25	16.25
Peke sabores	65	0.25	16.25
Milky	70	0.20	14.00
Choconew	55	0.25	13.75
Tunga Tunga	65	0.25	16.25
Gemelo L/N	40	0.30	12.00
Gemelo L/CH	40	0.30	12.00
Paleta de agua	70	0.15	10.50

Sanduche	30	0.50	16.00
Batu	32	0.38	12.16
Crio genio	42	0.25	10.50
Pasión	35	0.30	10,50
Maracuyá	35	0.30	10.50
Mango	35	0.30	10.50

Price table for “GLACIAL BRANCH 3” to the “MINORITY CUSTOMERS” ice cream parlor.

Product	Unit Price
Sabores	0.60
Surtido	0.60
Maxibon PQ	0.75
Maxibon GR	0.75

Cono	0,75
Copa	0.75
Vasito Kid	0.50
Coco	0.60
Mora	0.60
Ron	0.60
Chicle	0.60
Chocolate	0.60
Galletas	0.60
Frutas	0.60
Marmoleado	0.60
Piña	0.60
Guanabana	0.60

Peke	0.30
Peke sabores	0.30
Milky	0.25
Choconew	0.35
Tunga Tunga	0.35
Gemelo L/N	0.50
Gemelo L/CH	0.50
Paleta de agua	0.20
Sanduche	0.80
Batu	0.50
Crio genio	0.40
Pasión	0.50
Maracuyá	0.50

Mango	0.50

Link between the purchase note and the removal or addition of products

In order to implement the central project process, it is planned to create a relationship between the issuance and receipt of sales notes with the stock that is maintained in the warehouse or inventory, the same that will work when products from the ice cream parlor are added or sold.

This process in turn will provide data necessary to maintain adequate accounting that considers parameters such as the gross profit margin (The total value of sales of the product after subtracting its creation or acquisition cost) and the total net profit margin (The gross profit margin less maintenance or distribution costs).

NP: Net Profits PC: Production Cost

S: Sales MC: Maintenance costs

Sales	PC	MC	NP
$ 5.000,00	$ 3.000,00	$ 1.000,00	$ 1.000,00

Link to the Google Docs where we create the document:

https://docs.google.com/document/d/1PFvjQYQ04OnJbzne3D0_BQJysWovtp0cJNGeMJwnFgw/edit?usp=sharing

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Problem

We are confronted with the challenge of developing a comprehensive task management system, akin to Asana, designed to efficiently organize and oversee users tasks. The system must not only track and categorize various types of tasks but also provide timely reminders for upcoming assignments. Additionally, the application should generate automated daily messages to keep users informed about their daily agenda. Furthermore, to enhance collaboration and communication, the system needs to integrate seamlessly with Slack. The app will have a dashboard with different relevant services such as a calendar with tasks, a goals view to review how well you are doing, reportings with stats and graphs, etc. Also in the future there will be an organization mode, where organization can create projects with many users connected on the same project with different roles such as task manager, developer, organization leader, etc.

Overview

In the domain of task management and productivity, users often turn to task management applications to streamline their workflow an enhance efficiency. Individuals, teams and organizations use these tools to organize tasks, set priorities and collaborate effectively. Understanding the importance of users having insights into their task history, upcoming tasks, and overall productivity, the proposed app aims towards a transparent and insightful overview. By offering a comprehensive view of tasks, the system empowers users to make informed decisions, prioritize tasks effectively and optimize their workflow for increased productivity.

Background

In the context of task management and productivity, envision each task as a fundamental unit contributing to an individual's or team's workflow. Specially on the software development ambit the importance of handling tasks efficiently is crucial, usually teams depend on an app or system to handle

all their workload, just for reference this a graph that presents how many organizations are paying for premium ASANA which will be our main inspiration for this project.

For effective task management, users face challenges related to tracking the progress of task, associating completed task with specific projects or phases, and assessing the overall efficiency of task completion.Therefore, the proposed app aims to provide a structured and comprehensive history of users` tasks, enabling them to gain insights into their task management practices. Each task will be stored with relevant details including task type, creation date, due date, task completion status, and any associated factors.

We will try to integrate our app with Slack and Asana so that future clients don't have to stop using tools that they already familiar with, also for the creation of the daily message (usually software development companies use agile methodologies that require developers to create daily messages to inform their daily status) we will use the GPT API to make the message clear and customizable.

Integration with APIs

Since the team knowledge is not advanced, the integration with Asana, Slack and GPT-Chat APIs will be the final task, the main focus will be the creation of a functional task management system, automated reminders, notifications and daily messages as wel as many other features that don't involve API integration, with that being said, after the creation of the system we'll focus all our efforts on the integrations that we talked about.

link:
https://docs.google.com/document/d/1U076FO9BdYEIVgHN67ywK2EatYUugKdaUcuAbtEtkzs/edit?usp=sharing

Project - Team CodingNinjas

Group: “NullPointerException”

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Problem

A system is required that allows tracking electoral packages sent from Ecuador to citizens residing abroad. This system will help us by knowing if the packages have already been sent from "Montgar" to the different constituencies and from the constituencies to the CNE matrix once the process is finished. The division of the packages should be taken into account: "cne", "mixto" and "género". Likewise, it is necessary to identify which packages arrive at the matrix, and if they bring the important information to continue with their storage, or a possible counting.
It is important to understand that Ecuadorians abroad need to exercise their right to vote as well due to the considerable Ecuadorian population abroad.

Overview
The foreign elections were carried out telematically in the past, which meant that any Ecuadorian who was eligible to vote could do so from any smart device.
However, since the last voting (October 15, second round), they opted for face-to-face mode, due to the failure of the systems that day. That is why the CNE distributed around 586 electoral packages abroad.
These electoral packages consist of ballot boxes, screens and various electoral documents, due to the long distances over which these packages are transported, the Ecuadorian Armed Forces guarantee their transportation to the shipping company DHL, who will be in charge of sending the packages to the different constituencies registered in the CNE.

Background

The National Electoral Council (CNE) has the Department of Processes Abroad (DPEX) as a means of guaranteeing the right to vote of citizens who for some reason have migrated to different countries.

The external voting process is handled differently from the national voting process.
The DPEX is divided into 3 voting constituencies, starting from the bigest to the smallest:

1. Europe, Asia and Oceania.
2. United States and Canada.
3. Latin America, El Caribe and Africa.

Within each of these districts, countries and cities with Ecuadorian populations are registered, based on the information provided by the Ecuadorian consular offices, there are currently 101 consular offices that register Ecuadorian citizens. Its division is given, for example:

1. Constituency: Europe, Asia and Oceania
2. Country: Spain
3. Consular office: Barcelona

In this way, the Electoral Kits are generated, these are packages which have the following:

- Screen and urn
- Electoral register.
- Voting Certificates
- Ballot papers
- Generic materials.
- Minutes of opening, installation and scrutiny.
- Envelopes “P1”, “P2”, “T1”.

In the same way, a laptop and a scanner are attached, useful for accessing the CNE system and uploading data necessary for the initial count of the votes, these are separated from these packages.
It should be noted that not all places have a large concentration of Ecuadorians, so they are divided as follows:

- "cne": The "cne" collects places that register between 1 to 100 people, these electoral packages are sent to the consular offices which will be the polling place, among these sites we have Canberra, Australia; Tel Aviv, Israel. There is only one electoral package in this one
- "Mixto": The "Mixto" collect between 101 and 889 people, where the consuls determine a place to vote. Among these places we find: Buenos Aires, Argentina; New York—Hudson Valley; United States.
- "Gender": Places that register 890 people or more are collected, in this way the votes are made in places of large concentrations, where they are divided into male and female boards, in this way they receive more packages compared to the other divisions. These sites include Madrid, Spain; Milan, Italy.

The packages are sent two weeks before the day of the elections to be attentive to any news presented, and the company DHL oversees transporting them. At the end of the electoral period, these packages must be returned to the CNE headquarters (Av. 6 de diciembre and Bosmediano), where each of the elements previously sent are received, except for the screen, primarily requiring the T1 envelope.

The T1 envelope is the one that receives the document "Minutes of Scrutiny", where all the votes during the count are evidenced, and the information uploaded to the CNE system is confirmed. If, in any case, we need to do a recount, a series of acts are carried out to be able to count the votes of the package that arrived.
Election packages need to be identified by an ID, necessary to identify whether the package was created or not. In addition to having the district, country, consular office, package division and a number that indicates all the packages sent to that place.

System description:

To address this problem, we propose the development and implementation of a system that will register, track, and safeguard these crucial components of the democratic process.

The proposed system will involve the following components:

1. **Registration and Information Management:**
    - We will establish a centralized database that stores information about Ecuadorians living abroad, consular offices, and voting constituencies. This database will be regularly updated.
    - Each registered Ecuadorian will be assigned a unique identification number linked to their district, country, consular office, and package division.
2. **Kits Preparation:**
    - The system will generate Electoral Kits. These kits will be customized based on the specific requirements of each consular office.
3. **Package Division:**
    - We will categorize consular offices into three divisions: "CNE," "Mixto," and "Gender," depending on the number of registered Ecuadorians in each location.
4. **Shipment and Tracking:**
    - Electoral packages will be dispatched to consular offices two weeks before the election day, with DHL overseeing the transportation.
    - Each package will be assigned a unique ID, which will help to track its movement from the CNE headquarters to the consular office and back.
5. **Secure Handling:**
    - At consular offices, strict security measures will be in place to safeguard the electoral packages, such as secure storage and restricted access.
    - Upon completion of the election period, the packages will be returned to the CNE headquarters, with a particular focus on preserving the T1 envelope containing the "Minutes of Scrutiny."
6. **Data Verification:**

    - The T1 envelope will be carefully examined and verified upon its return to the CNE headquarters.
    - In case of any disputes or the need for a recount, transparent procedures will be followed.
7. **Technology:**
    - The system will have a user-friendly interface to assist consular offices in upload
    - ding essential data.
8. **Communication:**
    - Continuous communication will be maintained with consular offices to address any issues or updates related to electoral packages.

Link: Workshop

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Group #6: Bit Coderz

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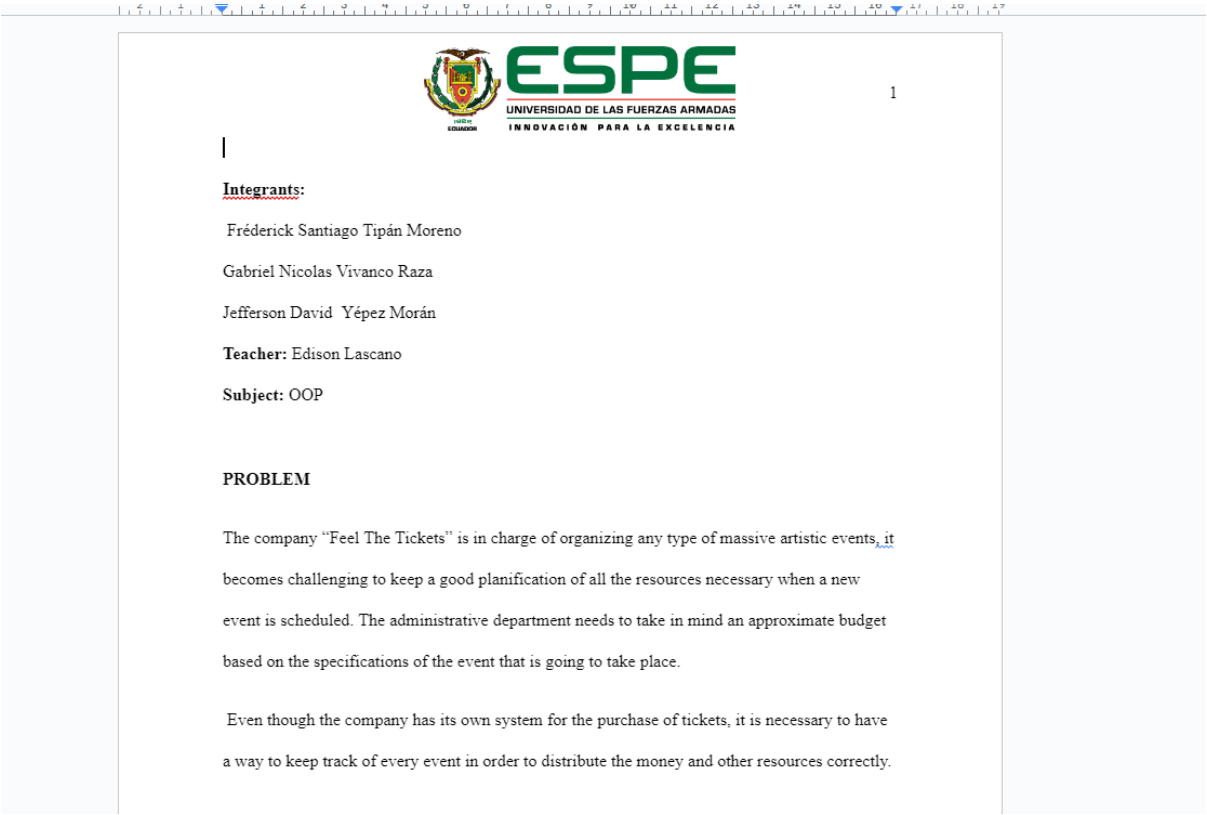
members:

- FREDERICK SANTIAGO TIPAN MORENO

- GABRIEL NICOLAS VIVANCO RAZA

- JEFFERSON DAVID YEPEZ MORAN

screenshot:



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INNOVACIÓN PARA LA EXCELENCIA

1

Integrants:

Fréderick Santiago Tipán Moreno

Gabriel Nicolas Vivanco Raza

Jefferson David Yépez Morán

Teacher: Edison Lascano

Subject: OOP

PROBLEM

The company "Feel The Tickets" is in charge of organizing any type of massive artistic events, it becomes challenging to keep a good planification of all the resources necessary when a new event is scheduled. The administrative department needs to take in mind an approximate budget based on the specifications of the event that is going to take place.

Even though the company has its own system for the purchase of tickets, it is necessary to have a way to keep track of every event in order to distribute the money and other resources correctly.

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- Gabriel Nicolas Vivanco Raza
- Jefferson David Yépez Morán

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OVERVIEW

For an administrative event system, it is necessary to make clear that both, the end user and the client, is going to be an administrative manager, who’s going to create a new event that will detail all the information required to carry it out. The software will facilitate the creation and management of schedules, agendas, resource allocation and staff activities to ensure an efficient coordination for the event.

The system will generate a summary about the development of the event once this has ended, with this information the administrative department could analyze this data to improve the quality of the company’s service for future events.

BACKGROUND

Arts event management software is used to simplify and optimize all phases of the event planning, execution and evaluation process. From creating and customizing events, managing artist and participant booking, to coordinating agendas and facilitating real-time interaction

during the event, this type of software automates tasks, improves operational efficiency and provides analytical tools to evaluate performance. Additionally, it contributes to a more seamless experience for both organizers and attendees, improving the overall quality of the event and allowing for more effective management of resources and information.

For artistic event management software to be efficient, it must have comprehensive features that cover everything from planning to post-event evaluation. Its essential features include an intuitive interface for easy setup and use, tools for registration and attendee management, customization capabilities to adapt to different types of events, effective communication options, task automation and robust analysis capabilities to evaluate the performance and collect valuable data. Efficiency is also driven by the ability to provide a seamless experience for both organizers and attendees, thus contributing to the overall success of the event.

According with some information provided by the company, the estimate use of resources during an event is detailed in the following table:

Artist	**Staff**	**Equipment**	**Budget (approximate)**	**Capacity of the place**
Karol G	18 people	12 cell phones 8 cameras 6 portable batteries 2 printers	15 000	12 000

Ricardo Arjona (UIO)	40 people	16 cell phones 14 cameras 10 portable batteries 4 printers	25 000	40 000
Ricardo Arjona (GYE)	25 people	14 cell phones 6 cameras 8 portable batteries 2 printers	15 000	35 000
Daddy Yankee	40 people	16 cell phones 14 cameras 10 portable batteries 4 printers	25 000	40 000
Bad Bunny	30 people	16 cell phones 14 cameras 12 portable batteries 4 printers	20 000	40 000
Camilo (GYE)	25 people	12 cell phones 8 cameras 6 portable batteries 2 printers	15 000	12 000
Black Coffe	14 people	6 cell phones 6 cameras 2 portable batteries	1 500	2 000

		2 printers		
Stella Bossi	8 people	6 cell phones 6 cameras 2 portable batteries 2 printers	1 000	2 000

The approximate budget is made based on what was used for the ticket office and those who read the tickets (readers), such as transportation, food and extras that were used for the event, as it is difficult to get full access to money used for each event.

As it is visualized in the table, there seems to be a pattern that every event follows, meaning that by having a dedicated system that manages all this data, we could provide a good summary of the event to say if it was a success or a failure.

As we can see in the table we can appreciate that the greater capacity of the place where the event is going to take place they need to use more equipment, more personal and more budget.

Link:
https://docs.google.com/document/d/1seKLx1kn2oRFYAXgGfXnl4q1PbNeFsK1MhUvDJHsB0c/edit