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K/D/A

Inventory System Of Bakery Shop

(Pandesalan 24/7)

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I. Review of at least 5 CBIS

Companies that used an inventory system usually for the baking companies are the following:

a. *Free Bakery POS System by Nextar* - this system provides a complete system designed to simplify the routine it track sales, get full inventory control, improve Customer Service and keep track of everything with custom statistics and reports.

b. *ChefTec* - this system provides the user to manage the whole baking company itself, this provides Recipe Costing, Inventory Control, Purchasing, Ordering, Requisition & Transfer, Nutritional Analysis.

c. *FlexiBake* - this system provides user an ease to use ERP bakery software for the baking industry. The bakery software provides nutritional analysis, production planning, route management, lot tracking, online ordering and so much more.

d. *SAP Business one* - it is a business management software designed for small and medium-sized enterprises, sold by the German company SAP SE. This provides an ERP solution that aims to automate key business functions in financials, operations, and human resources.

e. *CyBake* - this system is mostly used for retail and wholesale craft in the UK. It is a comprehensive bakery management system proven to cut costs, streamline operations and boost profits. It handles orders, invoices, recipes, production and deliveries and integrates with your accounts software.

II. Background

2.1 Background of the Study

The Pandesalan 24/7 is engaged in distribution in making pandesals to sell in the market and business industry along with the customers. The bakery's principal is to distribute delicious pandesals. The Pandesalan 24/7 Industry is a bakery focused on the making of pandesals to serve to their customers in the market and business industry. The bakery is not that well-known but they do make good products to serve customers by their needs and wants.

Most of the bakery uses an inventory system and a POS system in which they can boost their productivity and an organized work loads that they can do. Most Bakery uses a system of Store to Store transfers in which a bakery Point of Sale can streamline inventory not just for one location, but for multiple locations and franchises. An automating purchases from Production in which they are able to automatically create purchase orders for your suppliers based on that information. Minimum stock levels in which they can store a minimum stock level that will activate a

purchase order whenever that ingredient drops below your re-order level to ensure you never run out of those key raw materials. Sales Data & Analytics in which they can optimize your inventory by looking at what's really selling.

2.2 Company Profile

Beckmann's Old World Bakery, Ltd was founded by Peter Beckmann in November 1985. Son of a craftsman family, he apprenticed in bread-making at Mantei Bakery in Heidelberg, Germany. After moving to the United States in 1982, Peter had a longing for the traditional breads of his home country, Germany. He baked the first commercial loaves in his kitchen oven and hand-delivered those first samples on his bicycle to four local Santa Cruz grocery stores. This was the start of a bakery that to this day has been honoring the German commitment to traditional artisan bread making.

The baking industry includes those firms involved in the production, importation/wholesaling, and retailing of baked goods including breads, cakes, pastries, cookies,

crackers and tortillas. For our purposes we focus on the production of baked goods. According to Wikipedia: “Baking is a method of cooking food that uses prolonged dry heat, normally in an oven, but also in hot ashes, or on hot stones. The most common baked item is bread but many other types of foods are baked. Heat is gradually transferred from the surface of cakes, cookies, and breads to their centre. As heat travels through, it transforms batters and doughs into baked goods with a firm dry crust and a softer center. Because of historical social and familial roles, baking has traditionally been performed at home by women for domestic consumption and by men in bakeries and restaurants for local consumption. When production was industrialized, baking was automated by machines in large factories. The art of baking remains a fundamental skill and is important for nutrition, as baked goods, especially breads, are a common and important food, both from an economic and cultural point of view. A person who prepares baked goods as a profession is called a baker.

The main operations of a Baking Industry is to supply the bakery and create products such as bread products. They supply the bakery with the ingredients of mainly wheat,

flour, water and other flavoring spices like sugar that they will need in order to create a warm and nice bread products.

2.3 TPS Profile

The Inventory System of the Pandesalan 24/7 is used for monitoring and adding stocks or goods that are currently available, it can also be used to deduct stocks to know how many current stock is left. The Inventory System could also see if how much is the cost of total stocks. Reduce the total earnings if stocks are bought then the System should add stocks, and if stocks are used the system should deduct from the current stock. The System should also see the pending order of stock if the stock ordered hasn't arrived yet.

III. The Study

3.1 Main Objective

To create an improved inventory and planning system to help the manager to monitor the stocks that are entering and exiting the plant.

3.2 Detailed Objectives

a. To identify the current state of the existing Inventory System.
b. To identify problems encountered in the Inventory System.
c. To propose features that shall solve the problems in the Inventory System.
d. To justify the feasibility of the proposed Inventory System.

IV. Existing System

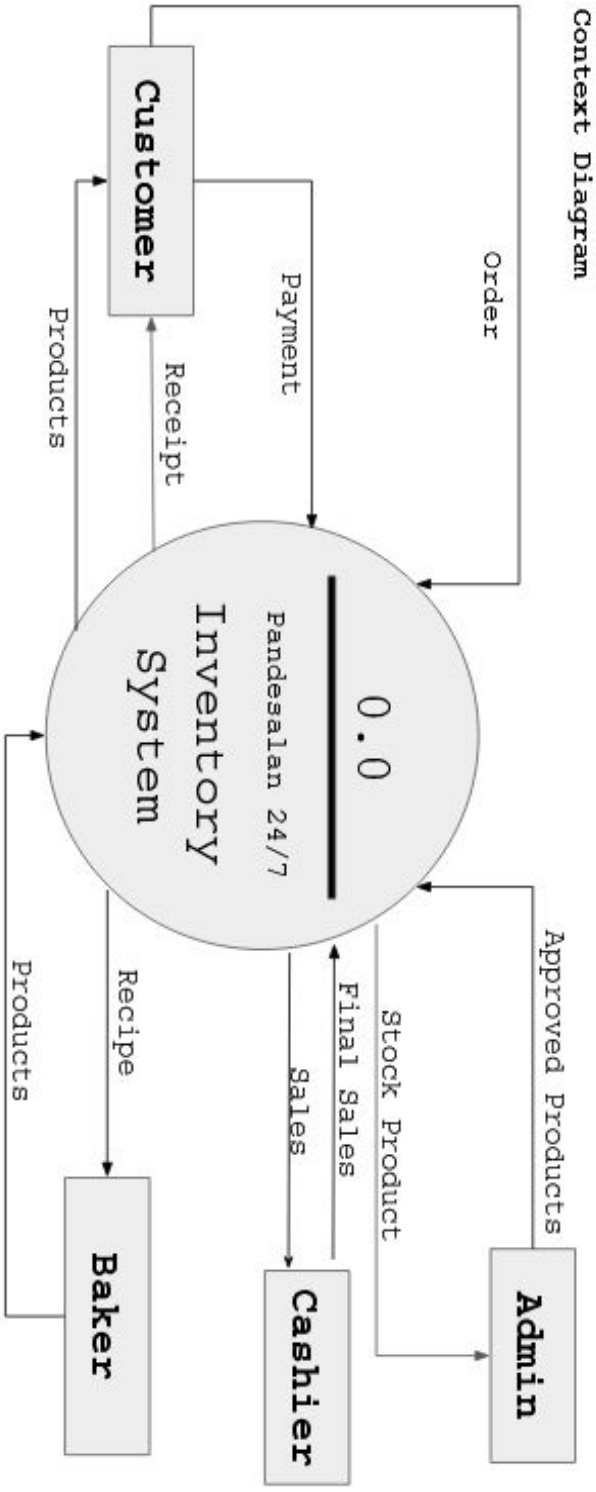
4.1 Description (Narrative)

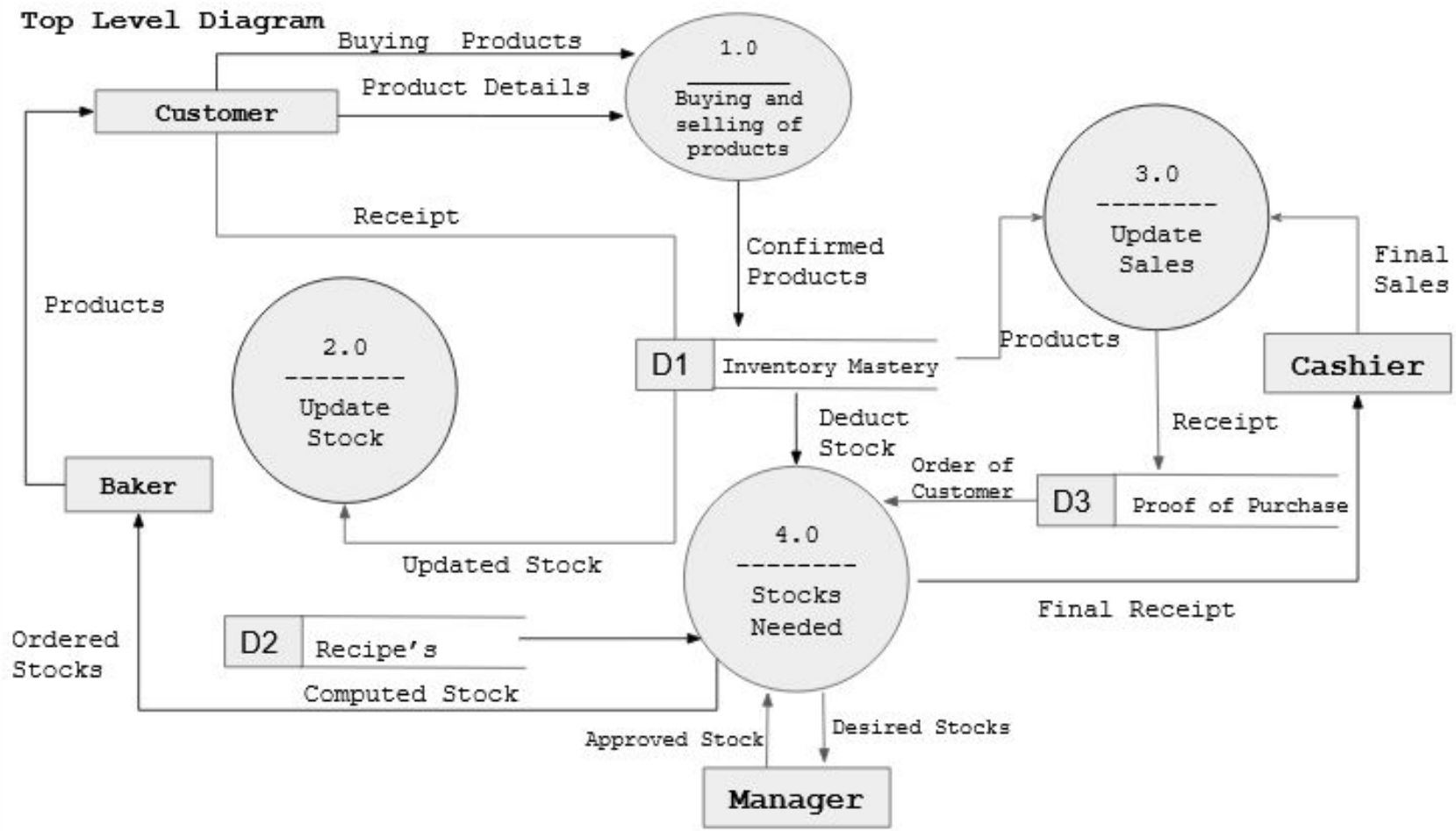
The Inventory System is to give employees an automated system of managing and storing products at ease making their productivity fast and reliable,an important and substantial role in ensuring the continued health, productivity, and

sustainability of these resources is a reliable and credible inventory and monitoring program (W. Brad Smith) and the power of information technology can be harnessed to help supply chain members establish partnerships for better supply chain system performance (Zhenxin Yu and Hong Yan) . Inventory management is a systematic approach to obtaining, storing, and profiting from non-capital assets (raw materials and finished goods). The right stock, at the right levels, in the right place, at the right time, and at the right cost. Inventory system is a combination of technologies (hardware and software) in which it helps in overseeing and monitoring the maintenance,checking the availability of stocks inside the plant and production of the finished goods and the raw goods (Nicole Pontius). Inventory system is related in the following activities such as: shipping, purchasing, receiving, storage, turnover, tracking, and recording. A complete inventory system has: barcode labels and asset

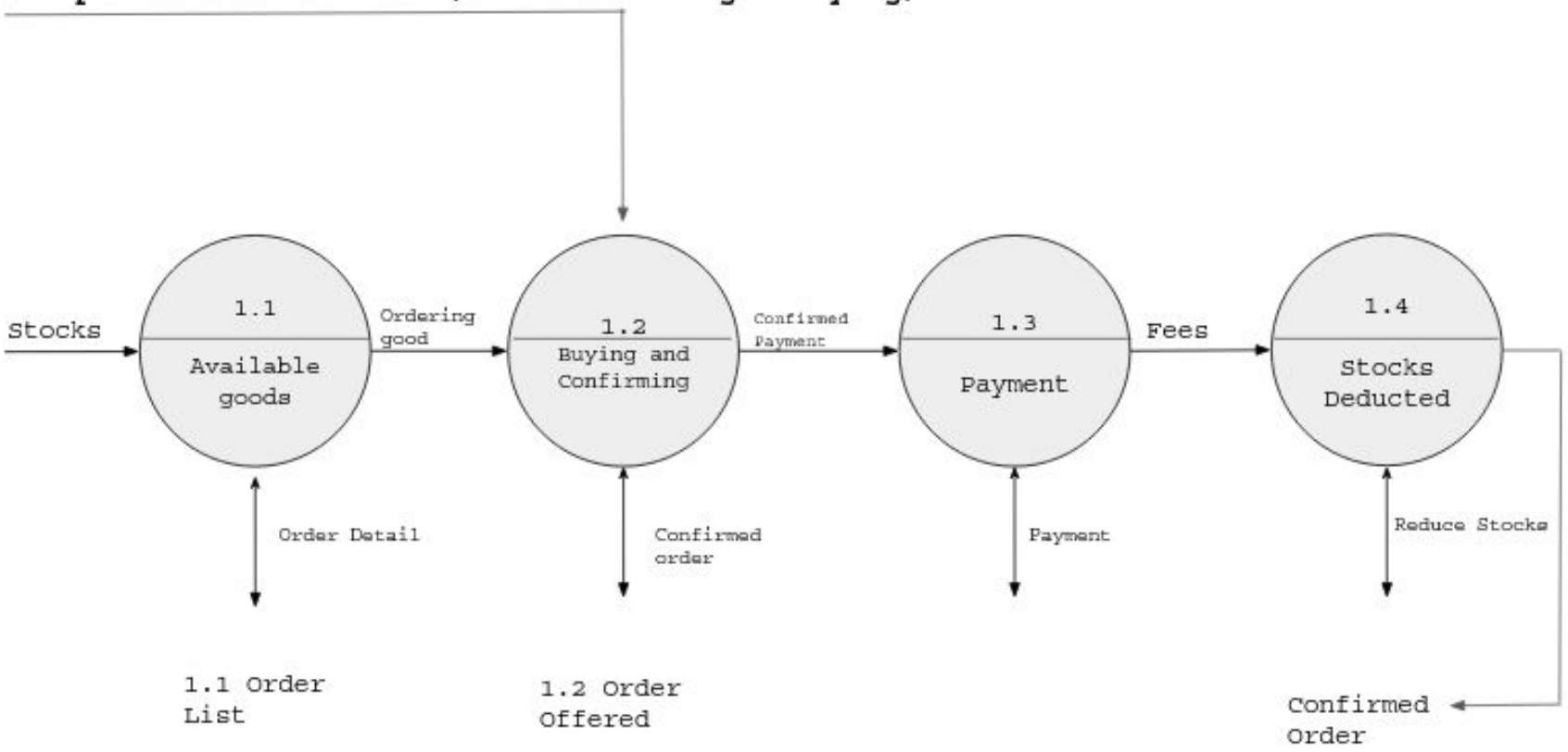
tags in every product, tools (software and hardware tools) that read and stores data, a database that holds forecast future demand reports, generated reports,documentation,and more (E. Porras and R. Dekker, 2008)

4.2 Data Flow Diagrams

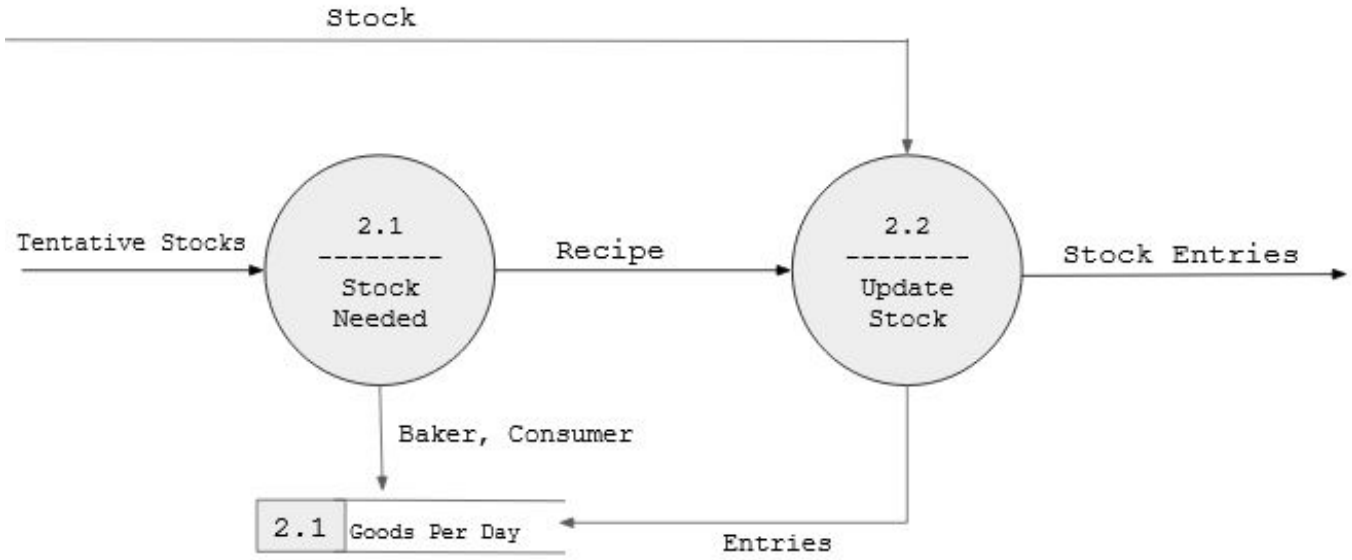



Top Level Diagram
Buying Products
Product Details
1.0
Buying and selling of products
Customer
Receipt
Confirmed Products
3.0
Update Sales
Final Sales
Products
2.0
Update Stock
D1
Inventory Mastery
Products
Cashier
Deduct Stock
Receipt
Order of Customer
D3
Proof of Purchase
Baker
4.0
Stocks Needed
Updated Stock
Final Receipt
Ordered Stocks
D2
Recipe's
Computed Stock
Approved Stock
Desired Stocks
Manager

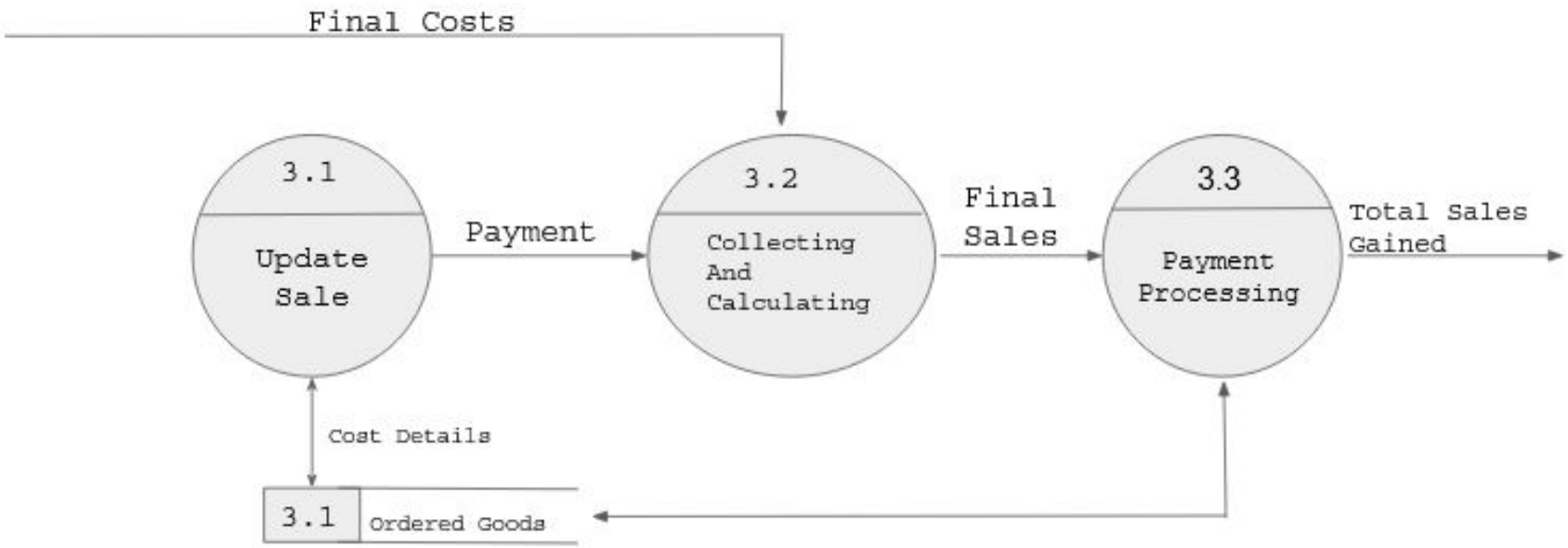
Explosion Process 1.0 (Product Selling & Buying)



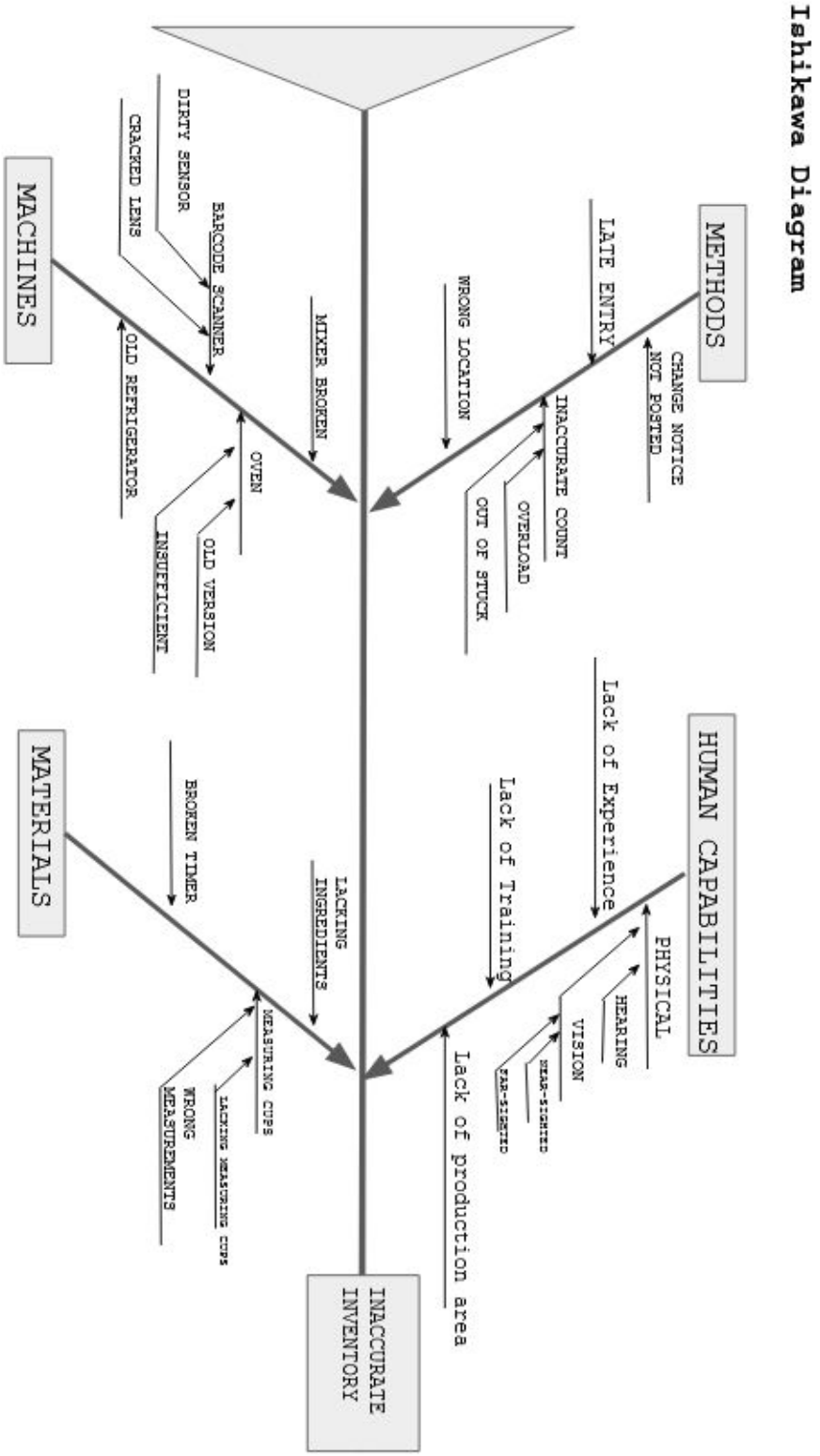
Explosion Process 2.0 (Update Stock)



Explosion Process 3.0 (Update Sales)

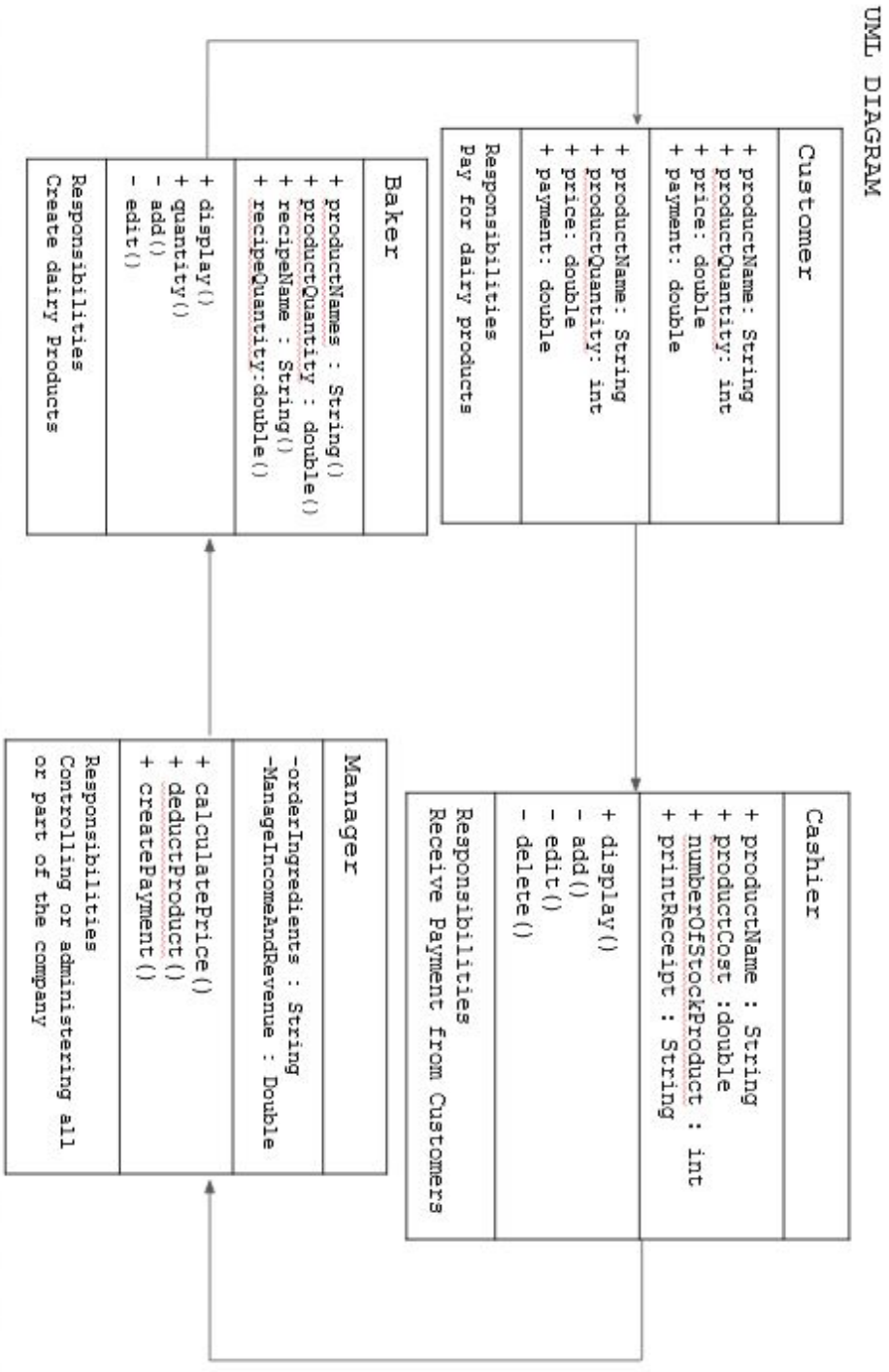


4.3 Ishikawa Diagram



V. Proposed System

5.1 UML Diagram



5.2 Cost Benefit Analysis:

Development Cost (DC)

Note: 1. The K/D/A Team estimates all costs.

2. This includes the purchases of new equipment.

3. Other Additional Fees are also included.

New Computer	1pc	P20,000.00
New Thermal Receipt Printer	1pc	P4500.00
Professional Fees	1lot	P70,000.00
Training Fees	1lot	P30,000.00
Total		**P124,500.00**

Operating Cost

A. Existing Operating Costs (EOC)

Note: 1. Must be actual annual values

2. Gathered through investigation

3. Must show details in a tabular format

Salaries	P192,000.00
Overtime	P90,000.00
Materials	P13,000.00
Maintenance	P10,000.00
Utilities	P20,000.00
Total	**P325,000.00**

B. Proposed Operating Costs (POC)

Note: 1. Must be the actual annual values

2. Unit costs used must be actual costs

3. Should be annual costs

4. Must show details in a tabular format

Salaries	P180,000.00
Overtime	P60,000.00
Office Supplies	P13,000.00
Maintenance	P10,000.00
Utilities	P20,000.00
Total	**P283,000.00**

C. Savings(SN)

Sn = EOC - POC

= P325,000.00 - P283,000.00

SN = P42,000.00 / year

Note:

1. Money has time value, so a peso today, a peso a year from now and a peso in five years are not the same. The time value of money is often expressed in the form of current lending interest rate.

$Sn = PV\ (1+i)^n$

2. Since savings occur in the future, we need to determine the present value (PV) of the savings in order to compare it with the present value of the investment.

$$PV = \frac{Sn}{(1+i)^n}$$

Where: PV = Present Value
Sn = Savings for the nth year
i = Annual lending interest rate
n = Year of compoundment

D. Comparative Table

Year (n)	Savings (Sn)	Interest $(1+i)^n$	Present Value (PV)	Cumulative PV (CPV)	Mark
1	42,000.00	1.20	35,000.00	35,000.00	X
2	42,000.00	1.44	29,166.67	64,166.67	X
3	42,000.00	1.73	24,277.46	88,444.13	X
4	42,000.00	2.07	20,289.86	108,733.99	X
5	**42,000.00**	**2.49**	**16,867.47**	**125,601.46**	✔

*Annual Interest rate used = 12%

Note:

- Place a check mark (√) on the year where CPV >= to DC
- There should only be one check mark
- The check mark signifies that the Development Cost is gained

E. Payback Period (PBP)

PBP = DC - CPV of the last "X" mark

---------- + number of "X" marks

PV of the last "✔" mark

PBP = 124,500.00 - 108,733.99

---------- + 4

16,867.47

PBP = 4.93 or 4 years, 11 months and 4 days

F. Net Present (NPV)

NPV = CPV of the 5th year - DC

NPV = 125,601.46 - P124,500.00

NPV = 1,101.46

G. Return on Investment (ROI)

$$ROI = \frac{NPV}{DC} \times 100\%$$

$$ROI = \frac{1,101.46}{124,500.00} \times 100\%$$

ROI = 0.88%

VI. Conclusion and Recommendations

6.1 Findings

1. The current state of the inventory system is good in terms of monitoring the raw materials and products that will be distributed in the market. It is precise in terms in calculating the wages of an employee in a year.

2. The problems encountered are methods used in the inventory system are inaccurate, machines used are old and outdated, materials used are either broken or not enough and there is a lack of ingredients.

3. One of the features of our system is Basic Inventory Control having a systematic way to truly manage and control the company's inventory across all of their sales. Barcoding and scanning is also one of the most important features of our system, the number of daily orders is exciting,

but it can also lead to bottleneck if your not positioned to process and fulfill those orders efficiently.

4. The proposed Information System for the bakery defines an inventory system regarding about the expenses and benefits of the system itself with regards to hardware, software, and its processes. The Development Cost has a total of P124,500 including the new computer that cost P20,000, new thermal receipt printer that cost P4,500. This also includes the professional fees that cost 70,000 and the training fees that cost P30,000. The Existing Operating Cost has a total of P325,000 annually that includes salaries, overtime, materials, maintenance and the utilities. The Proposed Operating Cost has decreased the Existing Operating cost that has a cost of only P283,000. With this, the company savings that they will earn is P42,000 per year. As time passes by every year, the interest, present value and the cumulative present value

will increase. The Payback period will be 4 years, 11 months, and 4 days. The net present value will be P1,101.46 and lastly the return of the investment will be 0.88%.

6.2 Conclusions

1. The system is good for a bakery shop that do not have an inventory system at all.

2. Most of the problems encountered why the inventory of the company is inaccurate are due to equipment and materials.

3. All employees in the bakeshop must be responsible for their given daily task to solve every major and minor problem.

4. The feasibility study helps the company to manage, monitor and find the benefits of costs of the proposed Inventory System.

6.3 Recommendations

The inventory system has been planned, developed, and built in order to improve the production of baking company. We highly recommend that the inventory system in the company to meet their satisfaction that results to boosting of the company's productivity and management. Our System is easy to use and it is also user friendly. In implementing this system, they must provide a training on how to use the system to the employees together with the maintenance on what they will do. After the training, they must implement the system itself to the company and test the convenience and reliability. The company will give their feedback in order to improve and maintain the efficiency and reliability of the system.

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