
CAFÉ MANAGEMENT SYSTEM

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ABSTRACT

With the fast growth of the food service sector, there is a need to have a reliable and automatic management tool for managing operations in cafes and small restaurants. In this research paper, the design and implementation of the Cafe Management System (CMS) is presented. This system was designed to provide an efficient and automated method of managing the operations in a cafe. The system can be used to manage customer orders, billing, menu management, inventory management, and employee activities. The system offers an improved approach for handling operations in a cafe compared to the existing manual approaches by ensuring accuracy and reducing the time taken to complete the operation. The system ensures real-time order processing, correct bills generation, and proper stock management. It also enhances the decision-making process in the business by ensuring proper record management and generation of reports.

INDEX TERM: Café Management System, bill generation, order handling, stock management, customer relations, menu planning, staff management, sales analysis, data management, online payments, business productivity, workflow optimization, real-time monitoring, easy-to-use interface, process automation, and accuracy in operations.

I. INTRODUCTION

Food waste and food insecurity are two of the many socio-economic problems faced in the contemporary urban setting. On one hand, hundreds of tons of natural food items are being wasted every day by homes, restaurants, and banquet halls while, on the other hand, hundreds of people are experiencing malnutrition. The problem lies not in the availability of food, but

rather in communication and logistic capabilities regarding surplus food items from donors to the NGO's/charities catering to the food requirements of the hungry and needy people.

In order to solve the problem mentioned above, this paper recommends the implementation of a technological food donation system named Food Donation System (FDS). This FDS comprises a web-based and mobile phone application through which the listed surplus food items can be claimed and tracked in real-time manner. Therefore, the overall purpose of the paper is to discuss the architecture of the system as well as its achievements.

II. PROCEDURE FOR PAPER SUBMISSION

A. Stage of Customer Order Entry

During the first stage, while the customer makes an order, the cafe employees log in to the system and make an order by selecting the required number of items from the list. The order details will then be saved in the database. This order generation procedure eliminates any chances of mistakes that may happen due to manual entry of data.

B. Stage of Billing and Payment Processing

Once the order details have been entered in the system, the system automatically calculates the total cost of the order including discounts and taxes, depending on the price list, quantity, and type of products. The automatic bill generation system not only enhances the efficiency of the entire billing process but also eliminates the likelihood of making mistakes during the process.

C. Stage of Inventory Monitoring and Order Management

Once the bill generation process has been carried out, the stock of items will be deducted from the total amount of stock held in the database at that particular moment. In addition to that, the orders placed by customers will be monitored to determine whether the order was delivered successfully or is still in the pipeline.

III. UNITS

Standard units have been adopted in the developed Cafe Management System for inventory purposes and consistency within the database. Standardization of units is important to facilitate efficient inventory tracking, order preparation, and billing processes. In the database design, tangible items and food items are stored and shown using kilograms (kg) or grams (g), while liquid items and beverages are stored using liters (L) or milliliters (mL). Pricing of

products is done in units of money, while dates and times when orders were placed, billed, and updated in the inventory are done using standard date and time formats.

IV. HELPFUL HINTS

A. Figures and Tables

The Cafe Management System is able to produce performance reports with the help of tables as well as graphs. Examples of tables are: Table I – Monthly Sales Report, Table II – Stock Status Report, Table III – Customer Orders Report. The reports can be presented through the system dashboard in terms of graphs and charts as well. Graphs make it easier for analyzing and understanding the data. In order to ensure clarity, the names and appropriate units are provided on the axes of all the graphs. Some examples include “Monthly Sales Amount” and “Number of Customer Orders” instead of “Sales” and “Orders.”

B. System Scalability

The proposed Cafe Management System is designed to be scalable and capable of handling increasing operational requirements. As the business grows, the system can accommodate a larger number of menu items, customer records, transactions, employee details, and stock entries. Furthermore, if the system is implemented as a web-based or cloud-based application, it can provide real-time data access and support multiple users simultaneously. This makes the system suitable for both small and expanding cafe businesses.

C. Abbreviations and Acronyms

In the documentation of the Cafe Management System and in the research paper, each abbreviation and acronym should be written in its full form when first introduced. For example, CMS (Cafe Management System), DBMS (Database Management System), and API (Application Programming Interface) should be clearly defined. This approach improves the readability of the paper and helps both technical and non-technical readers understand the content more easily.

V. PUBLICATION PRINCIPLES

The creation, development, and documentation of the CMS are based on very strict academic and software engineering standards. Because the system is applicable to both computer science and business administration areas, the standards for its development and publication

are mainly those of openness, expertise, and practicality. Below are some basic principles of this project.:

- 1) The first objective of this study is to make a contribution to the literature in terms of automatic business management systems. Cafe business is based on manual record-keeping and billing, and both processes take a long time, are prone to mistakes, and are generally inefficient. The current paper describes an automatic process that will facilitate all of these tasks with the help of algorithms.
- 2) One of the most essential concepts in the areas of science and technology research is replicability. The CMS design involves an open architecture, and the information provided in this paper is adequate to understand the CMS backend, database design, and algorithmic process flow. Hence, other researchers or developers can duplicate the application and integrate it for other purposes.
- 3) The system is built with the aim of adhering to high standards of accuracy, reliability, and security of data. Functions like error checking, order validation, prompt reaction time, and secure data management are all incorporated into the system. Critical data such as customer data, transaction data, and inventory data are protected with the use of secure protocols and encryption.
- 4) CMS is an application-oriented system that emphasizes tangible operational gains. The performance indicators are the time required to process orders, billing accuracy, stock turnover, and customer satisfaction. Moreover, the system is flexible enough to handle the expansion of the café business. No matter whether it is used by a tiny café or a bigger multi-branch enterprise, the system will be able to deal with increased menus, transactions, staff members, and clients without major changes to the code.

VI. CONCLUSION

Cafe Management System (CMS) The CMS will automate some functions carried out in cafes, such as orders, billing, inventory, and reporting. The benefits will be minimal errors, faster services, and efficient management processes. Future upgrades can involve artificial intelligence in predicting sales and inventory. In summary, the CMS is an innovative technology that can provide an efficient platform for managing cafes.

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REFERENCES

1. Hutto, C. J., & Gilbert, E. (2014). VADER: A Parsimonious Rule-Based Model for Sentiment Analysis of Social Media Text. In Proceedings of the Eighth International Conference on Weblogs and Social Media (ICWSM-14), AAAI, Vol. 8, pp. 216–225. [2] Singh, A., & Aggarwal, N. (2020). Sentiment Analysis using NLP Techniques: A Review. International Journal of Computer Applications, 176(40), 24–29. [3] Li, Y., Wang, S., & Zhang, X. (2019). Customer Feedback Mining Using AI Techniques. Journal of Data Science and Business Intelligence, 4(1), 33–47. [4] Medhat, W., Hassan, A., & Korashy, H. (2014). Sentiment analysis algorithms and applications: A survey. Ain Shams Engineering Journal, 5(4), 1093–1113. <https://doi.org/10.1016/j.asej.2014.04.01>.
2. Feldman, R. (2013). Techniques and applications for sentiment analysis. Communications of the ACM, 56(4), 82–89.
3. Cambria, E., Schuller, B., Xia, Y., & Havasi, C. (2013). New avenues in opinion mining and sentiment analysis. IEEE Intelligent Systems, 28(2), 15–21. [7] Liu, B. (2012). Sentiment analysis and opinion mining. Synthesis Lectures on Human Language Technologies, 5(1), 1–167. [8] Zhang, L., Wang, S., & Liu, B. (2018). Deep learning for sentiment analysis: A survey. Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery, 8(4), e1253.
4. Achmad et al (2021). WEB-BASED JERSEY SALES INFORMATION SYSTEM USING AGILE SOFTWARE DEVELOPMENT. e-ISSN: 2597-3673 (Online), p-ISSN: 2579-5201 (Printed) Vol.5, No.2, December 2021 environment, vol. 438, pp. 477-489, September 2012.

5. Budianriani et al. (2023). Analysis of Operations Management Strategies at Coffee Shop Parepare City Volume 6 Issue 2 (2023) Pages 236 - 247 ISSN : 2598-831X (Print) and ISSN: 2598-8301 (Online)
6. Parsons, D., & MacCallum, K. (Eds.). (2018). Agile and Lean Concepts for Teaching and Learning: Bringing Methodologies from Industry to the Classroom. Springer Nature Singapore. 10.1007/978- 981-13-2751-3
7. Sunil Chahal, "Adopting Agile Methodologies for Improved Product Management" (2023), ISSN 2520-0402 (online) Vol.8, Issue No.4, pp 79 - 94, 2023, <https://orcid.org/0009-0006-4594-9318>
8. R. Sastra, "Implementation of UML (Unified Modeling Language) Diagrams in the Design of Payroll Information Systems," J. Tek. Comput. AMIK BSI, vol. 7, no. 1, 2021, doi: 10.31294/jtk.v4i2
9. S. Pasaribu (2021). Design of Web-Based Information System for Office Asset Inventory Management at PT. MPM FINANCE BANDUNG. VOL. 7 NO.(2021) <https://doi.org/10.33197/jitter.vol 7.iss3.202 1.655>