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Development of a Web-based Decision Support System for Sales Performance Monitoring and Trend Analysis

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Abstract*— The study aimed to develop a web-based decision support system for sales monitoring and trend analysis of a restaurant in the Philippines. It was developed using Hypertext Pre-processor (PHP), Hyper Text Markup Language (HTML), Java Scripting, Bootstrap and Sublime editor for the designing and MySQL for the database. Decision Tree Algorithm using Python was used to analyze the customer's preferences and sales trend forecast. Users' acceptance and Information System impact was evaluated based on a five-point Likert scale by the end-users. The result exhibited that the system's individual impact, organizational impact, system quality, and information quality met the needs of each users as it was able to perform tasks and input data from the individual users; capable of increasing performance and productivity by streamlining processes through converting manual to digitized transactions, and eliminate redundant processes as it produce reports from sales, customer orders, and inventory of products which improves performance and cost-effectiveness; and provide data accurately with forecasting and predictive analysis and can run both on web and mobile-based applications. Nonetheless, the system should be used as it met the needs of each users and provide the business a competitive advantage.

***Index Terms*— web-based decision support system, sales performance, monitoring, trend analysis.**

I. INTRODUCTION

Restaurant systems is not new to the world, in fact numerous published studies deals with restaurant systems such as those on digital ordering system, on intelligent restaurant systems, on smart restaurant menu, among many others [1]-[3]. In the Philippines there are some studies on restaurant systems but not much on the use of QR codes in restaurants and on restaurant food safety system [4], [5]. The small number of published articles in the country has led the researcher to conduct a capstone project related to the restaurant industry.

In literature, the problems faced by restaurants are varied and many published articles deals with finding system solutions to these issues including queuing problems [6] and the implementation of a system to reduce waiting time. The lack of information system in restaurants and finding a solution to improve online ordering and real-time reporting through a cloud-based systems and data analysis was mentioned among many other published articles [7]. Other problems in the restaurant industry include inventory management, communication gaps in restaurant setting, and food safety among many others [8]-[10]. Thus, this paper proposes a solution to inventory problems through the capstone project Sales and Inventory Management Systems with Predictive Sales Analysis prototype to help restaurant management improve inventory management and provide restaurant managers a decision support system to improve the business process and establish competitive advantage.

Predictive sales is a type of data analytics which uses predictive algorithms and patterns generating input data through historical sales. The output of a predictive sales is typically to establish forecasts to be used operationally like prepare for inventories to always ensure product availability. The ultimate output can be felt by the customers that when they order anything from the menu, it will always be available. Predictive sales had been well studied in various literatures to identify best marketing strategy on the use of predictive sales analytics in developing sales leads on social media, among others [11]-[13]. In this study, predictive sales analytics will help restaurant prepare for raw materials ahead of time, manage inventory to ensure zero over and under inventory level, ensure products are always available to ensure maximum customer satisfaction.

Established on December 08, 2019, the Café cerveza Gastropub became one of the leading restaurants in the Municipality of Tupi, South Cotabato. Since the restaurant is young, they are not yet using MIS for billing, computing daily sales and expenses, and inventory. Moreover, client server technologies. These problems when kept unresolved can hamper business efficiency and limit opportunities for expansion and business success.

Hence, the study aimed to develop a web-based decision support system for sales performance monitoring and trend analysis that can eventually be used by the café to strengthen its operations and competitive edge.

The study generally aimed to develop a decision support system for sales performance monitoring and trend analysis.

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Specifically, the study has the following objectives:

1. Develop a web-based system to manage sales, order and inventory;
2. Create a mobile-based ordering application;
3. Generate reports for customers' preferences and sales trend forecasts; and
4. Evaluate the developed system in terms of IS Impact.

II. LITERATURE REVIEW

Predictive Sales Analytics

Predictive sales system in restaurants is an effective way to increase sales [14]-[16]. The benefits of Predictive sales systems is varied including predicting customer behavior, prioritize leads and accounts, create and implement effective marketing strategies, launch new products, and generate customers at the right time and deliver the right goods. However, in many studies the most common is to establish the ability of the business to forecast sales.

Predictive sales analytics to refer to the use of data through analytics to identify patterns in customers' and leads' behaviors to make future sales predictions [14]. The study findings showed that predictive sales analytics can predict annual sales revenue trend, food preferences, demand variability, and comparison against accuracy of prediction using other prediction methods.

Predictive sales analytics can measure restaurant performance by combining customer reviews online and sales history to establish sales forecast [15]. The said study simplified the decision-making process in restaurant setting among restaurant managers. The importance of management information system is inevitable [15]-[16]. However, this was taken in the context of the government's role of monitoring health protocols among restaurants. The limited resources utilized for health practices monitoring among restaurants will help reduce risks from foodborne illnesses that may be experienced by customers from unhealthy restaurant practices. The more restaurants sales can be predicted, so as the behavior of the customers, and therefore government regulators can track movement and help reduce risks.

Predictive analytics was used to forecast demand fluctuations experienced in every day operations of the restaurant [17]. The study used multiple regression and support vector regression machine (SVR) algorithms to forecast potential customers and menu demand through the use of recorded data in the point-of-sale (POS). The scientific computation and model verified the forecast accuracy level with low forecast known error of 14.84 percent. The results also demonstrated that the approaches used in the study is practical for forecasting revenue and consumer counts, as well as demonstrating that managers will learn about the variables that influence customer behaviors.

Restaurant Technology and Systems

Technology in various studies refers to the application of scientific knowledge for practical purposes especially applied in the industries [20]-[21].

The construct technology had been well studied over the years, technology has become a major factor in the operation of different business restaurant industries and with the help of the telecommunications industry and the advancements of computer capabilities, and the development of sophisticated software and also to support the delivery of services [20]. The technologies such as social media have provided plenty of opportunities for consumers, most of these consumers would have been already engaged in using smart technologies influencing other customers to learn how to use smart technologies that can attract other potential customers.

A large number of restaurant customers specifically 64.71 percent believed in the use of different digital applications and technologies in service delivery such as digital menus, contactless digital payments, keyless entry, and touch less elevators and its necessity in the restaurant environment especially during the pandemic in order to improve customers' satisfaction, safety, and repeat purchase [21].

Several technologies are used by restaurants for various purposes across all types and sizes of restaurants. As classified, restaurant technologies have two major categories including front-end and back-end technologies. Technologies include the restaurant's point of sale system (POS) which is basically a network of cashiers and server terminals which handles customer orders, transmission of orders to the kitchen, customer payments, among others [22]. In some studies, handheld POS terminals are used. It is a portable device capable of the main functions of a pre-checking orders. The study also pointed out that the levels of technology in restaurants vary due to the different approaches of restaurant management to technology coming from their various orientation on the level of innovation receptivity. The study concluded that restaurants must be IT-prepared to serve customers better.

III. MATERIALS AND METHODS

Concept

The project consisted of five (5) key features that helped the organization. The decision support system using web and mobile technologies which included sales management system, ordering management system, inventory management system, and mobile application for customer's order and the dashboard of prediction of customer's order preferences and sales trend for business decision making.

The sales management system helped manage the sales transactions of the restaurant in its daily operation. Another feature is the order management system which helped the organization manage its orders from the customers. These orders catch from the orders of the customers using the mobile application provided as part of the system's feature. This mobile application can display the menus and best sellers of the restaurants. Another feature is the inventory system, which provided the recording of the raw food materials and the supplies in the kitchen. These different

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features of the system served as a tool to provide a decision support system that can help the organization through the graphically reports such as the customer's preferences and sales trend forecasts using decision tree algorithm. Further, the project included predictive sales analytics. In this study, in a restaurant setting, predictive sales analytics were included using historical sales data predict customer preferences and to forecast sales, then determine customer behavior in buying, among others.

Key Features of the System

Sales management system

This feature provides interface to manage the sales transactions of the restaurant in its daily operation manage by the Admin. It take orders from mobile-based ordering system or a walk-in customer. The interface contains the management of user account, menu, and its category. It can access dashboard and generate reports of customer preferences, top seller menu and sales per month or year.

Ordering management system

This feature provides interface to manage customers' order. The user of this interface is the cashier. The orders catch from the mobile application or a request from a walk-in customer. The cashier can receive notification for every customer's order made in mobile-based application which needs a confirmation before forwarding the order to the kitchen user. The kitchen interface manages orders received from the cashier. It has a feature to monitor and confirm orders.

Mobile-based application

This feature displays the menu available in the café cerveza which will be used by the customer to place order. This will allow the customer to order and upload proof of payment online.

Inventory management system

This feature allows the admin to manage the supplies for food.

Dashboard

This feature displays the customer preferences, top seller menu and sales per month or year. This will help the organization in its decision making. This dashboard includes historical data of sales from year 2020 to 2022. The 2-years data used to predict the customers' preferences using the decision tree algorithm. It will also forecast the sales trend for decision making of the café cerveza.

Functional requirements of the system

Functional requirements help the system operate effectively.

Table 1. The admin interface functional requirements.

Admin	Functional Requirements
1	The system requires that user enter a username and password when logging in so that the system can authenticate their identity.
2	The admin enables to create users' account, manage menu categories, menu per categories and access reports.
3	The admin enables to manage supplies of raw foods for inventory.
4	The admin can access dashboards of customer preferences, top seller menu and sales per month or year.
5	The admin can generate reports of inventory reports to show the real time inventory of stocks.
6	The admin can generate reports of sales per day, week, month or year.

Table 2. The cashier interface functional requirements.

Cashier	Functional Requirements
1	The system requires that user enter a username and password when logging in so that the system can authenticate their identity.
2	The cashier interface can catch orders from the mobile application or a request from a walk-in customer.
3	The cashier can receive notification for every customer's order made in mobile-based application.
4	The cashier enables to verify the proof of payment enclosed to the customer's order upon confirmation or disapprove of orders.
5	The confirmed order will be forwarded to the kitchen user for cook. Disapproved orders automatically disappear to the orders' list.
6	The cashier enables to manage the orders of walk-in customers and enter their payments.
7	The cashier enables to generate receipt.

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Table 3. The kitchen functional requirements.

Kitchen	Functional Requirements
1	The system requires that user enter a username and password when logging in so that the system can authenticate their identity.
2	Allow the kitchen to place available and not available menu for orders.
3	The kitchen can manage orders received from the cashier.
4	The kitchen can monitor upcoming orders and mark as done for serving.
5	The kitchen can monitor the history of transaction.
6	The kitchen can monitor the inventory level of the supplies of raw foods.

Table 4. The customer functional requirements.

Customer	Functional Requirements
1	The system requires that user enter a username and password when logging in so that the system can authenticate their identity.
2	Enable the customer to view menus, place order and upload proof of payment.
3	Allow the customer to generate order receipt and view history of transactions.

Non-Functional Requirements

1. The system is available online, a multi-user and user-friendly.
2. The system was secured by having a user identification through password encryption, secured cloud deployment, and regular data back-up.
3. The system is compliant with the ease of doing business and efficient delivery of Public Service act of 2018 and Data Privacy Act of 2012.

Methods

Design studies

The system development method used the Modified Waterfall Approach Model. It includes six stages such as requirements/data gathering, requirements/data analysis, system design, implementation, and program testing and operation and maintenance.

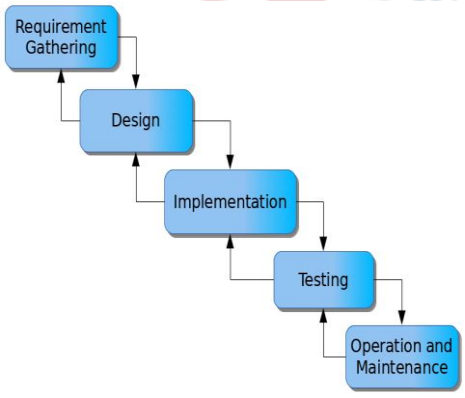

Figure 1. Modified Waterfall Approach Model

Requirement Gathering

An interview with the restaurant participants was done prior to the development of the sytem. The requirements of the project was described by the restaurant employees, managers, and owners on the specific problems that were solved by this project indicated in the objectives of the project. An analysis was conducted related to the problems encountered related to the manual systems to explore the relationships among the proposed components of the products or systems that will meet the requirements.

Design

As soon as the initial design was created from the problems identified, the design phase of the development of the management information system with predictive sales analytics came in the restaurant setting. In this part of the development process, the project assumes, the problem had already been defined, requirements are identified, and initial plan was already presented to the owner of the business to make design choices. In this phase, there was an assumption that three or more designs may be developed to provide owners of the restaurant a design choice to identify which project design may result in the achievement of the objective.

In addition, the design phase was pursued with the development of flow chart designs, the researcher provides the context diagram, data flow diagram and the entity relationship diagram. The owners provided a stage gate process of go or no go on the designs. If the design is a go, it will proceed to the next phase or if it is a no-go, the researcher will do a re-work of the designs that fits the restaurant owner's requirement.

Implementation

Implementation Plan

In this phase, all the elements needed for the development and implementation of the project was arranged in sequence according to how they were implemented. Hardware and networking devices were purchased by the owner, and people

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were asked to help in the development. This included the researcher, the owner, developers, and IT experts. A schedule was made, discussed, and agreed upon, while the materials and tools were ordered. Work instructions were created and the various work instructions were given to the development team to ensure personnel know their respective deliverables and the timelines. In this phase, the focus was to ensure that the roles, activities, timelines are clear to the members of the development team, and the necessary output is expected to be favorable milestones.

In implementation Phase, the system was deployed at Café Cerveza Gastro Gastro Pub. This section provides a brief description of each task required for the implementation of the project. It is necessary that all the requirements stated in the work breakdown structure of the project should done and documented. Then, proceed to the deployment of the system. The figure 3 showed the activities under the Project Implementation phase.

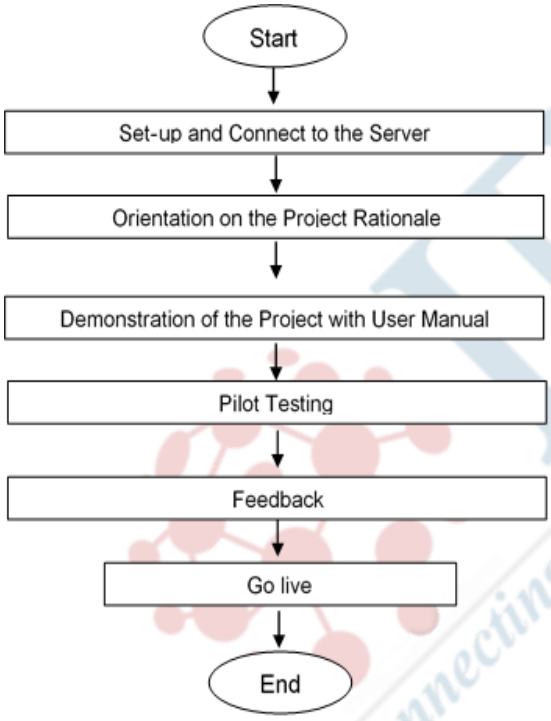

Figure 2. Project Implementation Process Flow

1. *Set-up and Connect to the Server*

It started with checking the company's needs and capability to handle the system. A computer set, tablet or smartphone and an internet connection were the only requirement to implement the project.

Set-up the system into the network. In this step, the system deployed in the web-based network. The system is also hosted with a domain name

http://www. cafecervezagastropub.*com*, this subscription is good for one year, with one-Domain Name, 1G-Server Storage and one-Database inclusions. After subscription, the researcher uploaded the localhost files including the database of the system to the server. After which, the researcher checked all the functions of the system to make it sure it was ready to use by the organization.

The next step was to allow the Admin to connect to the server and access the system online. After it was accessed by the user, the researcher proceed to the orientation of the project objective, scope and methods on how to use the system through Project Rationale.

2. *Orientation on the Project Rationale*

An orientation to the user on project objective, scope and methods on how to use the system was with the Project Rationale in their hands. The researcher introduce the benefits of the project in line with the organization needs.

3. *Demonstration of the Project with User Manual*

After an orientation to the user, the researcher proceeded to the demonstration of the system with the User Manual. The researcher introduced the different features of the system and orient them on how to manipulate its function. Then, allowed them to use the system for testing.

4. *Pilot Testing*

Pilot testing was the next step. In this step, the researcher provided the evaluation questionnaire and discussed its purpose and each question.

This questionnaire was used to evaluate the system in terms of IS Impact. After the researcher gathered the answers of the user, it was tallied and summarized the result.

5. *Feedback*

This step was part of the conceptual framework of the project, the feedback coming from the intended users after the output was developed. The researcher noted all the necessary recommendations made by the users for further improvements of the project. This would be a big help for the researcher to cater all the organization feedback to improve the project. Some of the minor revision was catered by the researcher, however there are some of its feedback forwarded to the future researcher due to the scope of the project implemented.

6. *Go live*

This was the last step of project implementation, the phased roll-out state-wide, which means that the system is ready to deploy and to be used by the organization. In this step, the researcher received a Certificate of Acceptance from the owner of the restaurant. This certification certify that all deliverables under project Decision Support System for Sales Performance Monitoring and Trend Analysis have been installed and tested. The project has met all the acceptance criteria as defined in the project scope statement.

Testing

The next part of the development phase is the integration and test phase. In this part, the system has already been established and ready for trial and testing to ensure that the possible problems which may be experienced by the users are

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resolved prior to final implementation and the experiences of the users will be smooth. In addition, this is the first instance where the overall software standards are checked and if it meets the objectives set at the beginning.

As soon as the system testing was done, issues are resolved, the system was reworked, the project was subjected to final testing with the owners and restaurant users. Once they are satisfied then they are a go for full implementation. However, if the owners are not satisfied, the project will be reviewed and revised in iterative manner. In this phase, the system project becomes visible to everyone especially the users. The end of an implementation phase results in an evaluated system, working and ready for use. The initial list set during the definition phase will be reviewed and ensured they are all completed according to the list of requirements that was created in the definition phase. The IS Impact using a-priori model tool will be used to assess its individual impact, organizational impact, system quality and information quality. The questionnaire used in the evaluation was adopted from Gable et al (2008). It will use a Likert scale criterion where one is strongly disagree and five is strongly agree.

Deployment and Monitoring

Deployment and monitoring were conducted after ensuring that the decision support system for sales performance, monitoring, and trend analysis has worked considerably, addressed the difficulties expressed by users, prototype tested, adjustments made after the evaluation, and fool-proofed for final implementation. A checklist of tasks prepared at the start of the design process ensured that all activities are completed to the highest standard. One month was allotted for testing to finalize the output. As soon as the system was found to be operational, the owner signed- off that the system is operational and ready for full rollout. For turn-over, documents was signed. The owner became the administrator of the system and only the owner will be allowed to register or create accounts for the users. The system will be closely monitored for a year to ensure system resilience, usability, and information reliability.

Statistical Treatment and Analysis of Data

Participants of the Project

Participants in conducting the pilot testing were composed of all the end-users. Those were the Owner and Manager as Admin (2), Cashier (1), and Kitchen Staff (3) and Customers.

Data Gathering Procedures and Statistical Tools

The evaluation of the system used a checklist questionnaire to gather the responses to evaluate the individual impact, organizational impact, system quality and information quality. The participants evaluated the system and its impact by rating each item in the questionnaire using the rating scale as shown in the table 5.

Table 5. Rating scale and its description

Rating	Description
5	Strong Agree
4	Agree
3	Neither Agree Nor Disagree
2	Disagree
1	Strongly Disagree

The questionnaire was designed to draw the perception of the users about the performance of the system. The result of the evaluation was used as a feedback mechanism to improve and upgrade the system. The frequency; percentage; and weighted mean were used as statistical tools. Weighted Mean (WM) is computed as

$$WM = \frac{(1)f_{SD}+(2)f_D+(3)f_N+(4)f_A+(5)f_{SA}}{n}$$

Where:

WM = weighted mean
n = number of respondents
f_{SD} = frequency of Strongly Disagree response
f_D = frequency of Disagree response
f_N = frequency of Neither Agree Nor Disagree response
f_A = frequency of Agree response
f_{SA} = frequency of Strongly Agree response

Table 6. Interpretative scale used to interpret the weighted mean

Range of Mean	Description
4.50 – 5.00	Strong Agree
3.50 – 4.49	Agree
2.50 – 3.40	Neither Agree Nor Disagree
1.50 – 2.49	Disagree
1.00 – 1.49	Strongly Disagree

IV. RESULTS

```
import pandas as pd
import numpy as np
from scipy import stats
from sklearn.model_selection import train_test_split,cross_val_score
from sklearn.metrics import r2_score
from sklearn.tree import DecisionTreeClassifier
import seaborn as sns
import statsmodels.formula.api as smf
from six import StringIO
from IPython.display import Image
from sklearn import tree
from sklearn.tree import export_graphviz
import pydotplus
import matplotlib.pyplot as plt
```

Figure 3. The library imported for the processing of data

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The figure 3 shows the importing of the library for the processing of datasets. This is important steps to manipulate the data and its visualization.

```
from google.colab import files
uploaded = files.upload()
```

```
Choose Files  No file chosen
Saving data.csv to data (3).csv
```

```
dataset=pd.read_csv('data.csv')
```

Figure 4. Importing the dataset from the local computer

The figure 4 shows how do the datasets in a csv file imported, loaded and read from the local file to the system.

```
dataset.head()
```

	age	gender	qty	price	menu
0	22	1	1	239	11
1	18	1	1	1099	1
2	45	1	1	379	6
3	16	2	3	267	13
4	35	2	2	150	13

Figure 5. The first five content of the datasets

Figure 5 shows the displays the first five content of the datasets.

```
[ ] dataset.corr()
```

	age	gender	qty	price	menu
age	1.000000	-0.001798	-0.008103	0.000163	0.004931
gender	-0.001798	1.000000	0.002168	-0.000589	-0.003990
qty	-0.008103	0.002168	1.000000	0.122456	0.092033
price	0.000163	-0.000589	0.122456	1.000000	-0.438483
menu	0.004931	-0.003990	0.092033	-0.438483	1.000000

```
corr_df=pd.DataFrame(columns=['r','P'])
for col in dataset:
  if pd.api.types.is_numeric_dtype(dataset[col]) and col!='menu':
    r,p=stats.pearsonr(dataset.menu,dataset[col])
    corr_df.loc[col]=[round(r,2),round(p,2)]
corr_df
```

	r	P
age	0.00	0.44
gender	-0.00	0.53
qty	0.09	0.00
price	-0.44	0.00

Figure 6. The correlation of every column.

Figure 6 shows the checking of the correlation of every column. This will also run and display the *r* and *p* values of the dataset.

```
X=dataset.iloc[:,:-1].values
y=dataset.iloc[:,4].values
```

```
X_train,X_test,y_train,y_test=train_test_split(X,y,shuffle=True,test_size=0.20,random_state=0)
```

Figure7. Splitting the dataset for training and test.

Figure 7 shows the segregation of the four columns in x and y. The *x (age, gender, qty, price)* will get the first 3 columns and the *y* (menu) the last column and it will be the dependent values. Then, splitting the dataset for training and test.

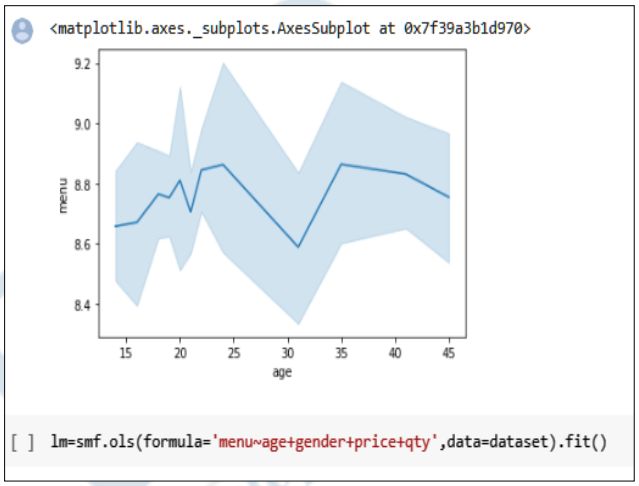

Figure 8. The subplots of the decision tree classifier.

The figure 8 shows the subplots of making model of the decision tree classifier.

```
lm.summary()
```

OLS Regression Results

Dep. Variable:	menu	R-squared:	0.214
Model:	OLS	Adj. R-squared:	0.214
Method:	Least Squares	F-statistic:	1656.
Date:	Mon, 19 Dec 2022	Prob (F-statistic):	0.00
Time:	03:47:57	Log-Likelihood:	-67023.
No. Observations:	24350	AIC:	1.341e+05
Df Residuals:	24345	BIC:	1.341e+05
Df Model:	4		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
Intercept	9.1358	0.102	89.472	0.000	8.936	9.336
age	0.0028	0.003	1.090	0.276	-0.002	0.008
gender	-0.0450	0.056	-0.804	0.421	-0.155	0.065
price	-0.0036	4.53e-05	-79.750	0.000	-0.004	-0.004
qty	0.5244	0.020	25.849	0.000	0.485	0.564

Omnibus:	27098.671	Durbin-Watson:	1.692
Prob(Omnibus):	0.000	Jarque-Bera (JB):	35470634.390
Skew:	4.772	Prob(JB):	0.00
Kurtosis:	189.734	Cond. No.	2.82e+03

Figure 9. The regression summary of result.

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Figure 9 shows the summary of the regression of the model.

```
regressor=DecisionTreeClassifier()
regressor.fit(X_train,y_train)
score=regressor.score(X_test,y_test)
print(round(score,2)*100,'%')
```

```
64.0 %
```

Figure 10. Display how the model is good.

The figure 10 shows how the model is good with the result of 64%.

```
regscore=cross_val_score(regressor,X,y,cv=40)
print('Cross validation score:{}'.format(regscore))
print('Average Cross validation score:{}'.format(regscore.mean()))
```

```
/usr/local/lib/python3.8/dist-packages/sklearn/model_selection/_split.py:676: UserWarning: The least populated class in y has only 1 members, which is less than n_splits=40.
  warnings.warn(
Cross validation score:[0.65681445 0.64869427 0.63711002 0.68965517 0.61412151 0.63546798
 0.69786535 0.68308703 0.6891954  0.61904762 0.65188834 0.68965517
 0.6683087  0.67980296 0.68472906 0.71921182 0.68881314 0.50246305
 0.68426929 0.58784893 0.63711002 0.6863711  0.57963875 0.66174056
 0.67159278 0.66666667 0.6453202  0.69259924 0.66338259 0.59277504
 0.55756579 0.57565789 0.64144737 0.6875     0.63322368 0.71381579
 0.67269737 0.64473684 0.66940789 0.64802632]
Average Cross validation score:0.6477193792671334
```

```
dot_data=StringIO()
export_graphviz(regressor,out_file=dot_data,filled=True)
graph=pydotplus.graph_from_dot_data(dot_data.getvalue())
```

```
fig=plt.figure(figsize=(25,20))
tree.plot_tree(regressor,filled=True,rounded=True)
plt.show()
```

Figure 11. Validating the model using the kfold.

The figure 11 shows the validation of the model using kfold and displaying the tree decision. Kfold cross-validation is used for model tuning/hyperparameters tuning. K-fold cross-validation involves splitting the data into training and test data sets, applying K-fold cross-validation on the training data set, and selecting the model with the most optimal performance.

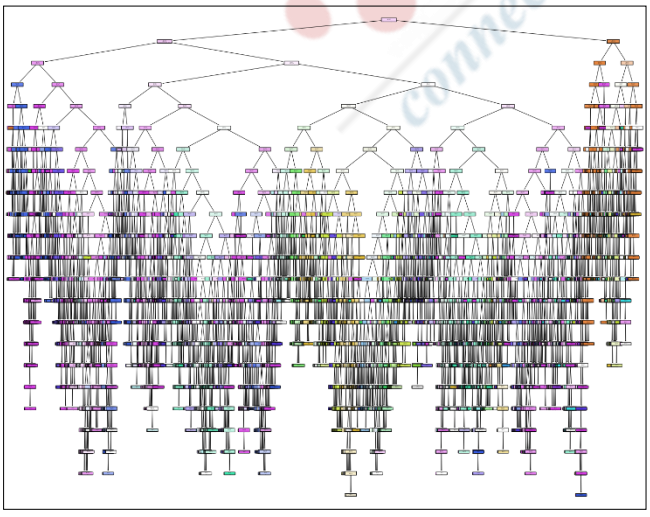

Figure 12. The decision tree analysis graph.

Figure 12 presents the decision tree analysis graph which shows the chance nodes, decision nodes and end nodes.

Users Acceptance and IS Impact Test Result

As assed by the users, the study has its individual impact that has capability to provide impact on the individual which met the stated and implied tasks of users under the specified conditions of usage. The Decision Support System for sales performance, monitoring, and trend analysis has the capability to perform tasks that can input data from the individual users which are the admin, cashier, kitchen and customers account, process information, and produce orders. It has an organizational impact of the decision support system for sales performance, monitoring, and trend analysis. The organization can rely on the system's capability in terms of increasing its performance and productivity, streamlining the process by converting manual to digitized transactions, and eliminating redundant processes. It also produces reports from sales, customer orders, and inventory of products which they agree that it improves the quality and cost of the organization. The System Quality has its capability to provide data accurately. has a feature of forecasting and predictive analysis which can be used for decision-making. The system can run both on web and mobile-based applications which can be access by the owner, manager, cashier, kitchen and the customer. Users can process navigate the system fast without any errors and delays. Further, the study has an Information Quality which meets the needs of each users and provide the business a competitive advantage among other restaurant.

V. CONCLUSION

The system has a great help in the organization it its decision making through the web-based system and mobile-based application that can monitor the sales performance and trend analysis.

VI. RECOMMENDATION

It is recommended that the system will continue to be used to support the needs of the organization. It is recommended that the system can predict the profit performance of the business. Further research study shall be conducted to improve the system.

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