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Predicting Areas of Improvement to Boost Up the Sales Using Data Analysis Techniques

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***Abstract*- This paper gives an overview of Data analysis and how Data analysis is used in Business Intelligence tools and business development. It gives different algorithms and techniques to perform Data analysis and its implementation.**

***Keywords*- Data Analysis, Business Intelligence Tools, Business Development.**

I. INTRODUCTION

Changing market conditions, globalization, increased competition, price pressure and volatility are resulting in a change in market landscape. The rate of technology modification continues at an astonishing pace irreversibly transforming how the business operates. With huge variety of automobiles, changing ownership and usage models together with heightened customer expectations. Industry is on the brink of a revolution.

As the vehicles are being transformed by technologies, applications and services with advances in everything from sensors to AI to big data analysis, the eco system is witnessing new players within the market and also the continuous evolution of the roles by key stake holders.

Analytics permits the information to be united in spite of the format that might carry machine readable data sets or unstructured information. If done right the results are impressive. Setting up and owning an automobile business in striving economic conditions like the one in India is a serious challenge. Also, the pandemic and lockdown across the globe demolished every single sector of the market today. This situation creates a burdensome environment for the business owner and keeps them in a situation where they cannot take up the major decisions to boost up the sale for the business.

According to a blog of spinny.com [18] the coronavirus crisis is expected to cost the Indian Automotive industry an estimated revenue of ₹13,000-15,000 crore. The Indian auto sector earns sales of around ₹ 2,000 crores every day and shutting down the assembly by the manufacturers will lead to a sizeable revenue loss, wherein the annual business of the industry stands at ₹7.8 lakh crore. Additionally, the industry has a contribution of 7.5 percent to India's overall GDP.

Also with the rise in sales of automobiles year by year it becomes tough for the retailers to manage profits and dodge risks. Analysis would help the retailers in many ways as they now like a 360-degree read of their shoppers, while not that, they'll miss competitive edge of the market.

Retailers need to produce effective promotions and offers to satisfy its sales and promoting goals, otherwise they're going to forgo the main opportunities that this market offers. Again, and again it's exhausting for them to grasp the market condition.

Tools and application allows these retailers to use previous year's information for raising forecast and to predict the approaching year's sales. It jointly allows retailers with valuable and analytical insights, especially determining customers with desired products at desired time.

II. DATA ANALYSIS

1. Introduction:
In order to discover useful information for business decision-making, data analysis is characterised as a process of cleaning, transforming and modelling data. The aim of Data Analysis is to derive valuable data from the data and to make decisions based on the analysis of the data.

In our everyday lives, if we make any choice, it is by thinking about what happened last time or what will happen by choosing the specific decision. This is nothing but to evaluate and make choices based on our experience or future. We collect memories of our past or visions of our future for that. So that's nothing but an interpretation of results. Data Analysis is now the same thing an analyst does for business purposes. [1]

2. Why data analysis?
You can use data analysis to decide which types of ads efficiently reach your consumers and create an impact that will make them purchase your goods. Data helps you to understand the most critical effect your product 's promotional strategies have on the target audience and on what scale you should implement such promotional.

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Data analysis also provides you with a rough understanding of potential trends in consumer behaviour that will allow you to make future innovations for your goods. You will manufacture goods and build services that place you on top of your industry in this way.[3] You will retain a sharp edge advantage over your rivals with these developments.

With these inventions, the positive thing is that you can patent them and reap the most from them while staying well ahead of your earnings at the same time.

Each difficulty that emerges in a business can cause a significant stop in the activity of the business which may cause a ton of misfortunes that are awful for the organization. Retail CRM cloud modules can assist you with changing your business. Information examination helps the association to settle on an educated choice on the running regarding the business and giving data that could assist the business with maintaining a strategic distance from any event of misfortune.

The information broke down can be utilized to recognize a glitch in the business framework and the specialized frameworks that show any issue in the quality and amount of creation. You are additionally ready to break down whatever other issues that may emerge accordingly and danger of injury.

There is so much that you can do with data analysis as it simplifies your company's activities and efficiently runs your company. Many cases of losses in companies occur because the people who run them are not well aware of the company's nitty-gritty that will help them to avoid such losses.

The five factors outlined above are sufficient to force you to implement software technology for data analysis to run a better business. [3]

3. Data Analysis Tools:
With an elegantly simple and intuitive method, Tableau democratizes visualization. In company, it is exceptionally powerful because it communicates insights through data visualisation. Although there are great alternatives, the million-row cap of Tableau Public offers a great sandbox for personal use and the free trial is more than long enough to get you hooked.

Open Refine, formerly Google Refine, is a programme for data cleaning that helps you to get anything ready for review. And what do I mean by this? Well, let 's look at an instance. I recently cleaned up a database containing chemical names and found that rows had numerous spellings, capitalization, spaces, etc., which made it very difficult to process a machine.[9]

Fig 1.Date Analysis tool.

III. WORK FLOW

1. Text Input:
In this step, the user gives the input in the form for admin registration or login.

2. Data Input Procedure:
Data is entered into database, the file which is supported here is of .csv format.

3. Data Authorization:
Data entered is authorized by the admin and if data is incorrect: rollback to previous page, else the report is generated o the dashboard.

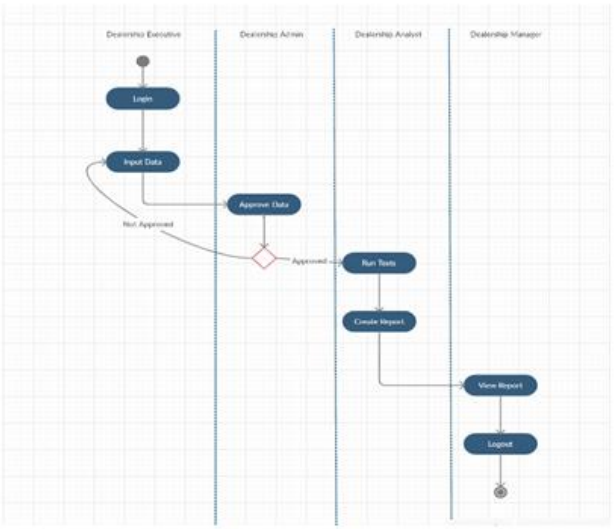

Fig 2. Data entered is authorized.

IV. MODULES

1. Login:
- Email address and password will be checked with the one which is stored in the database.
- We have used mysql.connector library as an interface for connecting to the database.
- For a new user, an option is provided to register for a new account.

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- After successful login user will be redirected to home page, where user can upload, read, or comment their own posts.

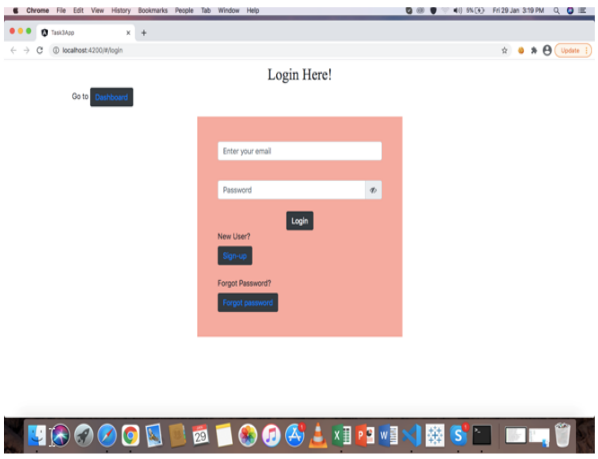

Fig 3. Login Page.

2. Registration:

- User must provide all the details, if any details are missing registration for that account cannot be done.
- Registration cannot be done with the same email address.
- The Password and the Confirm password should be equal.
- After successful registration, user can now log in and proceed to home page.

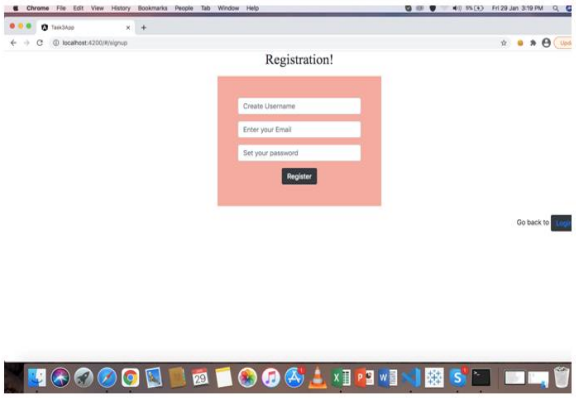

Fig 4. Registration page.

3. Dashboard:

- This page shows the elaborated analysis of the file which the admin uploaded into the database i.e. Report.
- Here user can see results according to the set filters.
- Example: Which is the highest selling vehicle in the particular area.
- On what particular period/day of the month was the sales rocket high and low.
- It also allows user to see sales description of each and every vehicle.

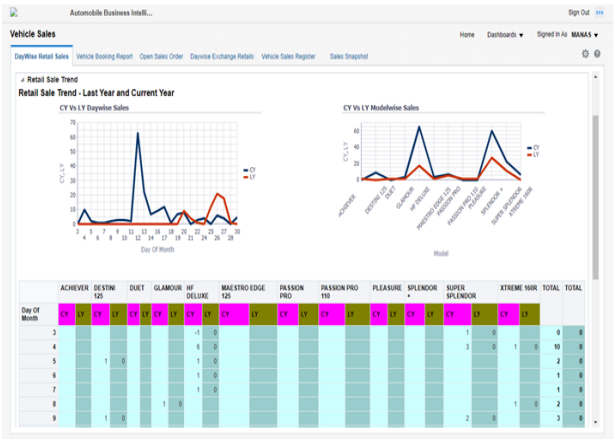

Fig 5. Dashboard Page.

4. Inventory prediction and other features:

- User can see here what all vehicles he have in the inventory and which all are the highest selling so that he can order according to the requirement, this results in no excessive orders and saving more space in the showrom.

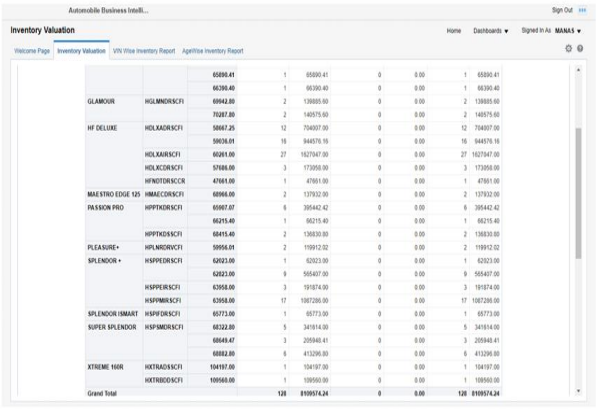

Fig 6. Inventory prediction and other features

Customer follow-up page allows user to take follow-up on the vehicle from the customer, this results in great engagement and satisfaction.

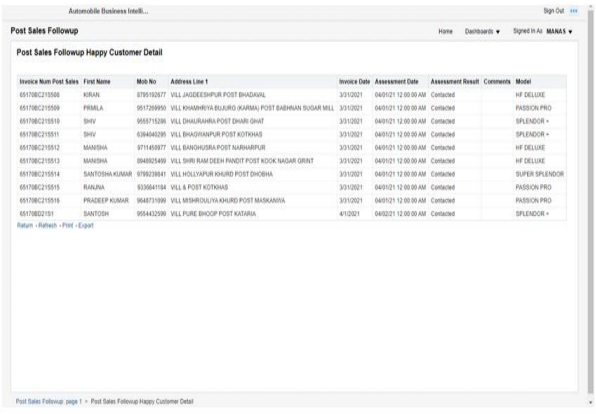

Fig 7. Customer follow-up page.

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V. PROPOSED SYSTEM

To begin, we suggested moving to a new micro services-based architecture for the new BI portal, data migration, and data validation and visualisation tools.

We also embraced the customer's concept of establishing a research and development centre to develop cloud business intelligence tools that could meet end users' ever-changing needs while providing additional business value to the customer and their partners.

The project's main objectives were: Data collection and cleaning automation, Metadata mapping, Assuring the best possible data quality in order to produce reliable analytics and reports, bringing together business and consumer data in a single unified structure, Providing an API for other businesses to use in order to connect their own apps, Present programmes are being extended and improved.

VI. DISCUSSION

Analytics is a business intelligence technique that involves the study of available data to extract meaningful insights and trends. This is a popular BI technique since it lets businesses deeply understand the data they have and drive ultimate value with data-driven decisions.

Integration of Market and Technology is nothing but BI tool. Business Intelligence Tools usually uses data analysis techniques for giving results in the form of visualization. Small dealers can use the BI tool for the growth of their business. This will inculcate the use of technology in the rural India and will reduce the human efforts.

The accuracy of the tool can be determined from the Observed vs Predicted results, although the accuracy is supposed to be high as the data which is being used is previous sales data of the same dealer considering all the external parameters like festivals, climate etc.

VII. CONCLUSION

In the current time, Automobile Industry have witnessed an extreme decline in the sales throughout the country and small dealers located in rural areas are mainly affected in this bizarre condition. The proposed idea will help a major section of the small dealers to align their sales and expectation settings.

The use of technology and business intelligence tool will benefit dealers and will also reduce the work load up to a great extent, where they can use their own previous data to predict the sales, orders and strategies for the upcoming days. Major section of the people still feels uncomfortable using these tools in their business when it comes to Indian Automobile Industry but after all the loss of business during the pandemic the tool is something which all the retailers will prefer and the tool will help them to recuperate.

The use of tool will reduce the cost, time and efforts. The automobile dealers will find a cheap and effective alternative of the expensive tools and services provided by the brand. The ultimate aim is to contribute to digitalization of the industry as well as of the country.

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