GLOBAL SALES DATA ANALYTICS

A PROJECT REPORT

Submitted by

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CHAPTER 1

INTRODUCTION

1.1 PROJECT OVERVIEW

Businesses need to rethink on the modern approaches to better understand the customers to gain a competitive edge in the market. Data is worthless if it cannot be analyzed, interpreted and applied in context. In this work, we have used the Global sales data to create business value by understanding customer intent (sentiment analysis) and business analytics. A picture speaks a thousand words and business analytics would help paint a picture through visualization of data to give the retailers insights on their business. With these insights the businesses can make relevant changes to their strategy for the future to maximize profits and success.

1.2 PURPOSE

- Product Sales Analysis is the company offers many products, then you need to conduct regular product sales analysis to find out the items that are overcrowding your product lining.
- Use OF KPIs and revenue bar charts to look at the product sales overall or in a specific time frame.
- Sales growth shows how much your revenue increases (or decreases) over a specific period.
- To determine sales growth, take the sales total for the current period and subtract the sales total from the previous period.

CHAPTER 2

LITERATURE SURVEY

2.1 EXISTING PROBLEM

- Global sales process is way too long and don’t have enough leads.
- Leads are unqualified and wasting your effort on bad fit prospects.
- Spending too much time on low-value task
- The statement may include workflow bottlenecks, resources challenges or fundamental difficulties such as understanding a customer base
- Identify the key sales metrics you need, such as win rate and average dealsize
- Use a tool to track this data as leads travelthrough your pipeline. Record this data in visual dashboards.

2.2 REFERENCES

DATA-DRIVEN SALES LEADS PREDICTION FOR EVERYTHING AS A SERVICE IN THE CLOUD - 2022

(Chul Sung, Bo Zhang, Chunhui Y. Higgins Yoonsuck Choe)

A cloud platform website, offering a catalog of services, operates under a freemium business model or a free trial business model, aggressively marketing to customers who have previously visited. However, there are several limitations of existing approaches because of the following challenges heavy customer traffic flows, the noise in user behaviors, a lack of collaboration across stakeholders, class imbalanced

Customer data (few paying customers vs. high numbers of freemium or trial customers), and unpredictable business environments. In this paper, we propose a data-driven iterative sales lead prediction framework for cloud everything as a service (XaaS), including a cloud platform or software. In this framework, from the BizDevOps process we collaborate to extract business insights from multiple business stakeholders. From these business insights, we calculate service usage scores using our RFDL (Recency, Frequency, Duration, and Lifetime) analysis and estimate sales lead prediction based on the usage scores in a supervised manner. Our framework adapts to a continuously changing environment through iterations of the whole process, maintains its performance of sales lead prediction, and finally shares the prediction results to the sales or marketing team effectively. A three-month pilot implementation of the framework led to more than 300 paying customers and more than $200K increase in revenue. We expect our scalable, iterative sales lead prediction approach to be widely applicable to online or cloud business domains where there is a constant flux of customer traffic. Cloud services enable businesses to track and analyze customer behaviors more quickly and intelligently. However, to deliver the right data-driven business analytics, instead of just collecting data, we need to understand what data we are going to collect and how customers will use our cloud services. To understand consumer behavior properly, an inter - team collaboration among various stakeholders is critical. The digital marketing

organization within the business conducts user behavior analysis, the data science organization executes a data-driven sales lead analysis, and the sales organization performs the sales lead analysis.

DATA ANALYSIS AND VISUALIZATION OF SALES DATASET USING POWER BI – 2022

(Ms. Sarika Singh , Ms. Lavina Jadhav)

Power BI has completely revolutionized the worlds of business intelligence, data visualization, and analytics. Power BI is an online service that allows users to search for data, transform it, visualize it, and share the reports and dashboards they create with other users in the same or different departments/organizations, as well as the general public. Power BI is used by over 200,000 organizations in 205 countries as of February 2017. Power BI's Quick Insights feature is an innovative feature that is built on a growing set of advanced analytical algorithms. This function may be activated with a single click after uploading a data set to Power BI, and it generates a number of reports depending on the data's analysis without any need for human participation. This also aids in reducing human errors in calculations and statistical techniques, which can lead to research that isn't verifiable. Power BI is simple to use and ready for adoption as a platform for Research Data Analysis, accepting even Excel spreadsheets as input. The pandemic of the corona virus has hastened the

adoption of mobile friendly analytics and business intelligence platforms. Companies all over the world now want their employees and customers to have access to data and analytics from any location. The mobile BI market will be worth more than $20 billion by 2024, according to Mordor Intelligence. Furthermore, mobile devices such as smart phones and tablets are expected to account for more than 72 percent of all internet traffic. As a result, implementing mobile-friendly BI platforms across your organization in 2022 makes even more sense from a business perspective. The purpose of this paper is to show how Power BI can quickly transform a piece of research data into a set of shareable analytical reports and dashboards. We are all always thinking about the future and what is expected to happen in the coming weeks, months, and even years, and in order to do so, a look into the past is required. Businesses must be able to see their development and the factors influencing their sales. In this technological era of large-scale data, organizations must reconsider current techniques to better understand clients in order to achieve a competitive advantage in the market.

IMPLEMENTATION OF BUSINESS INTELLIGENCE FOR SALES DATA MANAGEMENT USING INTERACTIVE - 2021

(Ricky Akbar, Meza Silvana, Mohammad Hafiz Hersyah)

Data Management is one of the crucial processes carried out at XYZ Store to get

information about the sale of products. In carrying out its operational activities, XYZ Store uses the Smile Invent application to manage data on products sales transactions. This application has not been able to assist managers in producing the required reports. Therefore, one way to overcome this problem is by implementing the Business Intelligence (BI) application at the XYZ Store by using Interactive Dashboard Visualization. In implementing the BI application, the BI Roadmap is used as a basis for conducting research starting from the identification of problems to be selected. After that, the planning phase is carried out by evaluating the infrastructure and planning projects. Then the analysis phase focuses on carrying out a detailed analysis of business problems and opportunities from BI implementation. Next is the design phase by carrying out the data warehouse design process and ETL using the Pentaho Data Integration (PDI). Then the implementation phase is carried out, namely the selection and use of BI application tools to perform Data Visualization. It is hoped that this research can produce reports in the form of Interactive Dashboard Visualization that can be used by store managers to make better decisions.

IMPACT OF BIG DATA ANALYTICS ON SALES PERFORMANCE IN PHARMACEUTICAL ORGANIZATIONS: THE ROLE OF CUSTOMER RELATIONSHIP MANAGEMENT CAPABILITIES - 2021

(Muhammad Shahbaz,Changyuan Gao,Lili Zhai,Fakhar Shahzad,Adeel Luqman,Rimsha Zahid)

In this era of technology development, every business wants to equip its salesforce with a sustainable salesforce automation system to improve sales performance and customer relationship management (CRM) capabilities. This study investigates the impact of big data analytics (BDA) on CRM capabilities and the sales performance of pharmaceutical organizations. A research model was tested based on 416 valid responses collected from pharmaceutical companies through a structured questionnaire. Structural equation modeling (SEM) was employed using Smart-PLS3 to confirm the contribution of BDA to improving CRM capabilities and sales performance. The study finds that individual characteristics such as self-efficacy, playfulness, and social norms, along with organizational characteristics such as voluntariness, user involvement, user participation, and management support, are positive predictors of salesforce perception of BDA. This positive perception of BDA increased the person-technology fit in the salesforce, which ultimately increased the CRM capabilities and sales performance. Introduction Current advances in information technology (IT) and the rising trend of social media have changed the way salespersons perform daily routine activities. Most often, the salesforce is equipped with a salesforce automation (SFA) system to enhance customer relationship management (CRM) capabilities and sales performance . SFA systems

are a set of tools that facilitate organization by providing analyzed information from available data to manage customer relationships and sales-related activities . An SFA system provides information regarding customer interactions, inventory control, sales forecasting, sales, communication history, and pipeline opportunities to efficiently achieve day-to-day goals . Organizations annually invest millions of dollars in the implementation of SFA systems to achieve excellent customer relations and sales progress . However, the literature reports that overall, more than 61% of SFA systems fail to meet the current requirements of salesforces.

ANALYSIS OF DRUG SALES DATA BASED ON MACHINNE LEARNING METHODS - 2020

(Mohammed A. Al-Gunaid, Maxim V. Shcherbakov, Alla G. Kravets, Vadim I. Loshmanov, Alexandr M. Shumkin, Vladislav V. Trubitsin and Darya V. Vakulenko)

Currently, a data analysis is inalienable part of basic processes of any big company. Building of model of some process allows forecasting its behavior very accurate in specified conditions. It enables to avoid adverse consequences in case of risks. There are a lot of software packages that implement machine learning methods for forecasting models building exist. The most common and efficient are linear regression, random forest and artificial neural networks. The aim of this article is to

compare the most known forecasting methods by building data analysis models of medications' sales. Precise sales forecasting is an important and inexpensive way to increase in profits. In addition, it allows to decrease influence of risks on basic processes inside the company. According to the results of the built forecast, an opportunity to model the most favorable environment to produce and distribute goods opens. The health of people, who require treatment, depends on timely distribution of medications through sales channels. Strict limitations on marketing campaigns deprive pharmaceutical distributors of main mechanism of influence on purchasing power of one or the other manufactured and distributed production. In such conditions, it is important to find another ways to increase in profits. One of that ways is optimization of pharmaceutical preparations distribution. Given approach affects not only an amount of revenue, received by distributors, but also decreases probability of a lack of medications in medical institutions and pharmacies. The implementation of such like approach is the forecasting of sales taking into account medication distribution influential factors in market conditions.

PERFORMANCE ANALYSIS OF SALES BIG DATA PROCESSING USING HADOOP AND HIVE IN CLOUD ENVIRONMENT - 2020

(Hanindia Prami Swari, Kadek Susila Satwika,Putu Susila Handika)

Nowadays, big data gains much attention from academics and IT industries. This is

due to the extraordinary current growth of data that must be accompanied by a variety of qualified data storage and processing techniques to overcome the 5 V's challenge of big data. This research is aimed to conduct a performance analysis of big data processing. The sales data will be processed in a parallel scheme on the cloud server and then managed using Hadoop and hive. The research shows that the more VMs used, the lower processing time needed, but this is inversely proportional to the CPU time required. Whereas, from the side of block size testing the research result shows that the decrease in the time of query execution is very visible by the change in the use of block size from 2MB to 4MB and 8MB, but the change in the blocksize size from 4MB to 8MB does not significantly affect the speed of query execution. The growth of data is increasing rapidly day by day due to the rapidly increasing population, sensors usage, use of social media, the gains on IoT project etc. Many datasets have specific degree of heterogeneity in types, structures, semantics, organizations, granularity, and also accessibility. Data representation is an important part in big data, - and it aims to make data more useful for the analysis with computer and the understanding of users. Through the presence of IoT, cloud computing and Artificial Intelligence, corporation generates more data than ever before. The existence of internet and social media contributes to causing situations to disconcert significantly. Every second, approximately 6.000 tweets on average are tweeted on Twitter. This means that over 350.000 tweets sent every minute, there are 500 million

tweets sent in a day and approximately 200 billion tweets sent every year.In almost all organizations, the usage of applications and web servers are generating an overwhelming amount of data logs.

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organizations, granularity, and also accessibility. Data representation is an important part in big data, - and it aims to make data more useful for the analysis with computer and the understanding of users. Since several decades ago, the growth of data generated and stored to meet business needs in the corporate has developed rapidly. Through the presence of IoT, cloud computing and Artificial Intelligence, corporation generates more data than ever before. The existence of internet and social media contributes to causing situations to disconcert significantly. Every second, approximately 6.000 tweets on average are tweeted on Twitter. This means that over 350.000 tweets sent every minute, there are 500 million tweets sent in a day and approximately 200 billion tweets sent every year. In almost all organizations, the usage of applications and web servers are generating an overwhelming amount of data logs. Besides, a large number of other systems also contribute to enterprise data growth. Facebook, WhatsApp, and other social media have the same velocity. With such a huge amount of information, corporations need a system that is capable of processing process a huge volume of data and producing valuable insights. The "big data" construct is not only about the novelty of data and technology, but is also concerning a new frame of mind Big data projects have become an inseparable part of a business. Nevertheless, it does not mean that big data is easy to build, let alone to manage. The rapid increase in the size of data and the diversity of the data form is a challenge on data acquisition, storage, management and analysis. Traditional

database schemes relying on data storage methods with a relational based approach (RDMS) will certainly not be able to overcome this problem. It can happen because RDBMS is only able to store and manage structured data, whereas if we talk about big data, this will be related to a very large amount of data and heterogeneity of big data. In addition, RDBMSs are increasingly utilizing more and more expensive hardware Researchers have conducted various studies to find solutions to this problem from various perspectives. The relationship between big data technology and computing technology is very close, in that the cloud is a solution to the limitations in the provision of physical servers for companies that are not focused on IT. The main purpose of cloud computing is to allow the use of large computing resources.

RESEARCH ON REFINED SALES MANAGEMENT, DATA ANALYSIS AND FORECASTING UNDER BIG DATA - 2020

(Wenhui Shan)

This article analyzes the key points of refined sales management under big data. The main points of sales management include how to establish a sales management organization, how to improve the sales management information system, how to improve the evaluation management system, and how to strengthen internal sales control. Combining the key points of data analysis under big data, the author studies the establishment of data warehouse, data cleaning and mining, the establishment of data prediction models, and the arrangement of model analysis results. The purpose

of this article is to help people give full play to the advantages of big data technology applications and promote the healthy development of the enterprise economy. In the context of the rapid improvement of social and economic levels, the number of products produced by enterprises is increasing, and the frequency of product updates is also rapidly increasing. However, there are big differences in product quality at the application stage. In the era of diversification, it is difficult to achieve sales growth by relying solely on technological innovation. After the transformation of the enterprise, the application advantages of big data technology are used to carry out refined management of the entire sales link. At the same time, doing a good job of data analysis and forecasting can not only reduce the cost of product sales, but also increase product sales and accelerate the economic development of enterprises.

DATA ANALYSIS AND VISUALIZATION OF SALES DATA - 2019

(Kiran Singh, Rakhi Wajgi)

Data is being generated very rapidly due to increase in information in everyday life. Huge amount of data get accumulated from various organizations that is difficult to analyze and exploit. Data created by an expanding number of sensors in the environment such as traffic cameras and satellites, internet activities on social networking sites, healthcare database, government database, sales data etc., are example of huge data. Processing, analyzing and communicating this data are a challenge. Online shopping websites get flooded with voluminous amount of sales

data every day. Analyzing and visualizing this data for information retrieval is a difficult task. Therefore a system is required which will effectively analyze and visualize data. This paper focuses on a system which will visualize sales data which will help users in applying intelligence in business, revenue generation, and decision making, managing business operation and tracking progress of tasks. Data visualization is a process which aims to communicate data effectively and clearly to the user through graphical representation. Effective and efficient data visualization is the key part of the discovery process. It is the intermediate between the human intuition and quantitative context of the data, thus an essential component of the scientific path from data into knowledge and understanding. It is a powerful new technology having a great potential to help researchers as well as companies for building revenue decision.

WALMART'S SALES DATA ANALYSIS- A BIG DATA ANALYTICS PERSPECTIVE - 2019

(Manpreet Singh, Bhawick Ghutla, Reuben Lilo Jnr, Aesaan F S Mohammed, Mahmood A Rashid)

Information technology in this 21st century is reaching the skies with large scale of data to be processed and studied to make sense of data where the traditional approach is no more effective. Now, retailers need a 360-degree view of their consumers, without which, they can miss competitive edge of the market. Retailers have to create

effective promotions and offers to meet its sales and marketing goals, otherwise they will forgo the major opportunities that the current market offers. Many times it is hard for the retailers to comprehend the market condition since their retail stores are at various geographical locations. Big Data application enables these retail organizations to use prior year's data to better forecast and predict the coming year's sales. It also enables retailers with valuable and analytical insights, especially determining customers with desired products at desired time in a particular store at different geographical locations. In this paper, we analysed the data sets of world's largest retailers, Walmart Store to determine the business drivers and predict which departments are affected by the different scenarios (such as temperature, fuel price and holidays) and their impact on sales at stores' of different locations. We have made use of Scala and Python API of the Spark framework to gain new insights into the consumer behaviours and comprehend Walmart's marketing efforts and their data-driven strategies through visual representation of the analyzed data.000 We all are constantly thinking about the future and what is expected to happen in the coming weeks, months and even years, and to be able to do so, a look at the past is mandatory. Business needs to be able to see their progress and the factors affecting their sales. In this technological era of large scale data, businesses need to rethink on the modern approaches to better understand the customers to gain a competitive edge in the market. Data is worthless if it cannot be analysed, interpreted and applied in context.

In this work, we have used the Walmart's sales data to create business value by understanding customer intent (sentiment analysis) and business analytics. A picture speaks a thousand words and business analytics would help paint a picture through visualization of data to give the retailers insights on their business. With these insights the businesses can make relevant changes to their strategy for the future to maximize profits and success. Most of the raw data, particularly large scale datasets do not offer value in its unprocessed state. By applying the right set of tools, we can pull powerful insights from this stockpile of bits. The main focus here is to read and analyse the Walmart's avail-able datasets to produce insights and the company's overall overview. The retail stores sell products and gain profit from it.There are a lot of subsidiaries of the stores network which are scattered on various geographical locations. As the network of stores is huge and located at different geographical locations, the company would not fully understand the customer needs and market potentials at these various locations. In this work, we used the gathered store sales datasets of Walmart to understand the factors affecting the sales for example, the un-employment rate, fuel prices, temperature and holidays in the different stores located at different geographical locations so that the resources can be managed wisely to maximize on the returns. These insights can help retailers comprehend market conditions of the various factors affecting sales for example Easter holiday would induce a spike in sales and retailers can better allocate resources (supply of goods and

human resources). Thus, customer demands are observed accordingly based on the above factors. Moreover, the big data application enables retailers to use historical dataset to better observe the supply chain, then a clear picture can be obtained about a particular store whether they are making profit or are under loss.

2.3 Problem Statement definition:

A problem statement is a concise description of the problem or issues a project seeks to address. The problem statement identifies the current state, the desired future state and any gaps between the two. A problem statement is an important communication tool that can help ensure everyone working on a project knows what the problem they need to address is and why the project is important.

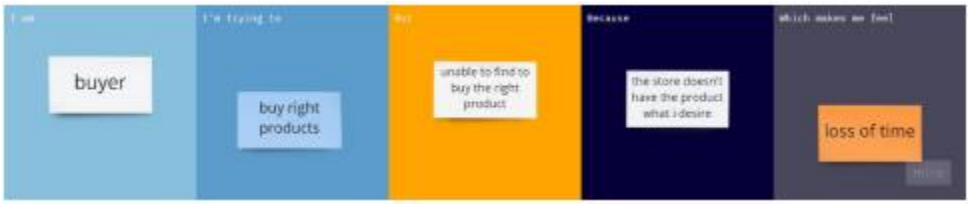


Fig 2(a). Buyer Statement

CHAPTER 3

IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS

An empathy map is a collaborative tool teams can use to gain a deeper insight into their customers. Much like a user persona, an empathy map can represent a group of users, such as a customer segment. Reasons for using Empathy map,

- Diving into the customer segments of a business model canvas.
- Elaborating on user personas.
- Capturing behaviors when interviewing a customer.
- Building out the “user” in a user story.

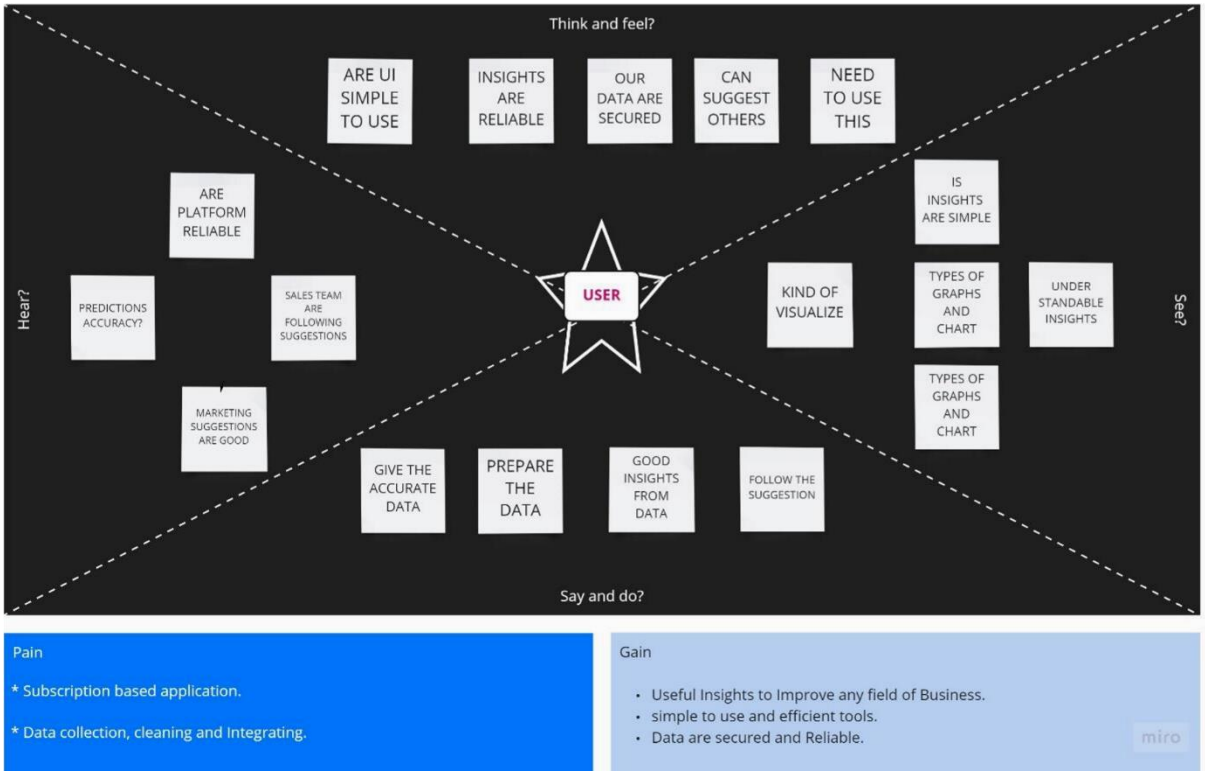


Fig 3(a). Empathy Map

3.2 IDEATION & BRAINSTORMING

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

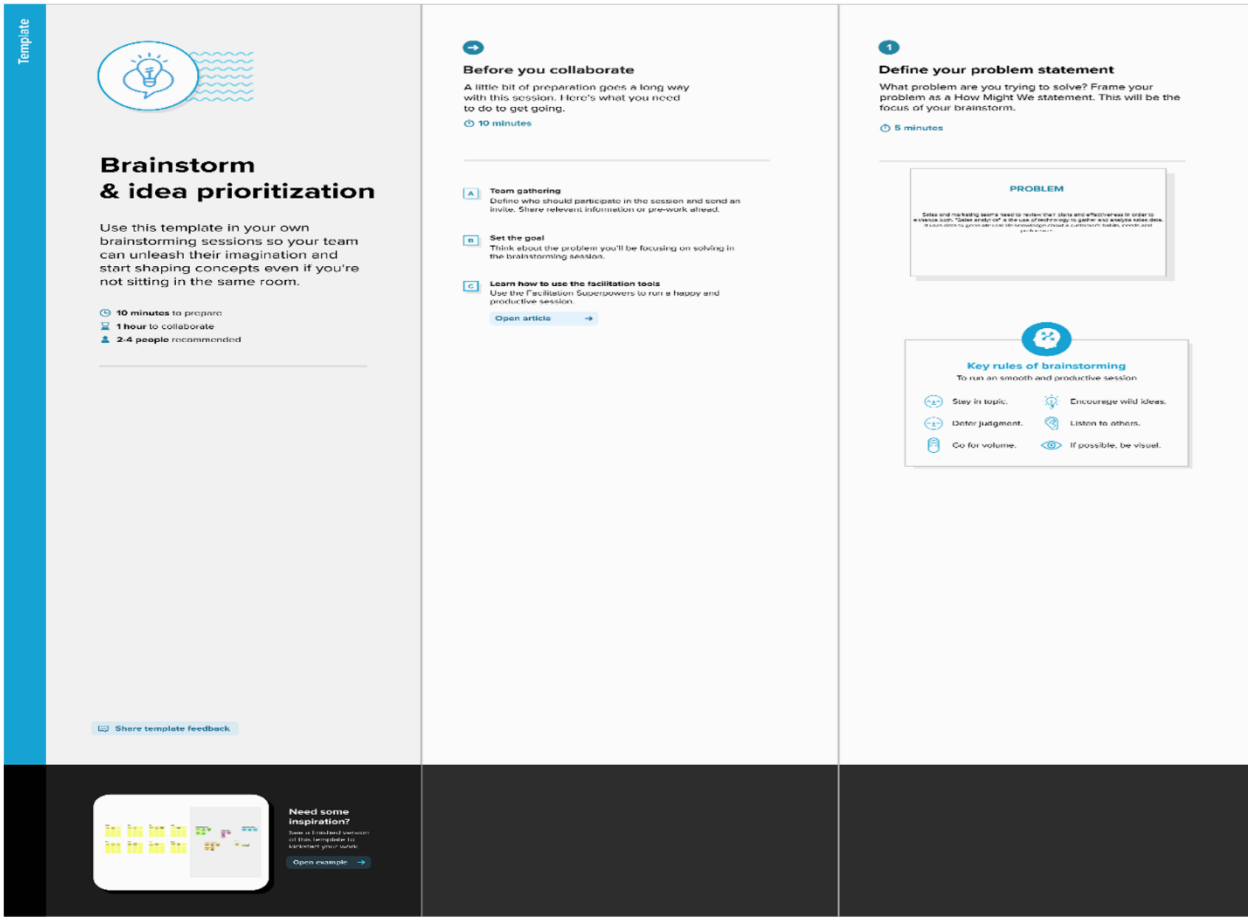


Fig 3(b). Team Gathering, Collaboration and Select the Problem Statement

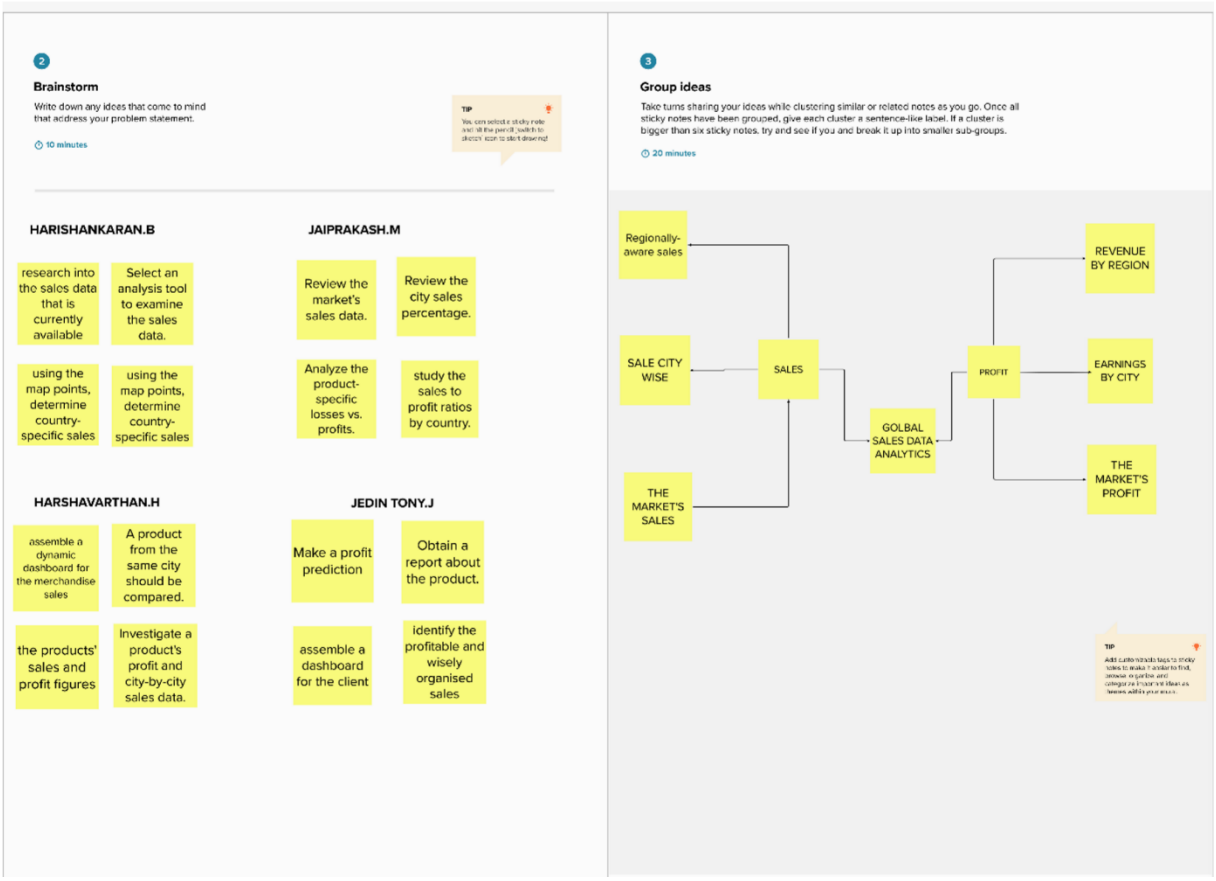


Fig 3(c). Brainstorm, Idea Listing and Grouping

3.3 PROPOSED SOLUTION

Identifying possible solutions is part of logical problem-solving and it is an important strategy in proposal writing. Proposing a solution may not seem obvious or feasible to the decision-makers to whom the proposal is addressed, so it's good strategy on your part to show that you've considered many possibilities before choosing one. Proposed solution should offer solution specifically, with enough detail so that the client/customer understands exactly what you're proposing. Indicate how your proposed solution will solve the problem and provide tangible benefits.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To solve the huge problem of predicting potential customers and enhancing sales.
2.	Idea / Solution description	The solution to this problem is to analyze the previous sales data and generate an plan to increase the company's revenue.
3.	Novelty / Uniqueness	It was implemented using KPI's like Lead-to Sale %, Average Cost Per Lead, and Average lead response time.
4.	Social Impact / Customer Satisfaction	The various impacts of the application are to maintain the high customer rate, Increase sales, and Improve process-driven and Easy implementation.
5.	Business Model (Revenue Model)	To use this application on a subscription basis. Monthly or yearly subscription plans can be provided.
6.	Scalability of the Solution	Easy highly scalable applications can be deployed with help of cloud services. Making a website or app of this application is scaled and available to everyone.

3.4 PROBLEM SOLUTION FIT

The Problem-Solution Fit canvas is based on the principles of Lean Startup, LUM (Lazy User Model) and User Experience design. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why. It is a template to help identify solutions with higher chances of solution adoption, reduce time spent on testing and get a better overview of the current situation. It helps you to

- Solve complex problems in a way that fits the state of your customers.
- Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- Sharpen your communication and marketing strategy with the right triggers and messaging.
- Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- Understand the existing situation in order to improve it for your target group.

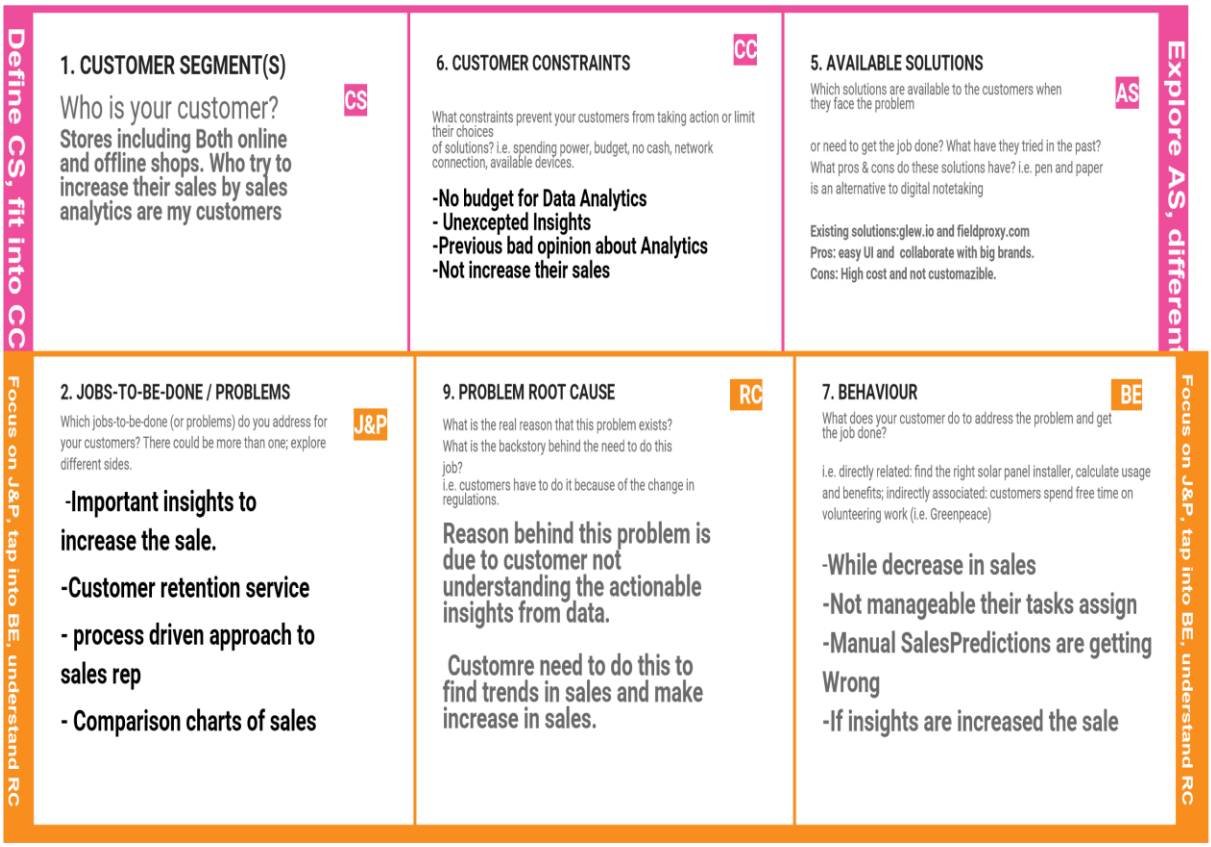


Fig 3(d). Problem Solution Fit

CHAPTER 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

Functional requirements are product features or functions that developers must implement to enable users to accomplish their tasks. So, it's important to make them clear both for the development team and the stakeholders. Generally, functional requirements describe system behavior under specific conditions.

FR No.	**Functional Requirement (Epic)**	**Sub Requirement (Story / Sub-Task)**
FR-1	Store Registration	Registration through Form Registration through Gmail Registration through Store Name
FR-2	Store Confirmation	Confirmation via Email
FR-3	Free Trial Access	Need to add card Details
FR-4	Subscription Plan	Choose the preferred plan
FR-5	Data Upload and Preparation	Upload the store-prepared data. Confirm the data Uploaded with the message. Cleaning the outliers, duplication and void data
FR-6	Useful Insights Dashboard	UI shows useful Insights to improve the sales Dashboard for Store includes Sale-products, Customer Interest, category wise sales, and Useful insight to improve sales.

4.2 NON-FUNCTIONAL REQUIREMENT

Non-functional requirements, not related to the system functionality, rather define how the system should perform.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	To suggest very good insights and simplify the Dashboard to understand the products easily.
NFR-2	**Security**	To provide secured storage for their sales data Uploaded, login, and store details that are used.
NFR-3	**Reliability**	A robust type of application can be deployed to ensure reliability.
NFR-4	**Performance**	Application can be available 24 hours a day anywhere and without delay.
NFR-5	**Availability**	It must be available to all users both who accessed the subscription and the free trial.
NFR-6	**Scalability**	Deployed application must be scalable to support the n number of users and data uploaded.

CHAPTER 5

PROJECT DESIGN

5.1 DATA FLOW DIAGRAM

A data flow diagram (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the routes between each destination.

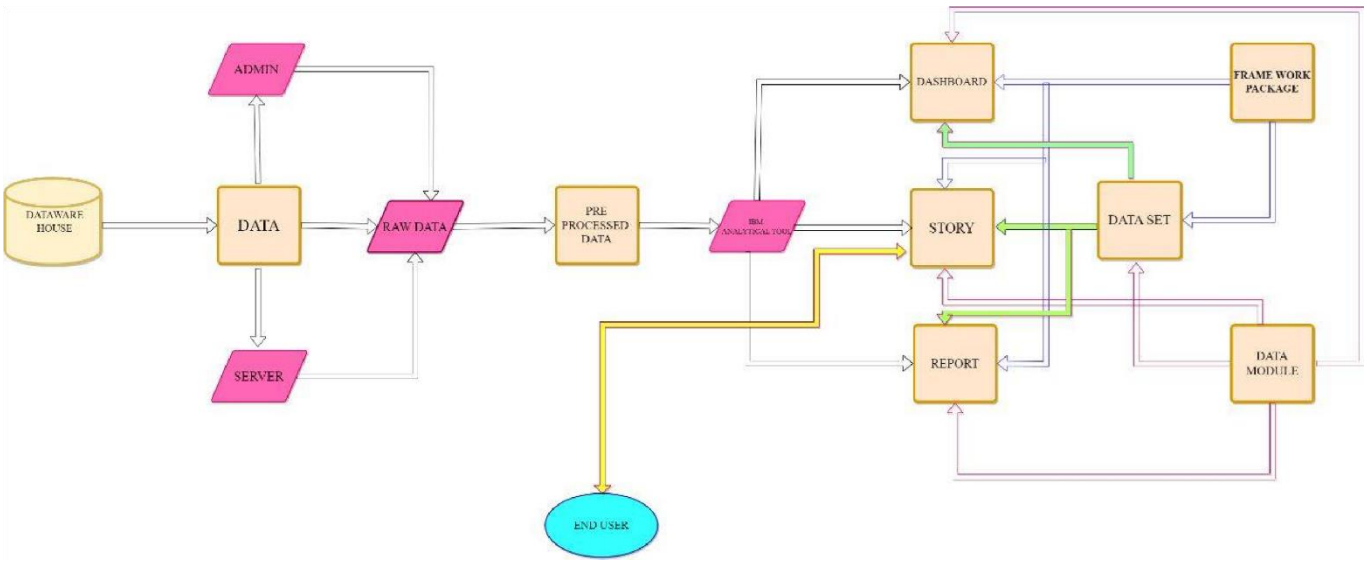


Fig 5(a). Data Flow

5.2 SOLUTION AND TECHNICAL ARCHITECTURE

Solution architecture is the building block for an overall enterprise software solution that addresses specific problems and requirements. Solution architecture addresses various solution needs, keeping the business context intact. It specifies and documents technology platforms, application components, data requirements, resource requirements, and many important non-functional requirements such as scalability, reliability, performance, throughput, availability, security, and maintainability.

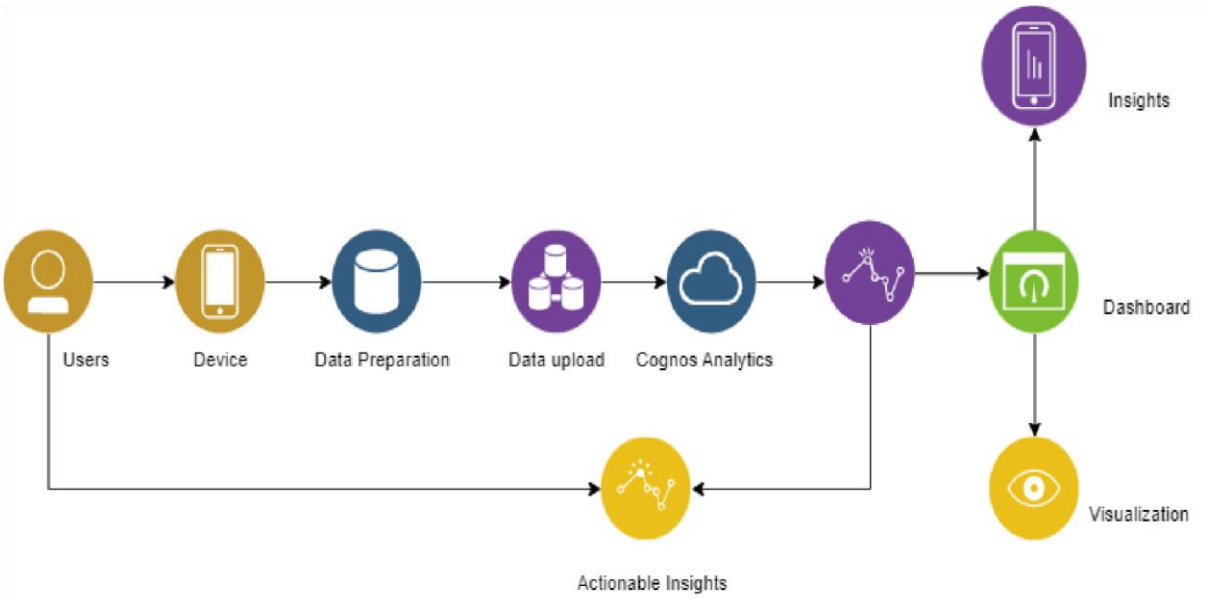


Fig 5(b). Architecture Diagram

5.3 USER STORIES

A user story is a tool used in agile software development to capture a description of a software feature from an end-user perspective. A user story describes the type of user, what they want and why. Requirements always change as teams and customers learn more about the system as the project progresses. It's not exactly realistic to expect project teams to work off a static requirements list and then deliver functional software months later. With user story approach, we replace big upfront design with a "just enough" approach. User stories reduce the time spent on writing exhaustive documentation by emphasizing customer-centric conversations. Consequently, user stories allow teams to deliver quality software more quickly, which is what customers prefer.

Sprint	Functional Requirement (Epic)	User Story No.	User Story / Task	Story Points	Priority	Team Members
Sprint 1	Registration	USN-1	As a user, I can register for the application.	8	High	2
Sprint 1	User Confirmation	USN-2	As a user, I will receive confirmation email after registering.	6	High	1
Sprint 2	Login	USN-3	As a user, I can log into the application.	6	High	1
Sprint 2	User Authentication	USN-4	As an admin , I need to authenticate the user	6	Medium	1
Sprint 1	Dashboard	USN-5	As a User, I need to upload the data	6	High	2
Sprint 3	File type Constraint	USN-6	As an admin, I need to set constraints to files uploaded	4	Medium	3
Sprint 4	Visualization charts	USN-7	In dashboard graphs and piecharts used to show analysis	12	Medium	2

Sprint	Functional Requirement (Epic)	User Story No.	User Story / Task	Story Points	Priority	Team Members
Sprint 3	Filter type Option	USN-8	Filter option to include filter for every graph	4	Low	2
Sprint 2	ML model	USN-9	As an admin , I need to train the model	8	High	4
Sprint 3	Insights from ML model	USN-10	Model need to do sales prediction and give Insights	6	Medium	4
Sprint 3	User Interface	USN-11	Insights are displayed in UI to the user	6	High	2
Sprint 4	Log out	USN-12	As a user, need to logout the system	8	Low	1

CHAPTER 6

PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

Sprint	Functional Requirement (Epic)	User Story No.	User Story / Task	Story Points	Priority	Team Members
Sprint 1	Registration	USN-1	As a user, I can register for the application.	8	High	2
Sprint 1	User Confirmation	USN-2	As a user, I will receive confirmation email after registering.	6	High	1
Sprint 2	Login	USN-3	As a user, I can log into the application.	6	High	1
Sprint 2	User Authentication	USN-4	As an admin , I need to authenticate the user	6	Medium	1
Sprint 1	Dashboard	USN-5	As a User, I need to upload the data	6	High	2
Sprint 3	File type Constraint	USN-6	As an admin, I need to set constraints to files uploaded	4	Medium	3

Sprint	Functional Requirement (Epic)	User Story No.	User Story / Task	Story Points	Priority	Team Members
Sprint 4	Visualization charts	USN-7	In dashboard graphs and piecharts used to show analysis	12	Medium	2
Sprint 3	Filter type Option	USN-8	Filter option to include filter for every graph	4	Low	2
Sprint 2	ML model	USN-9	As an admin , I need to train the model	8	High	4
Sprint 3	Insights from ML model	USN-10	Model need to do sales prediction and give Insights	6	Medium	4
Sprint 3	User Interface	USN-11	Insights are displayed in UI to the user	6	High	2
Sprint 4	Log out	USN-12	As a user, need to logout the system	8	Low	1

6.2 SPRINT DELIVERY SCHEDULE

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint2	20	6 Days	31 Oct 2022	05 Nov 2022	20	4 Nov 2022
Sprint3	20	6 Days	07 Nov 2022	12 Nov 2022	20	10 Nov 2022
Sprint4	20	6 Days	14 Nov 2022	19 Nov 2022	20	12 Nov 2022

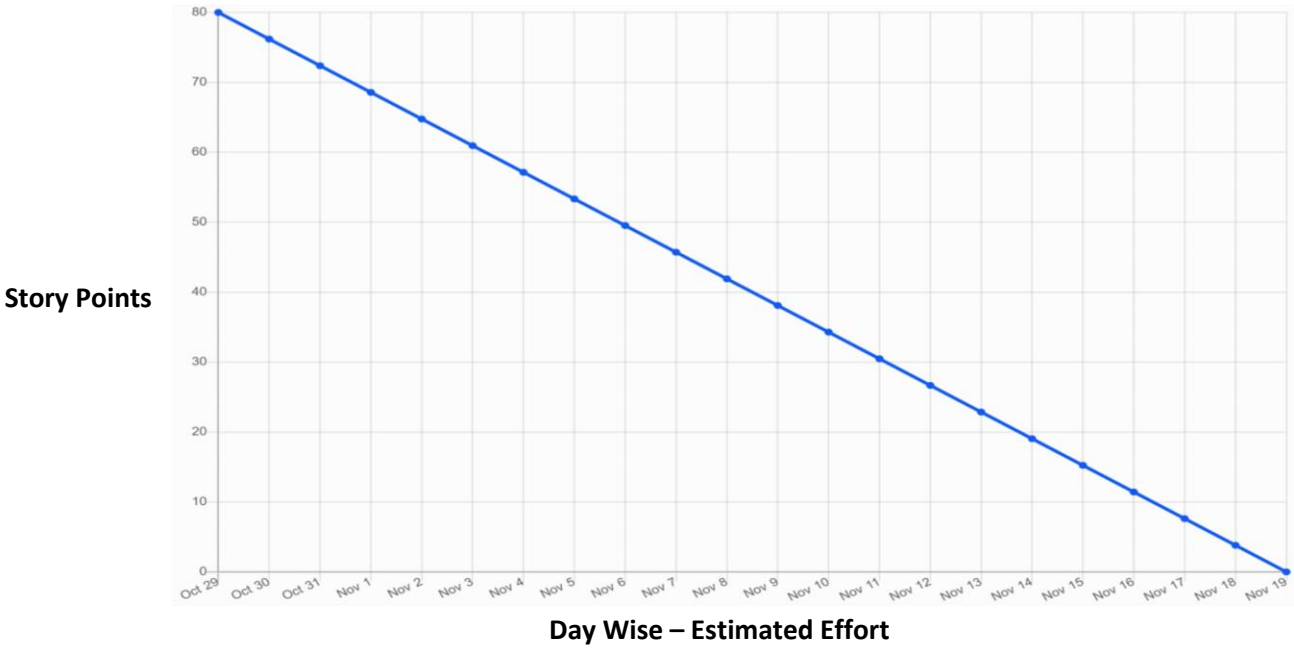


Fig 6(a). Burntdown Chart – Estimated Effort

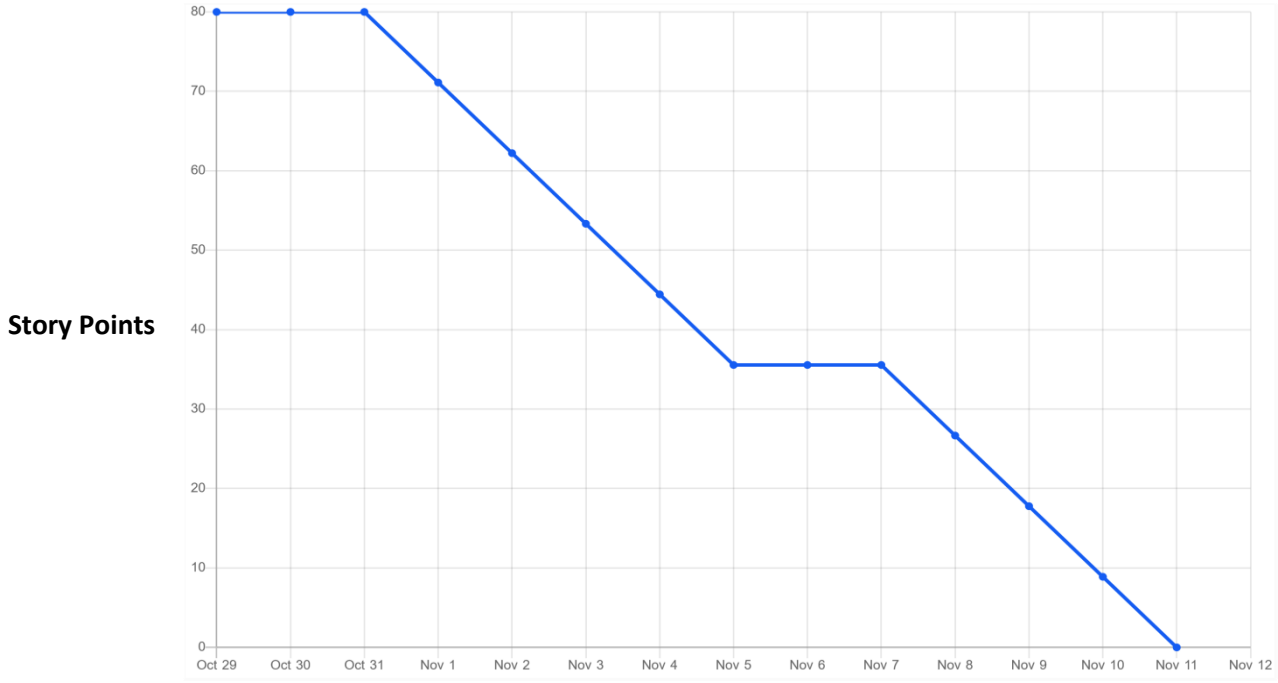


Fig 6(b). Burntdown Chart – Actual Effort

6.3 REPORTS FROM JIRA

BACKLOG

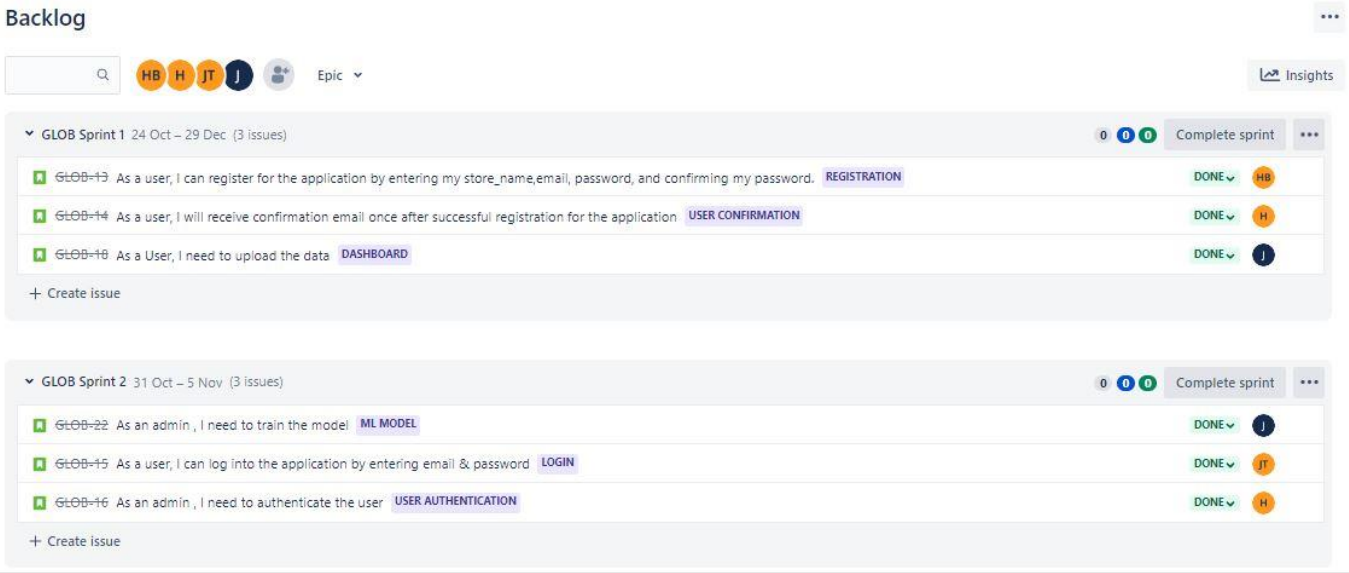


Fig 6(c). Backlog – Sprint 1&2

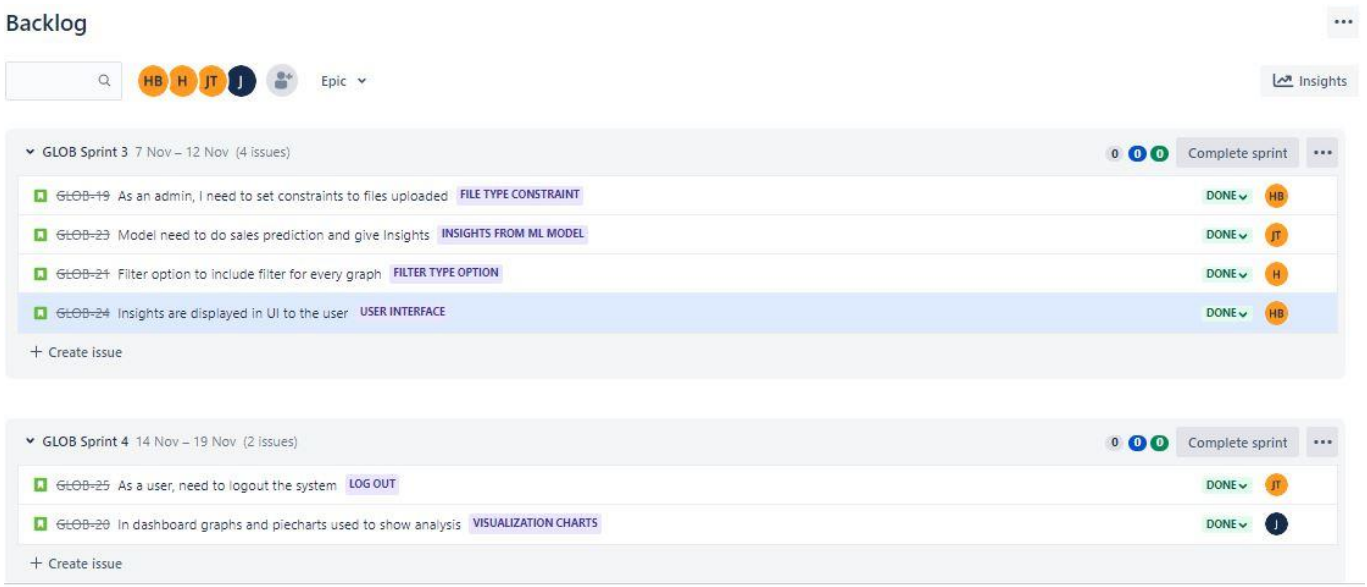


Fig 6(d). Backlog – Sprint 3&4

Road Map:

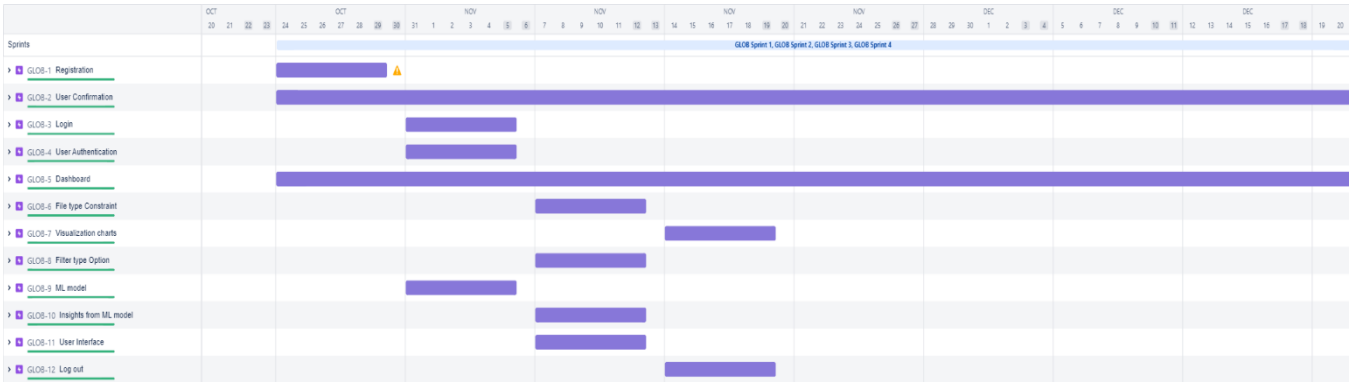


Fig 6(e). Roadmap 1

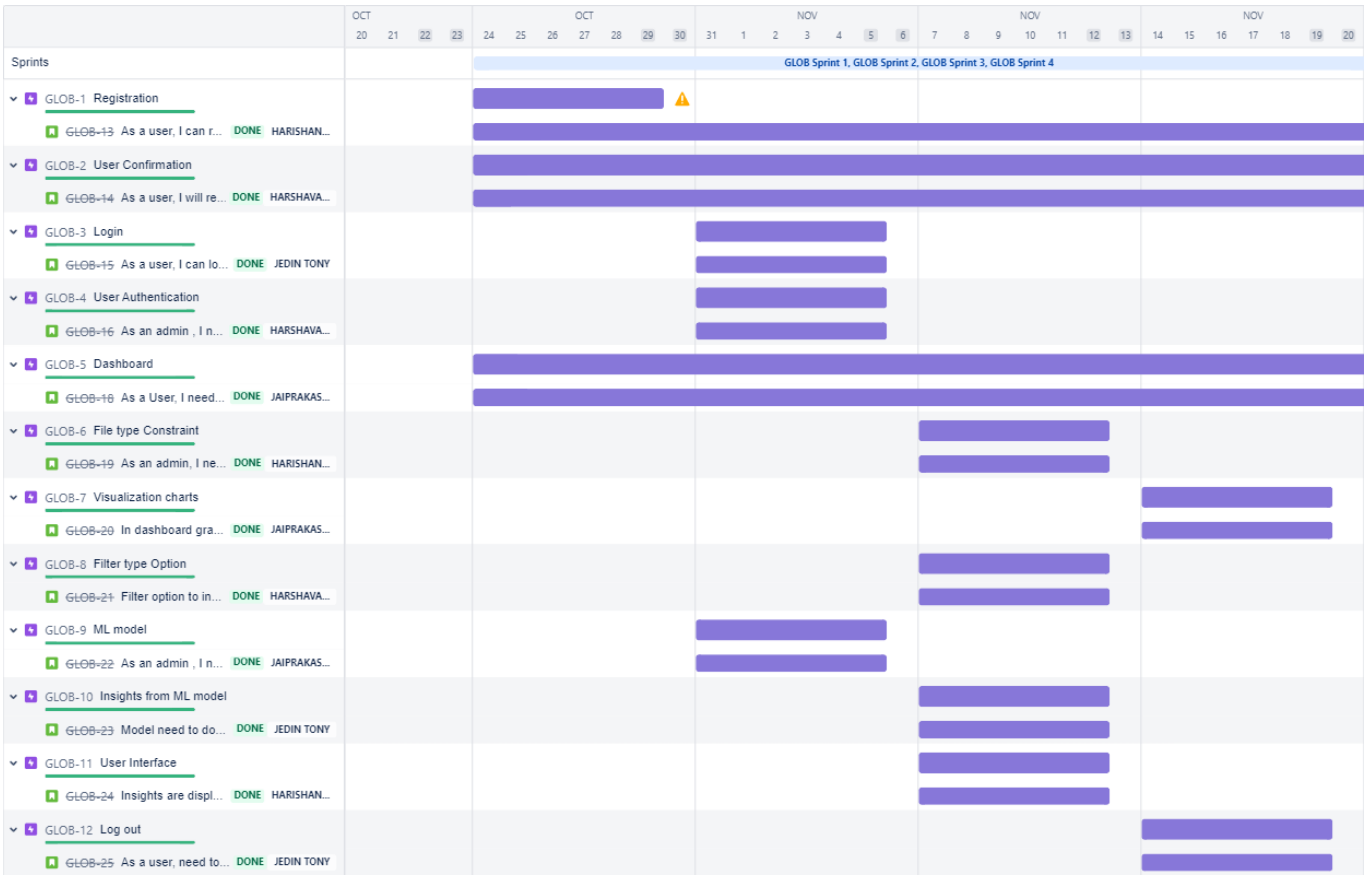


Fig 6(f). Roadmap 2

CHAPTER 7

CODING & SOLUTION

7.1 FEATURE 1

CODING

```
import pandas
import plotly.express as px
import streamlit as st
import warnings

warnings.filterwarnings("ignore")


st.set_page_config(page_title="Sales Dashboard", page_icon=":chart:", layout="wide")
placeholder = st.empty()
placeholder.info("To make Your Difficult sales data Easy to Visualize")


# ---- READ EXCEL ----
file = st.file_uploader(label="CSV or XLSL File", type=['csv','xlsx'])
@st.cache

def get_data_from_excel():
    df = pd.read_excel(
        io = file,
        engine="openpyxl",
        sheet_name="Sales",
        skiprows=3,
        usecols="B:R",
        nrows=1000,
    )
    # Add 'hour' column to dataframe
    df["hour"] = pd.to_datetime(df["Time"], format="%H:%M:%S").dt.hour
    return df

df = get_data_from_excel()

# SIDEBAR
st.sidebar.header("APPLY FILTERS:")
st.markdown("""---""")
city = st.sidebar.multiselect(
    "PICK A CITY:",
    options=df["City"].unique(),
    default=df["City"].unique()
)
```

```
customer_type = st.sidebar.multiselect(
    "PICK A CUSTOMER_CATEGORY:",
    options=df["Customer_type"].unique(),
    default=df["Customer_type"].unique(),
)

gender = st.sidebar.multiselect(
    "PICK A GENDER:",
    options=df["Gender"].unique(),
    default=df["Gender"].unique()
)

quantity = st.sidebar.multiselect(
    "PURCHASED QUANTITY:",
    options=df["Quantity"].unique(),
    default=df["Quantity"].unique()
)

rating = st.sidebar.multiselect(
    "RATINGS:",
    options=df["Rating"].unique(),
    default=df["Rating"].unique()
)

df_selection = df.query(
    "City == @city & Customer_type == @customer_type & Gender == @gender &  Quantity == 
)

# ---- MAINPAGE ----
st.title(":chart: Sales Analysis Dashboard ")
st.markdown("##")

# TOP KPI's
total_sales = int(df_selection["Total"].sum())
average_rating = round(df_selection["Rating"].mean(), 1)
star_rating = ":star:" * int(round(average_rating, 0))
average_sale_by_transaction = round(df_selection["Total"].mean(), 2)

left_column, middle_column, right_column = st.columns(3)
with left_column:
    st.subheader("Total Sales:")
    st.subheader(f"IND {total_sales:,}")
```

```
with middle_column:
    st.subheader("Average Star Rating:")
    st.subheader(f"{average_rating} {star_rating}")
with right_column:
    st.subheader("Average Sales Per Customer:")
    st.subheader(f"IND {average_sale_by_transaction}")

st.markdown("""---""")



# SALES BY PRODUCT LINE
sales_by_product_line = (
    df_selection.groupby(by=["Product line"]).sum()[["Total"]].sort_values(by="Total")
)
fig_product_sales = px.bar(
    sales_by_product_line,
    x="Total",
    y=sales_by_product_line.index,
    orientation="h",
    title="<b>SALES BY PRODUCTS</b>",
    color_discrete_sequence=["#b80012"] * len(sales_by_product_line),
    template="plotly_white",
)
fig_product_sales.update_layout(
    plot_bgcolor="rgba(0,0,0,0)",
    xaxis=(dict(showgrid=True))
)

# SALES BY HOUR
sales_by_hourly = df_selection.groupby(by=["hour"]).sum()[["Total"]]
fig_hourly_sales = px.bar(
    sales_by_hourly,
    x=sales_by_hourly.index,
    y="Total",
    title="<b>SALES BY TIME</b>",
    color_discrete_sequence=["#0083B8"] * len(sales_by_hourly),
    template="plotly_white",
)
fig_hourly_sales.update_layout(
    xaxis=dict(tickmode="linear"),
    plot_bgcolor="rgba(0,0,0,0)",
    yaxis=(dict(showgrid=False)),
)
```

```
left_column,right_column = st.columns(2)
left_column.plotly_chart(fig_hourly_sales, use_container_width=True)
right_column.plotly_chart(fig_product_sales, use_container_width=True)

st.markdown("""---""")

# SALES BY QUANTITY
sales_by_cogs= (
    df_selection.groupby(by=["Quantity"]).sum()[["Total"]].sort_values(by="Total")
)
fig_cogs_sales = px.bar(
    sales_by_cogs,
    x=sales_by_cogs.index,
    y="Total",
    orientation="h",
    title="<b>SALES BY QUANTITY</b>",
    color_discrete_sequence=["#26a541"] * len(sales_by_cogs),
    template="plotly_white",
)
fig_cogs_sales.update_layout(
    plot_bgcolor="rgba(0,0,0,0)",
    xaxis=(dict(showgrid=True))
)

# HIGH RATED PRODUCTS
sales_by_units = df_selection.groupby(by=["Product line"]).sum()[["Rating"]]
fig_units_sales = px.bar(
    sales_by_units,
    x=sales_by_units.index,
    y="Rating",
    title="<b>HIGH RATED PRODUCTS</b>",
    color_discrete_sequence=["#ff4343"] * len(sales_by_units),
    template="plotly_white",
)
fig_units_sales.update_layout(
    xaxis=dict(tickmode="linear"),
    plot_bgcolor="rgba(0,0,0,0)",
    yaxis=(dict(showgrid=True)),
)

left_bottom_column,right_bottom_column=st.columns(2)
```

```
left_bottom_column.plotly_chart(fig_cogs_sales, use_container_width=True)
right_bottom_column.plotly_chart(fig_units_sales, use_container_width=True)
```

```
# ---- HIDE STREAMLIT STYLE ----
hide_st_style = """
            <style>
            #MainMenu {visibility: hidden;}
            footer {visibility: hidden;}
            header {visibility: hidden;}
            </style>
            """
st.markdown(hide_st_style, unsafe_allow_html=True)
```

7.2 FEATURE 2

VISUALIZATION CHARTS

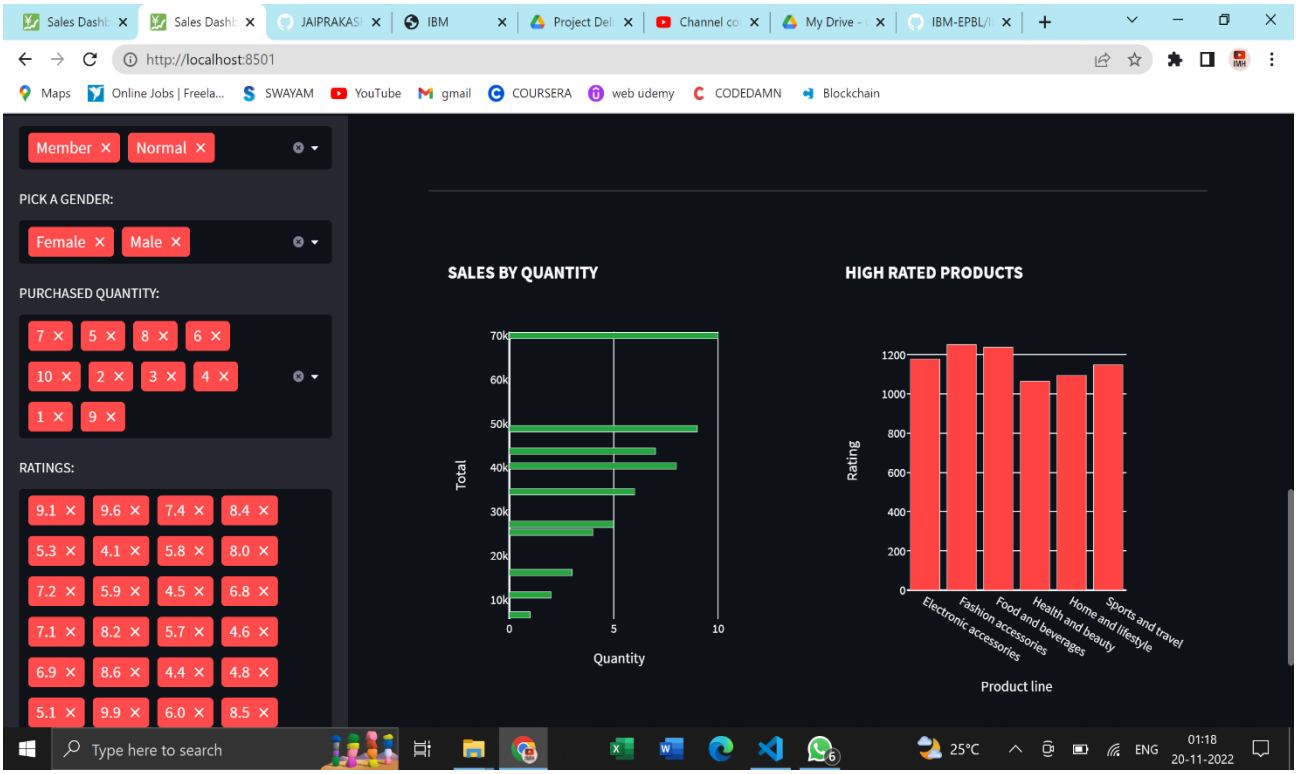
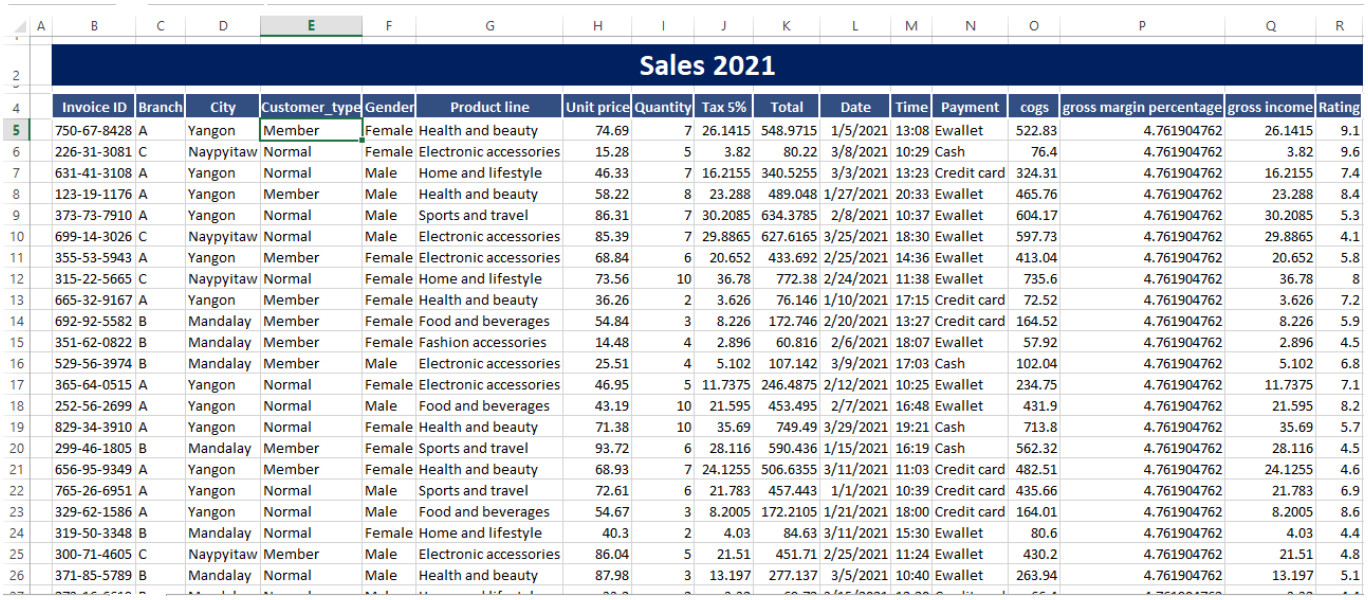


Fig 7(a). Visualization

7.3 DATABASE SCHEMA



Sales 2021

Invoice ID	Branch	City	Customer_type	Gender	Product line	Unit price	Quantity	Tax 5%	Total	Date	Time	Payment	cogs	gross margin percentage	gross income	Rating
750-67-8428	A	Yangon	Member	Female	Health and beauty	74.69	7	26.1415	548.9715	1/5/2021	13:08	Ewallet	522.83	4.761904762	26.1415	9.1
226-31-3081	C	Naypyitaw	Normal	Female	Electronic accessories	15.28	5	3.82	80.22	3/8/2021	10:29	Cash	76.4	4.761904762	3.82	9.6
631-41-3108	A	Yangon	Normal	Male	Home and lifestyle	46.33	7	16.2155	340.5255	3/3/2021	13:23	Credit card	324.31	4.761904762	16.2155	7.4
123-19-1176	A	Yangon	Member	Male	Health and beauty	58.22	8	23.288	489.048	1/27/2021	20:33	Ewallet	465.76	4.761904762	23.288	8.4
373-73-7910	A	Yangon	Normal	Male	Sports and travel	86.31	7	30.2085	634.3785	2/8/2021	10:37	Ewallet	604.17	4.761904762	30.2085	5.3
699-14-3026	C	Naypyitaw	Normal	Male	Electronic accessories	85.39	7	29.8865	627.6165	3/25/2021	18:30	Ewallet	597.73	4.761904762	29.8865	4.1
355-53-5943	A	Yangon	Member	Female	Electronic accessories	68.84	6	20.652	433.692	2/25/2021	14:36	Ewallet	413.04	4.761904762	20.652	5.8
315-22-5665	C	Naypyitaw	Normal	Female	Home and lifestyle	73.56	10	36.78	772.38	2/24/2021	11:38	Ewallet	735.6	4.761904762	36.78	8
665-32-9167	A	Yangon	Member	Female	Health and beauty	36.26	2	3.626	76.146	1/10/2021	17:15	Credit card	72.52	4.761904762	3.626	7.2
692-92-5582	B	Mandalay	Member	Female	Food and beverages	54.84	3	8.226	172.746	2/20/2021	13:27	Credit card	164.52	4.761904762	8.226	5.9
351-62-0822	B	Mandalay	Member	Female	Fashion accessories	14.48	4	2.896	60.816	2/6/2021	18:07	Ewallet	57.92	4.761904762	2.896	4.5
529-56-3974	B	Mandalay	Member	Male	Electronic accessories	25.51	4	5.102	107.142	3/9/2021	17:03	Cash	102.04	4.761904762	5.102	6.8
365-64-0515	A	Yangon	Normal	Female	Electronic accessories	46.95	5	11.7375	246.4875	2/12/2021	10:25	Ewallet	234.75	4.761904762	11.7375	7.1
252-56-2699	A	Yangon	Normal	Male	Food and beverages	43.19	10	21.595	453.495	2/7/2021	16:48	Ewallet	431.9	4.761904762	21.595	8.2
829-34-3910	A	Yangon	Normal	Female	Health and beauty	71.38	10	35.69	749.49	3/29/2021	19:21	Cash	713.8	4.761904762	35.69	5.7
299-46-1805	B	Mandalay	Member	Female	Sports and travel	93.72	6	28.116	590.436	1/15/2021	16:19	Cash	562.32	4.761904762	28.116	4.5
656-95-9349	A	Yangon	Member	Female	Health and beauty	68.93	7	24.1255	506.6355	3/11/2021	11:03	Credit card	482.51	4.761904762	24.1255	4.6
765-26-6951	A	Yangon	Normal	Male	Sports and travel	72.61	6	21.783	457.443	1/1/2021	10:39	Credit card	435.66	4.761904762	21.783	6.9
329-62-1586	A	Yangon	Normal	Male	Food and beverages	54.67	3	8.2005	172.2105	1/21/2021	18:00	Credit card	164.01	4.761904762	8.2005	8.6
319-50-3348	B	Mandalay	Normal	Female	Home and lifestyle	40.3	2	4.03	84.63	3/11/2021	15:30	Ewallet	80.6	4.761904762	4.03	4.4
300-71-4605	C	Naypyitaw	Member	Male	Electronic accessories	86.04	5	21.51	451.71	2/25/2021	11:24	Ewallet	430.2	4.761904762	21.51	4.8
371-85-5789	B	Mandalay	Normal	Male	Health and beauty	87.98	3	13.197	277.137	3/5/2021	10:40	Ewallet	263.94	4.761904762	13.197	5.1

Fig 7(b). Dataset

CHAPTER 8

TESTING

8.1 TEST CASES

A test case is a set of actions performed on a system to determine if it satisfies software requirements and functions correctly. The purpose of a test case is to determine if different features within a system are performing as expected and to confirm that the system satisfies all related standards, guidelines and customer requirements. The process of writing a test case can also help reveal errors or defects within the system.

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status
LoginPage_TC_OO3	Functional	Home page	Verify user is able to log into application with Valid credentials	Authenticator checks the user credentials and verify them.	1.Enter URL(https://shopenzer.com/) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: chalam@gmail.com password: Testing123	User should navigate to user account homepage	Working as expected	Pass
LoginPage_TC_OO4	Functional	Login page	Verify user is able to log into application with InValid credentials	No user can log in with wrong credentials.	1.Enter URL(https://shopenzer.com/) and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter valid password in password text box	Username: chalam@gmail password: Testing123	Application should show 'Incorrect email or password ' validation message.	Working as expected	Pass
Registration_page_TC_005	Functional	Register	Verify user is able to log into application with InValid credentials	Users need to enter a new Username, email, and password.	1.Enter URL(https://shopenzer.com/) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter Invalid password in password text box	Username: chalam@gmail.com password: Testing123678678678687676	Application should show 'Incorrect email or password ' validation message.	Working as expected	Fail

Fig 8(a). Test Report 1

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status
LoginPage_TC_OO4	Functional	Login page	Verify user is able to log into application with InValid credentials	No user can log in with wrong credentials.	1.Enter URL(https://shopenzer.com/) and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter valid password in password text box	Username: chalam@gmail password: Testing123	Application should show 'Incorrect email or password ' validation message.	Working as expected	Pass
Registration_page_TC_OO5	Functional	Register	Verify user is able to log into application with InValid credentials	Users need to enter a new Username, email, and password.	1.Enter URL(https://shopenzer.com/) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: chalam@gmail.com password: Testing123678678678687676	Application should show 'Incorrect email or password ' validation message.	Working as expected	Fail
Registration_page_TC_OO6	Functional	To complete Registration	Verify user is able to log into application with InValid credentials	To complete the registration user needs to verify through the link we provided.	1.Enter URL(https://shopenzer.com/) and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter Invalid password in	Username: chalam password: Testing123678678678687676	Application should show 'Incorrect email or password ' validation message.	Working as expected	Pass

Fig 8(b). Test Report 2

8.2 USER ACCEPTANCE TESTING

User acceptance testing is the final testing stage in software development before production. It's used to get feedback from users who test the software and its user interface (UI). UAT is usually done manually, with users creating real-world situations and testing how the software reacts and performs. Test-case scenarios can also be automated, simulating a user experience. Due to the costliness of UAT and the complexity of combining manual and automated testing in this phase, it's important to

prepare ahead and develop a plan. As a testing plan is created and a timeline is established, it's good to keep in mind some of the challenges that may occur during the process.

PURPOSE OF DOCUMENT

The purpose of this document is to briefly explain the test coverage and open issues of the Global sales data analytics project at the time of the release to User Acceptance Testing (UAT).

DEFECT ANALYSIS

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved.

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	4	2	3	20
Duplicate	0	0	0	0	0
External	2	3	0	1	6
Fixed	11	2	4	20	37
Not Reproduced	0	0	0	0	0
Skipped	0	0	0	0	0
Won't Fix	0	0	0	0	0
Totals	24	14	13	26	77

TEST CASE ANALYSIS

This report shows the number of test cases that have passed, failed, and untested.

Section	Total Cases	Not Tested	Fail				Pass
Print Engine	8	0	0				0
Client Application	25	0	0				25
Security			0	0	0	3	
Outsource Shipping	0	0	0	0			
Exception Reporting	9	0	0	9			
Final Report Output	4	0	0	4			
Version Control	2	0	0	2			

CHAPTER 9

RESULTS

9.1 PERFORMANCE METRICS

Performance testing is a testing technique that determines the speed, scalability, and stability of an application under a given workload. It helps to ensure the quality of the software and makes the application ready to be released into the market.

S No.	Parameter	Screenshot / Values
1.	Dashboard design	Drag and drop file, total sales rating, average sales per customer and applying filters.
2.	Data Responsiveness	User and data from IBM
3.	Amount Data to Rendered (DB2 Metrics)	1004 rows of data from global superstore dataset
4.	Utilization of Data Filters	No of filters added: 5 Pick a city, pick a CUSTOMER_CATEGORY, pick a gender, purchased quality and ratings.

5.	Effective User Story	No of Scene Added - 3
6.	Descriptive Reports	No of Visualizations / Graphs – 1 visualization/ 4 -graph

CHAPTER 10

ADVANTAGES & DISADVANTAGES

ADVANTAGES:

1. Decision Making

● Data analytics helps an organization make better decisions Lot of times decisions within organizations are made more on gut feel rather than facts and data. One of the reasons for this could be lack of access to quality data that can help with better decision making. Analytics can help with transforming the data that is available into valuable information for executives so that better decisions can be made. This can be a source of competitive advantage if fewer poor decisions are made since poor decisions can have a negative impact on a number of areas including company growth and profitability.

2. Efficient

● Increase the efficiency of the work Analytics can help analyze large amounts of data quickly and display it in a formulated manner to help achieve specific organizational goals. It encourages a culture of efficiency and teamwork by allowing the managers to share the insights from the analytics results to the employees. The gaps and improvement areas within a company become evident and actions can be

taken to increase the overall efficiency of the workplace thereby increasing productivity.

3. AUTOMATIC

● The analytics keeps you updated of your customer behavioural changes In today's world, customers have a lot of choices. If organizations are not tuned to customer desires and expectations, they can soon find themselves in a downward spiral. Customers tend to change their minds as they are continuously exposed to new information in this era of digitization. With vast amount of customer data, it is practically impossible for organizations to make senses of all the changes in customer perception data without using the power of analytics. Analytics gives you insights into how your target market thinks and if there is any change. Hence, being aware of shift in customer behavior can provide a decisive advantage to companies.

4. PERSONALIZATION

● Personalization of products and services Gone are the days where a company could sell a standard set of products and services to customers. Customers crave products and services that can meet their individual needs. Analytics can help companies keep track of what kind of service, product, or content is preferred by the customer and then show the recommendations based on their preferences. For example, in social media, we usually see what we like to see, all of this is made

possible due to the data collection and analytics that companies do. Data analytics can help provide targeted services to customers based on their individual requirements.

DISADVANTAGES:

1. TEAM COLLISION

- There is a lack of alignment between different teams or departments within an organization. However, the insights generated by these teams are either of not much value or are having limited impact on organizational metrics. This could be due to a "silos" way of working with each team only using their existing processes disconnected from other departments. The analytics team should be focussed on answering the right questions for the business and the results generated by data analytics teams needs to be properly communicated to the right employees to drive the right set of actions and behaviours so that it can have an positive impact on the organization.

2. LACK OF INVOLVEMENT

- Lack of commitment and patience Analytics solutions are not difficult to implement, however, they are costly, and the ROI is not immediate. Especially, if existing data is not available, it may take time to put processes and procedures in place to start collecting the data. By nature, the analytics models improve accuracy over

time and require dedication to implement the solution. Since the business users do not see results immediately, they sometimes lose interest which results in loss of trust and the models fail.

3. QUALITY OF DATA

- One of the biggest limitations of data analytics is lack of access to quality data. It is possible that companies already have access to a lot of data, but the question is do they have the right data that they need? A top down approach is required where the business questions that need to be answered need to be known first and what data is required to answer these questions can then be determined. In some cases, data may have been collected for historical reasons may not be suitable to answer the questions that we ask today. There can be instances where adequate data is not available or is missing for proper analytics to be done. As they say, garbage-in garbage-out. If the data quality is poor, the decision made by using this data is also going to be poor. Hence, actions must be taken to fix the quality of the data before it can be effectively used within organizations.

4. PRIVACY

- Sometimes, data collection might breach the privacy of the customers as their information such as purchases, online transactions, and subscriptions are available to companies whose services they are using. Some companies might exchange those datasets with other companies for mutual benefit. Certain data

collected can also be used against a person, country, or community. Organizations need to be cautious of what sort of data they are collecting from customers and ensure the security.

CHAPTER 11

CONCLUSION

CONCLUSION

The availability of Data, low-cost commodity hardware, and new information management and analytic software have produced a unique moment in the history of data analysis. The convergence of these trends means that we have the capabilities required to analyze astonishing data sets quickly and cost-effectively for the first time in history. These capabilities are neither theoretical nor trivial. They represent a genuine leap forward and a clear opportunity to realize enormous gains in terms of efficiency, productivity, revenue, and profitability. Sales analytics is an indispensable tool for businesses all over the globe. It keeps our business updated. This is the must-have element, our business won't last long in a highly competitive industry. Provides better insights via Data Visualization. Depending on the company we are managing, finding the right sales analytics software is crucial. With the benefits that sales analytics provides, making the most out of the tool will keep our business running efficiently and maintain superior productivity for years to come. The Age of Global Sales Data is here, and these are truly revolutionary times if both business and technology professionals continue to work together and deliver on the promise.

CHAPTER 12

FUTURE SCOPE

FUTURE SCOPE

Global Sales Data Analytics eliminates guesswork and manual tasks. Be it choosing the right content, planning marketing campaigns, or developing products. Organizations can use the insights they gain from data analytics to make informed decisions. Thus, leading to better outcomes and customer satisfaction. By visualizing the data by bar chart, pie chart etc.. , we can easily identify the profit and loss for the company. In Future we can identify when a customer purchases the next product and understand how long it took to deliver the product. We get a better insight into the kind of items a customer looks for, product returns, etc. and will be able to predict the sales and profit for the next quarter.

CHAPTER 13

APPENDIX

APPENDIX

GITHUB:

https://github.com/IBM-EPBL/IBM-Project-12206-1659441444

PROJECT DEMO LINK:

DRIVE LINK:

https://drive.google.com/file/d/1NKtRjzrCex8a3zXhXOOnDeOypPeoqUoc/vie w?usp=share_link

YOUTUBE LINK:

https://www.youtube.com/watch?v=Ew_1ipYdaRs