GLOBAL SALES DATA ANALYTICS

IBM-Project-2734-1658481949

NALAIYA THIRAN PROJECT BASED LEARNING ON PROFESSIONAL READLINESS FOR INNOVATION, EMPLOYNMENT AND ENTERPRENEURSHI

PROJECT REPORT

BY

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TABLE OF CONTENTS

1. INTRODUCTION

1.1 Project Overview

1.2 Purpose

2. LITERATURE SURVEY

2.1 Existing problem

2.2 References

2.3 Problem Statement Definition

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

3.2 Ideation & Brainstorming

3.3 Proposed Solution

3.4 Problem Solution fit

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

4.2 Non-Functional requirements

5. PROJECT DESIGN

5.1 Data Flow Diag

rams

5.2 Solution & Technical Architecture

5.3 User Stories

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

6.2 Sprint Delivery Schedule

6.3 Reports from JIRA

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

7.1 Feature 1

7.2 Feature 2

7.3 Database Schema (if Applicable)

8. TESTING

8.1 Test Cases

8.2 User Acceptance Testing

9. RESULTS

9.1 Performance Metrics

10. ADVANTAGES & DISADVANTAGES

11. CONCLUSION

12. FUTURE SCOPE

13. APPENDIX

Source Code

GitHub & Project Demo Link

1.INTRODUCTION

1.1 PROJECT OVERVIEW

Shopping online is currently the need of the hour. Because of this COVID, it is not easy to walk in a store randomly and buy anything you want. So, try to understand a few things like, Customer Analysis and Product Analysis of this Global Super Store. Global Sales covers all activities involved in selling a product or service to a consumer or business. It is important for sales and marketing teams to review their strategies and performance in order to make improvements. Understanding performance with sales data analytics helps sales and marketing teams to review their strategies and performance in order to make improvements. Sales analytics provides valuable information like Customer Analysis and Product Analysis to improve sales methodologies. Users create multiple analytical graphs/charts/Visualizations. One way to measure performance is with sales analytics.

1.2 Purpose

To create data visualization charts like those mentioned below:

1. Column Graph Showing Sales,Quantity and Profit By Segment.
2. Pie Chart Showing Sales By Order Priority and Sales.
3. TreeMap showing Sales for Sub-Category Hierarchy and Bar Graph showing Sales By Region.
4. Geographical Map showing Top-10 Country-Wise Sales coloured by Region.
5. Line Graph Showing Profit and Sales By Sub-Category.
6. Bullet Chart Showing Sales Analytical Values Across Different Sub- Categories
7. Scatter Plot showing Sales by Profit with points for Sub-Category.
8. Line Graph showing Regional Sales Forecast.
9. Line Graph showing Sales and Profit for Month_Order
10. Box Plot showing Sales Sub Category with Segment Key.
11. Sales Bullet Chart By Ship Mode
12. Geographical Map for Showing Top-10 Countries By Sale.
13. Radar Graph for showing Regional Sales By Segment.
14. To Create Word Cloud for Country-Wise Sales a Bar Graph for Sales By Region.
15. Summary Graph for Sales,Profit,Quantity and Discount and a Bar Graph for Sales By Category.

2. LITERATURE SURVEY

2.1 EXISTING PROBLEM

● If we are finding unusual patterns within our data analysis or our statistical significance is not strong enough, we might not have enough data to make valid conclusions
● Data is meaningless without context and without context, we cannot turn data into information
● Without doing data analysis, we won't get the opportunity to evaluate the data before making actionable plans
● Information is useless without being able to apply to something

2.2 REFERENCES

REFERENCES	**AUTHORS**
Predictive Sales Analytics	1. Johannes Habel Associate Professor of Marketing University of Houston 2. Sascha Alavi, Professor of Sales Management and Chair of the Sales Marketing Department University of Bochum 3. Nicolas Heinitz Research Associate University of Bochum
Data Analytics	1. Nada Elgendy , University of Oulu. 2. Ahmed Elragal, Research Associate
Top-down Data Analysis with Tree maps	1. M. Tennekes, Research Associate Research Associate 2. E. de Jonge, Associate Professor of University of Houston 3. Jian Pei Research Associate University of Bochum
Parallel Arc Diagrams: Visualizing Temporal Interactions	1. P. Hoek, Journal of Social Structure
Data Mining Concepts and Techniques	1. Han Jiawei, University of Oulu 2. Micheline Kamber, University of

	Houston 3. Jian Pei, Sales, Marketing Department University of Bochum
Social media big data analytics for demand forecasting: development and case implementation of an innovative framework	1. Iftikhar, Associate Professor ofUniversity of Bochum 2. Mohammad Saud, Professor of Sales Marketing Department University of Bochum

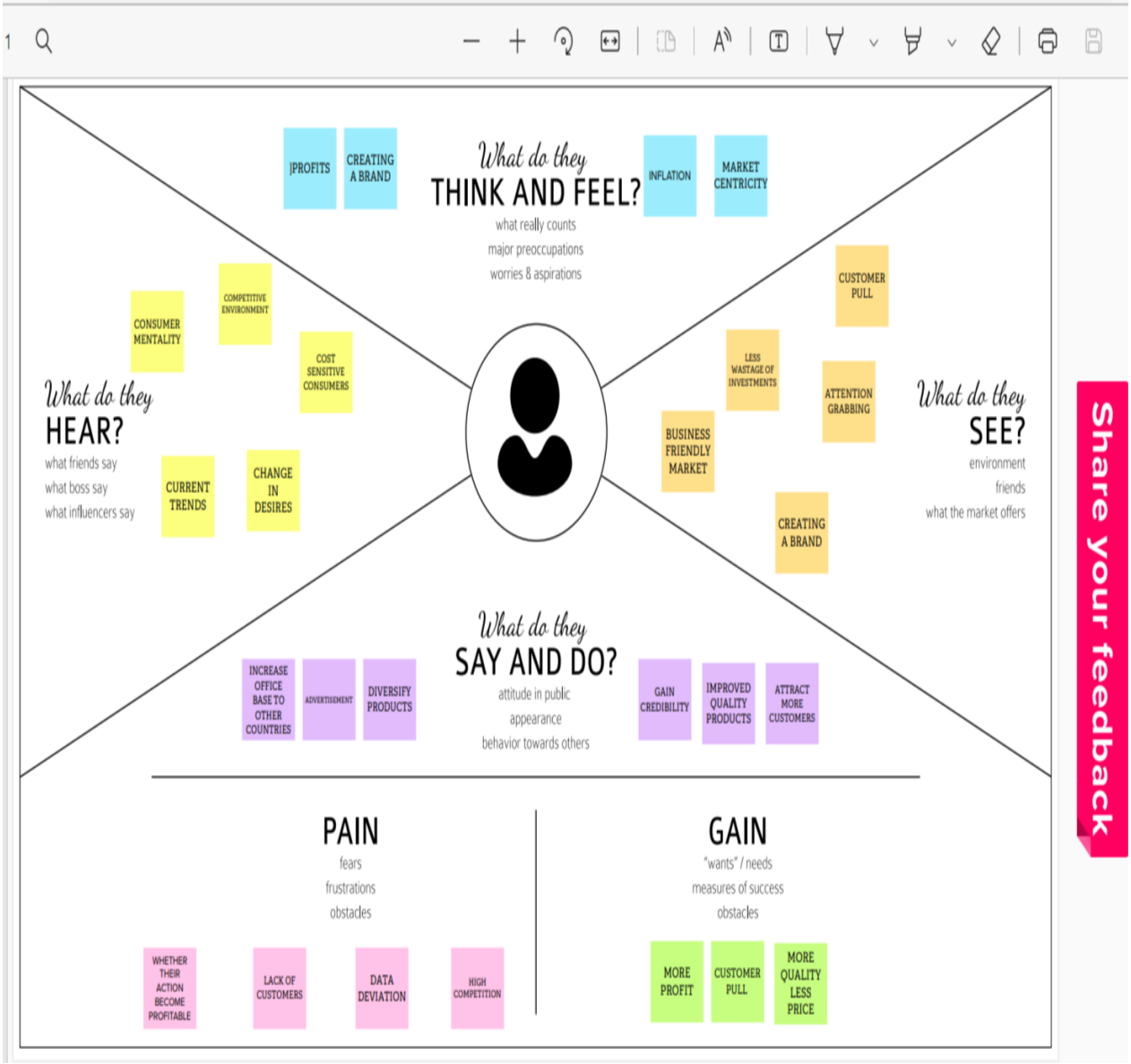
2.3 PROBLEM STATEMENT

1. E- commerce company (user) needs to classify and analyze data and market statistics, so that they get to know the preferences of customers and improve their marketing strategies accordingly.
2. E-commerce company(user) has to find a good delivery company , inorder to provide smooth delivery process to customers.
3. E-commerce company(user) has to overcome technical issues of their online store portal, so that they provide hassle free shopping experience to their customers.
4. E-commerce company(user) must work on improving its popularity, so that they become a brand and thus become a go to online store.
5. E-commerce company(user) must make sure the quality of products sold in their site is good, so that customers find their store to be more reliable.
6. E- commerce company(user) needs a way to understand the shift in preferences of customers and the current trend, so that they can satisfy the customers.
7. E- commerce company (user) must understand how much of goods they must stock up, so that the products they invest in doesn't get wasted.
8. E- commerce company (user) must gather reviews from their customers, so that they are able to understand what they did was right and what went wrong.
9. E- commerce company (user) has to make its customers aware of the offers and facilities provided, so that it can gain attention of many customers.

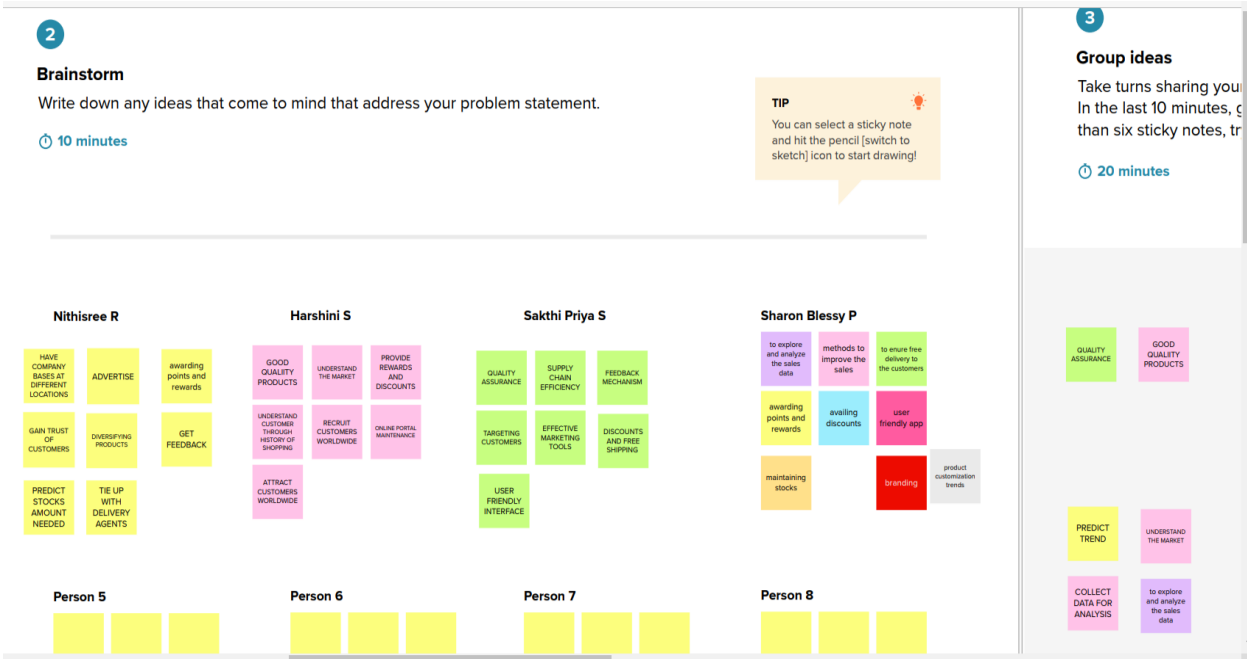
3. IDEATION & PROPOSED SOLUTION

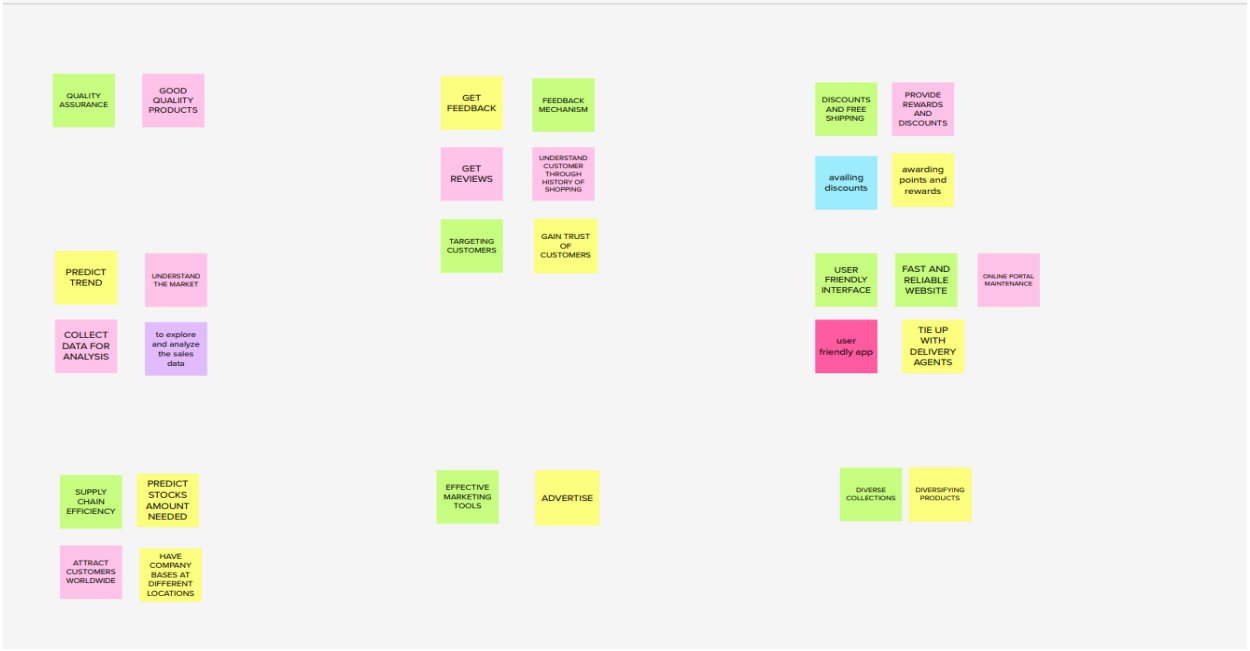
3.1 Empathy Map Canvas

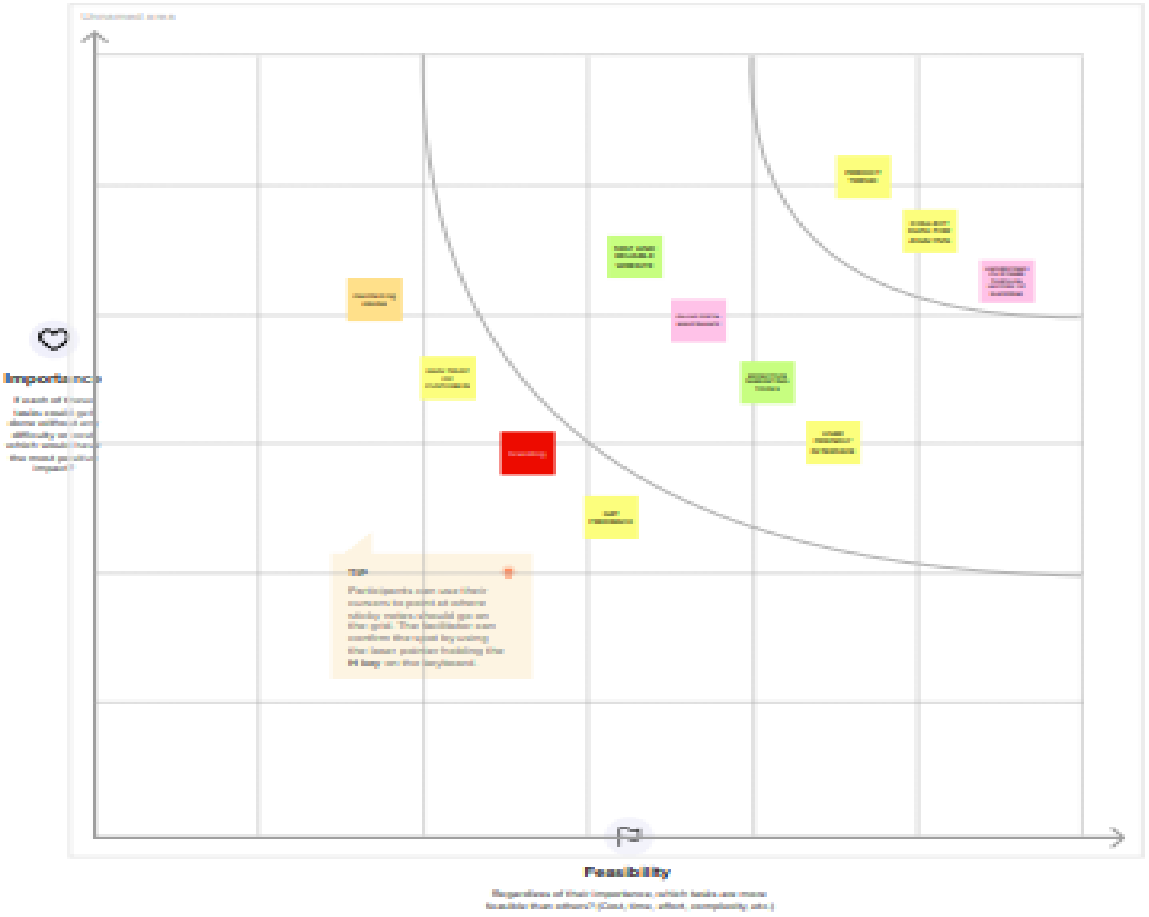
An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

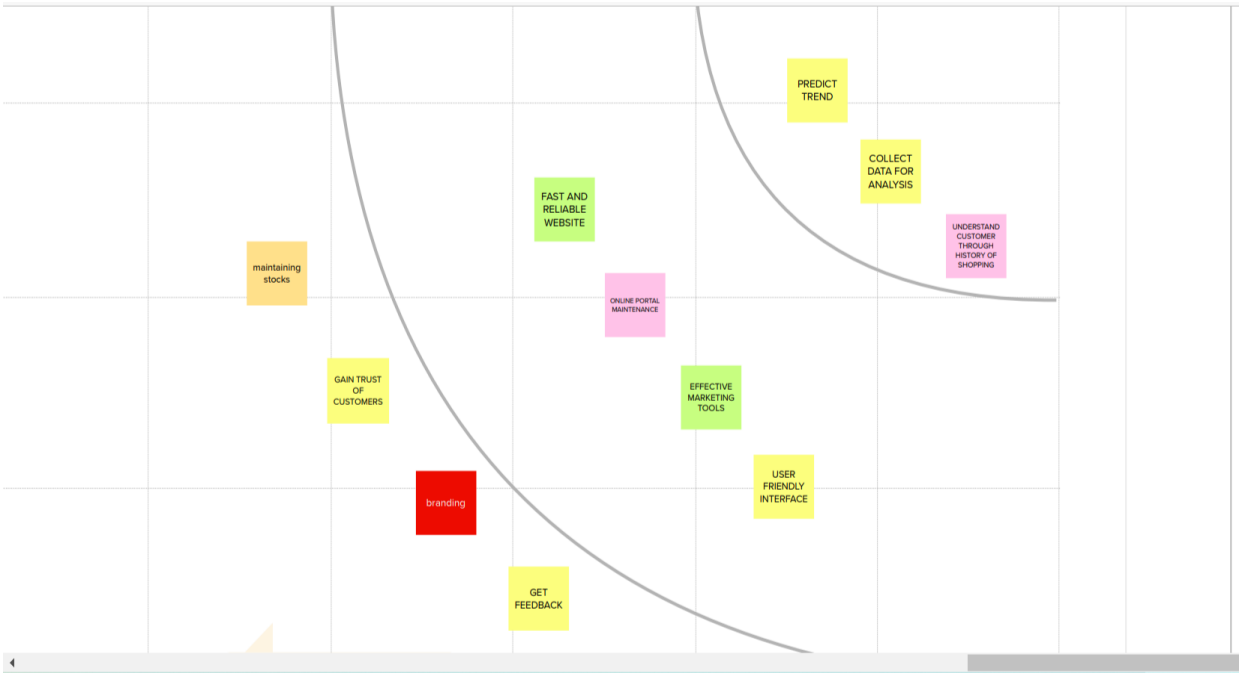


3.2 Ideation & Brainstorming






Importance
Feasibility


PREDICT TREND
COLLECT DATA FOR ANALYSIS
FAST AND RELIABLE WEBSITE
UNDERSTAND CUSTOMER THROUGH HISTORY OF SHOPPING
maintaining stocks
ONLINE PORTAL MAINTENANCE
GAIN TRUST OF CUSTOMERS
EFFECTIVE MARKETING TOOLS
USER FRIENDLY INTERFACE
branding
GET FEEDBACK

3.3 Proposed Solution

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To classify and analyze global sales data and market statistics to get to know the preferences of customers and improve their marketing strategies.
2.	Idea / Solution description	To create an **interactive dashboard** and to get insights from it.
3.	Novelty / Uniqueness	Can understand customer's preferences and current market trend that helps them to manage stocks and predict future demand.
4.	Social Impact / Customer Satisfaction	Out of stock issues will be sorted , Ensuring fast delivery of products, quick exchange process, suits customer preferences.
5.	Business Model (Revenue Model)	By creating an interactive dashboard, the company gets to know about their customer's choices and can provide offers accordingly so this contributes to the rise in company's revenue.
6.	Scalability of the Solution	SaaS Model of Scalability.

3.4 Problem Solution fit

Project Title: GLOBAL SALES DATA ANALYTICS
Team ID: PNT2022TMID35484

Project Design Phase-I - Solution Fit Template

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

E-Commerce Company

6. CUSTOMER CONSTRAINTS

Lack of their customer data , current market trends , issues in managing databases.

5. AVAILABLE SOLUTIONS

Database visualization and management system , overcoming technical issues associated with website and focus on improving product quality with ensured free delivery.

Explore AS, differen

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS

To classify and analyze global sales data and market statistics to get to know the preferences of customers and improve their marketing strategies.

9. PROBLEM ROOT CAUSE RC

Customer has to do it because of the evolving preferences of people.

7. BEHAVIOUR BE

Directly related : get insights from the dashboard created.
Indirectly related : ask for their employee's experience

Focus on J&P, tap into BE, understand RC

3. TRIGGERS TR

Accomplishments and customer base of their competitors in the online sale.

10. YOUR SOLUTION SL

To create an **interactive dashboard** and to get insights from it.

8. CHANNELS of BEHAVIOUR CH

8.1 **ONLINE**
Products are available according to the customers's preferences.
8.2 **OFFLINE**

Identify

4. EMOTIONS: BEFORE / AFTER EM

When customer faces a problem , he feels as if he lost his market with low self confidence and feeling insecure . But, after developing solutions , he can regain his confidence level and work efficiently with available resources.

Ensuring delivery of products is done to the respective customer's address.

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Product window	Provide the information regarding different products available, sorting and filtering options.
FR-4	Wishlist	Page for customers to bookmark their favourite products
FR-5	Offers page	Page to give details of products on discount and sale.
FR-6	Payments	Enclosing cart and verified payment and order confirmation
FR-7	Delivery support	Product delivery tracking, cancellation, returns

4.2 Non-Functional requirements

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Display using different languages, diverse insights
NFR-2	**Security**	Two stage verification
NFR-3	**Reliability**	Each analysis supported by extensive data sets
NFR-4	**Performance**	Effective utilisation of data, unnecessary data removed, error detection and correction can be easily done
NFR-5	**Availability**	Analysis service provided various regions
NFR-6	**Scalability**	Analysis on new products can be easily added

5. PROJECT DESIGN

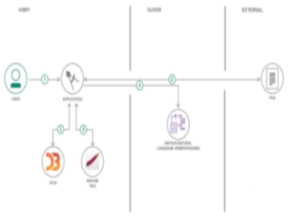
5.1 Data Flow Diagrams

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

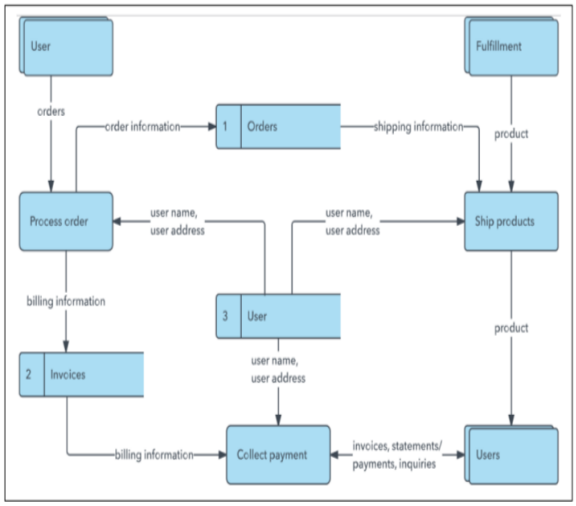
Example: (Simplified)

Flow

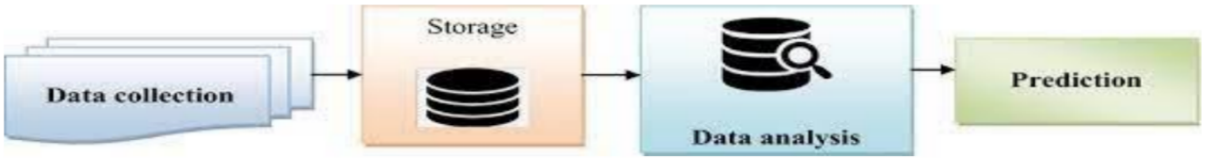


1. User configures credentials for the Watson Natural Language Understanding service and starts the app.
2. User selects data file to process and load.
3. Apache Tika extracts text from the data file.
4. Extracted text is passed to Watson NLU for enrichment.
5. Enriched data is visualized in the UI using the D3.js library.

DFD Level-0 (Industry Standard)



5.2 Solution & Technical Architecture



MARKET TREND	CHANGE IN TREND	SMARTER
DEMANDS	CUSTOMER MENTALITY	AND
CUSTOMERS' NEEDS	SENSING DATA	COST-EFFECTIVE
REVIEWS	PROFIT PLACES	DECISIONS
FEEDBACKS	REPORTS	
PEER DEVELOPMENTS	UNDERSTANDING THE MARKET	
INTERNATIONAL LINK	FUTURE PLANS	
PRODUCT BASES	DEBUG ERRORS AND MISTAKES	

5.3 User Stories

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail	I can receive notifications and access through email	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can access my account directly	High	Sprint-1
	Dashboard	USN-6	As a user I can login and explore the interface	I was able to gather insights about the product	High	Sprint- 2
Customer (Web user)	Registration	USN-7	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
	Login	USN-8	As a user, I can log into the application by entering email & password	I can access my account directly	High	Sprint-1
	Dashboard	USN-9	As a user I can login and explore the interface	I was able to gather insights about the product	High	Sprint- 2
Customer Care Executive	Query solving page	USN-10	As a Customer Care Executive I am provided with a contact, solutions for different queries and a platform	The customers were able to easily reach out to get their queries solved and the executive was able to easily respond to the queries	High	Sprint- 3
Administrator	Overall platform functionality	USN-11	As an administrator I look for whether all the work in different domains are being carried well	The working of the store platform was smooth and minimum hinderances were encountered	High	Sprint-4

6. PROJECT PLANNING & SCHEDULING

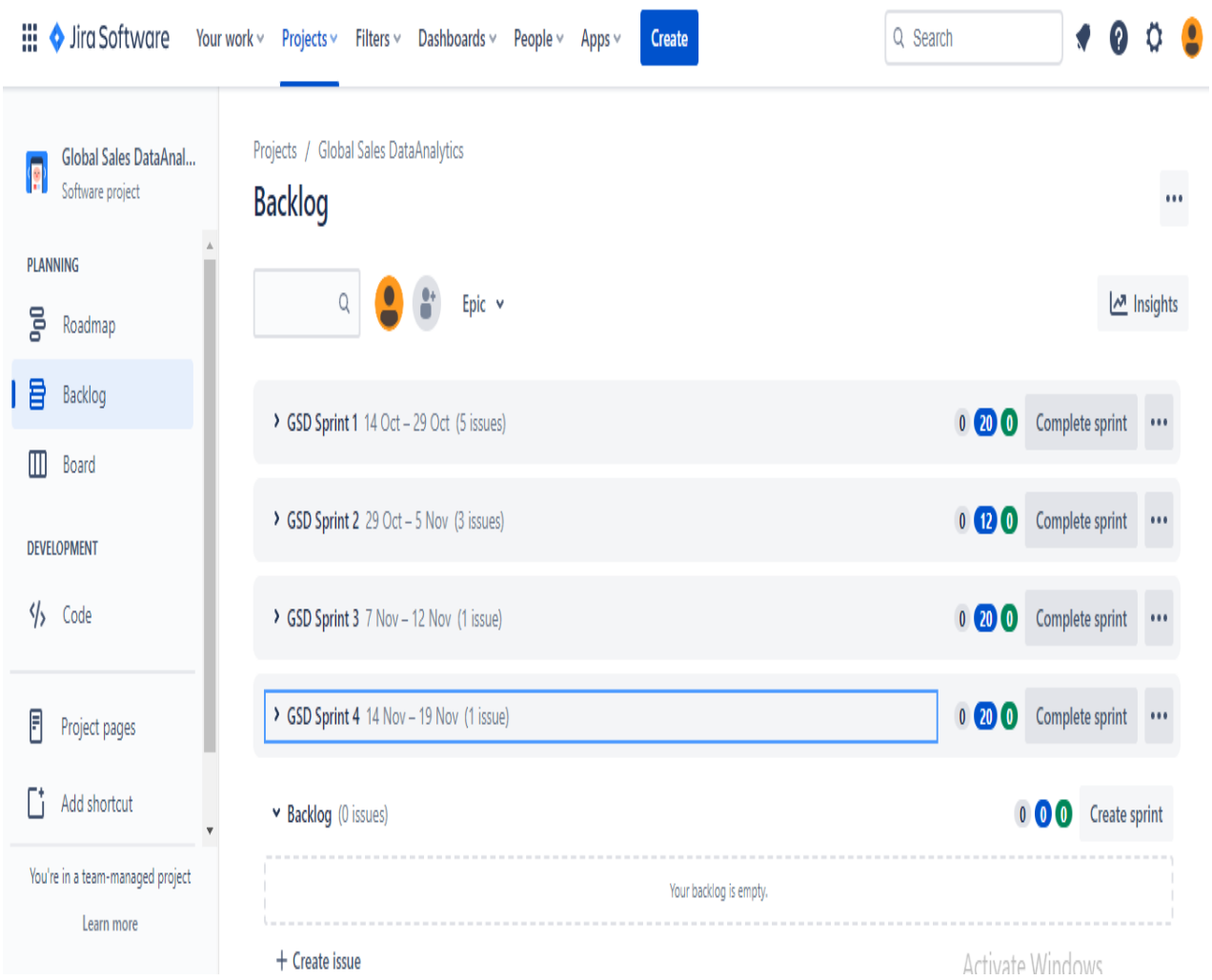
6.1 Sprint Planning, Estimation and 6.2 Sprint Delivery Schedule

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

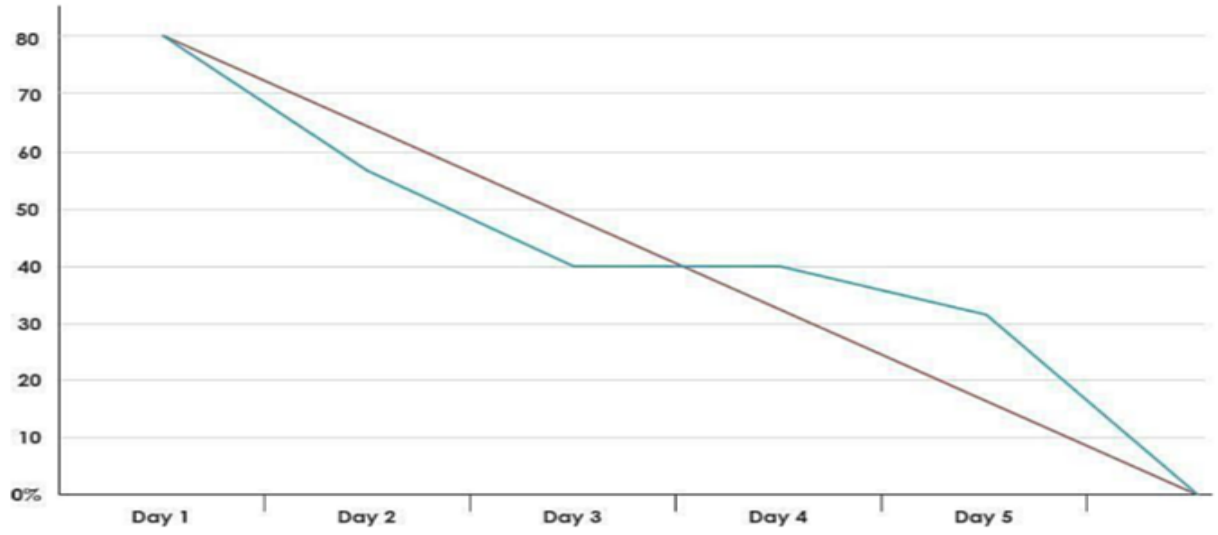
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	To clean and effective use the dataset to derive the insights	USN-1	Global Superstore_Data Upload. Global Superstore_DataPrep.	1	High	Harshini ,Nithisree,Sharon Blessy,Sakthi Priya
Sprint-2	To work with the dataset	USN-2	Date Calculations and Navigation path. Segment wise Sales, Profit and Qty.	1	Medium	Harshini , Nithisree,Sharon Blessy,Sakthi Priya
Sprint-3	Data visualization - Dashboard	USN-3	EDA TOOLS – pie chart , bar chart, tree map	2	High	Harshini , Nithisree,Sharon Blessy,Sakthi Priya
Sprint-4	Offer insights in the form of charts or graphs to provide meaningful information	USN-4	Report generation - Sales vs Profit forecast by Month by Order Priority, Min, Max, and Avg Sales using box plot	2	High	Harshini , Nithisree,Sharon Blessy,Sakthi Priya
Sprint-5	To create scenes that visualize your data and to tell a narrative.	USN-5	Story creation- Presenting Sales using Hierarchy Bubbles by Market / Region, Using a Legacy Map Present Sales vs Profit by Country / Region ,showcasing Quantity Sold by Radar Chart across various Regions and to present Monthly Sales by Sub-Category using Waterfall chart.	2	High	Harshini , Nithisree,Sharon Blessy,Sakthi Priya

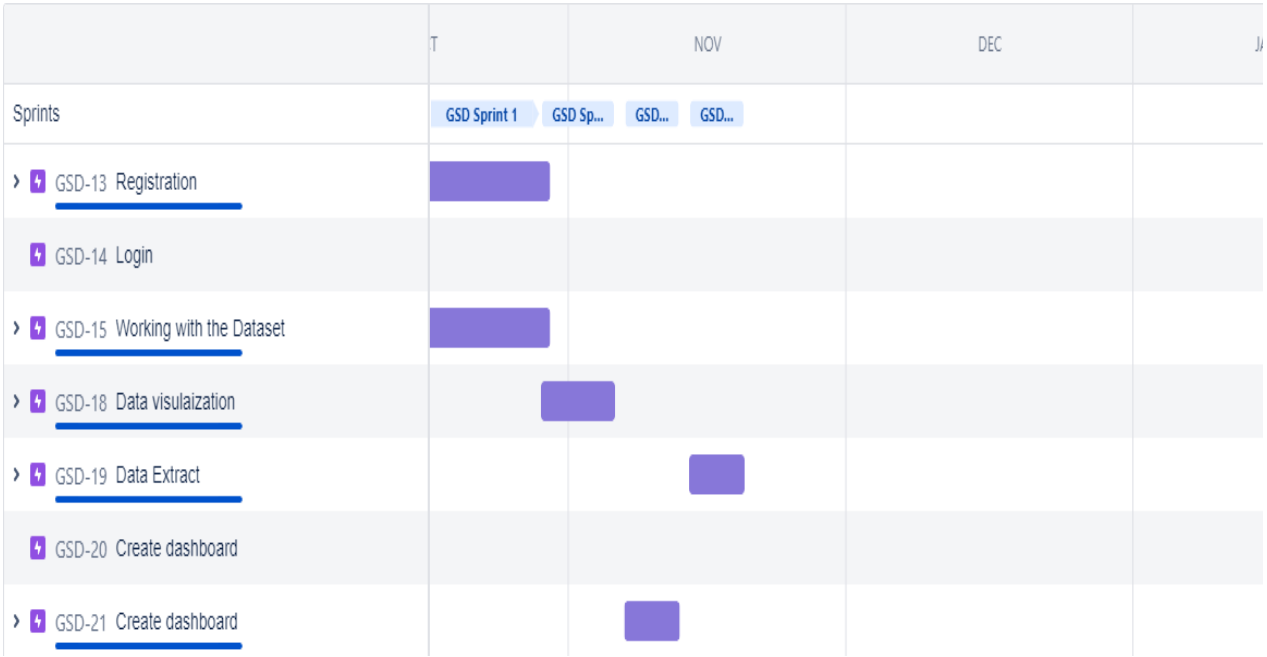
6.3 Reports from JIRA



BURNDOWN CHART:

Burndown charts are a popular tool used in Agile and Scrum. And there is no doubt about it. They're giving a clear understanding of progress on release in real-time and are great for tracking remaining time or effort required to deliver release. In other words, you'll be able to see if your release is on track, ahead or behind simply by checking this chart.





7. CODING & SOLUTIONING (Explain the features added in the project along with code)

7.1 Feature 1

Global superstore dataset is required data set for our data analytics. Using analytical visualizations in IBM Cognos Analytics tool required dashboard, report and story has been created. Kaggel API has been . Purpose of external API has been used in the application. IBMDB2 database is used for uploading the dataset to the cloud database for performing basic sql operations and then connected to IBM cognos analytics platform. Open source frameworks has been used for embedding the dashboard , report and story using HTML and Bootstraps.

7.2 Feature 2

Code :

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <meta content="width=device-width, initial-scale=1.0" name="viewport">
<title>Global Sales Data Analytics</title>
  <meta content="" name="description">
  <meta content="" name="keywords"
<!-- Favicons -->
  <link href="assets/img/favicon.png" rel="icon">
  <link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">
  <!-- Google Fonts -->
  <link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,600i,7
00,700i|
Raleway:300,300i,400,400i,500,500i,600,600i,700,700i|Poppins:300,300i,400,400i,500,5
00i,600
,600i,700,700i" rel="stylesheet">
  <!-- Vendor CSS Files -->
  <link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
```

```
  <link href="assets/vendor/bootstrap-icons/bootstrap-icons.css" rel="stylesheet">
  <link href="assets/vendor/boxicons/css/boxicons.min.css" rel="stylesheet">
  <link href="assets/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">
  <link href="assets/vendor/remixicon/remixicon.css" rel="stylesheet">
  <link href="assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">
  <!-- Template Main CSS File -->
  <link href="assets/css/style.css" rel="stylesheet">
  <!-- =======================================================
  * Template Name: KnightOne - v4.9.1
  * Template URL: https://bootstrapmade.com/knight-simple-one-page-bootstrap-template/
  * Author: BootstrapMade.com
  * License: https://bootstrapmade.com/license/
  ======================================================= -->
</head>
<body>
  <!-- ======= Header ======= -->
  <header id="header" class="fixed-top ">
    <div class="container-fluid">
      <div class="row justify-content-center">
      <div class="col-xl-9 d-flex align-items-center justify-content-lg-between">
        <h1 class="logo me-auto me-lg-0"><a href="index.html">Data Analytics</a></h1>
        <!-- Uncomment below if you prefer to use an image logo -->
        <!-- <a href="index.html" class="logo me-auto me-lg-0"><img src="assets/img/logo.png"
alt="" class="img-fluid"></a>-->
        <nav id="navbar" class="navbar order-last order-lg-0">
          <ul>
            <li><a class="nav-link scrollto active" href="#hero">Home</a></li>
            <li><a class="nav-link scrollto" href="#about">About</a></li>
            <li><a class="nav-link scrollto" href="#services">Dashboard</a></li>
            <li><a class="nav-link scrollto " href="#portfolio">Report</a></li>
            <li><a class="nav-link scrollto" href="#pricing">Story</a></li>
```

```
          </ul>
          <i class="bi bi-list mobile-nav-toggle"></i>
        </nav><!-- .navbar -->
<a href="#about" class="get-started-btn scrollto">Get Started</a>
       </div>
     </div>
</div>
  </header><!-- End Header -->
  <!-- ======= Hero Section ======= -->
  <section id="hero" class="d-flex flex-column justify-content-center">
    <div class="container">
      <div class="row justify-content-center">
        <div class="col-xl-8">
          <h1>Global Sales Data Analytics</h1>
          <h2>What Gets Measured, Gets Managed</h2>
          <a href="https://youtu.be/tikHooKBxjY" class="glightbox play-btn mb-4"></a>
        </div>
      </div>
    </div>
  </section><!-- End Hero -->
  <main id="main">
    <!-- ======= About Us Section ======= -->
    <section id="about" class="about">
      <div class="container">
        <div class="section-title">
          <h2>About Us</h2>
          <h3>One way to measure performance is with sales analytics</h3>
          <p>
            Global Sales covers all activities involved in selling a product or service to a
consumer or
business.It is important for sales and marketing teams to review their strategies and
performance
in order to make improvements.Sales data analytics refers to the use of technology to
collect and
```

use sales data to identify actionable insights. It is used to identify, optimize, and increase sales.
An efficient sales model that generates higher revenue for the business.

```
        </p>
         </div>
<div class="row content">
        <div class="col-lg-6">
        </div>
       </div>
  </div>
   </section><!-- End About Us Section -->
   <!-- ======= Services Section ======= -->
   <section id="services" class="services">
     <div class="container">
         <div class="section-title">
        <h2>Dashboard</h2>
       <p> A tool used to do multi-task, organize, visualize, analyze, and track data.View automatically updated data with interactive charts, graphs and tables.</p>
       </div>
       <iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef=.my_folders%2
FData%2BModule%2FDashboardDB2&amp;closeWindowOnLastView=true&amp;ui_appbar=f
alse&amp;ui_navbar=false&amp;shareMode=embedded&amp;action=view&amp;mode=dashbo
ard&amp;subView=model000001847a849dc0_00000000" width="1500" height="1000"
frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
     </div>
   </section><!-- End Cta Section -->
   <!-- ======= Portfolio Section ======= -->
   <section id="portfolio" class="portfolio">
     <div class="container">
```

```
        <div class="section-title">
        <h2>Report</h2>
        <p> Sorting and organization of data, while analytics derive insights from that data
and
often influence business decisions.</p>
      </div>
   <iframe
src="https://us1.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FData%2BModule%2
FSales
%2Breport&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar
=false
&amp;shareMode=embedded&amp;action=run&amp;prompt=false" width="1500"
height="1000" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
  </div>
   </section><!-- End Portfolio Section -->
   <!-- ======= Pricing Section ======= -->
   <section id="pricing" class="pricing">
     <div class="container">
         <div class="section-title">
        <h2>Story</h2>
        <p>A methodology for communicating information, tailored to a specific audience,
with a
compelling narrative.</p>
      </div>
      <iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=story&amp;pathRef=.my_folders
%2FStor
y&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&a
mp;shar
eMode=embedded&amp;action=view&amp;sceneId=model00000184816b7035_000000
02&am
p;sceneTime=0" width="1500" height="1000" frameborder="0" gesture="media"
allow="encrypted-media" allowfullscreen=""></iframe>
```

```
    </div>
  </section><!-- End Pricing Section -->
  <!-- ======= Contact Section ======= -->
  <section id="contact" class="contact">
    <div class="container">
      <div class="section-title">
        <h2>Contact</h2>
        <p></p>
      </div>
    </div>
    <div class="container">
      <div class="row mt-5">
        <div class="col-lg-4">
          <div class="info">
            <div class="address">
              <div class="social-links mt-3">
                <a href="https://github.com/IBM-EPBL/IBM-Project-39960-1660572586"
class="github"><i class="bi bi-github"></i>  GitHub</a>
              </div>
            </div>
            <div class="email">
              <i class="ri-mail-line"></i>
              <a href="721219106060@smartinternz.com">  Smart Internz Mail</a>
            </div>
          </div>
        </div>
      </div>
    </div>
  </section><!-- End Contact Section -->
</main><!-- End #main -->
<!-- ======= Footer ======= -->
<footer id="footer">
  <div class="container">
    <h3>Team ID : PNT2022TMID31896</h3>
```

```
    <p></p>
    <div class="social-links">
      <a href="#" class="twitter"><i class="bx bxl-twitter"></i></a>
      <a href="#" class="facebook"><i class="bx bxl-facebook"></i></a>
      <a href="#" class="instagram"><i class="bx bxl-instagram"></i></a>
      <a href="#" class="google-plus"><i class="bx bxl-skype"></i></a>
      <a href="#" class="linkedin"><i class="bx bxl-linkedin"></i></a>
    </div>
</div>
  </footer><!-- End Footer -->
<div id="preloader"></div>
  <a href="#" class="back-to-top d-flex align-items-center justify-content-center"><i
class="bi
bi-arrow-up-short"></i></a>
<!-- Vendor JS Files -->
  <script src="assets/vendor/purecounter/purecounter_vanilla.js"></script>
  <script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
  <script src="assets/vendor/glightbox/js/glightbox.min.js"></script>
  <script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
  <script src="assets/vendor/swiper/swiper-bundle.min.js"></script>
  <script src="assets/vendor/php-email-form/validate.js"></script>
<!-- Template Main JS File -->
  <script src="assets/js/main.js"></script>
</body>
</html>
```

8. TESTING

8.1 Test Cases

	Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automatio	BUG ID	Executed By
2	LoginPage_TC_OO1	Functional	Home Page	Verify user is able to navigate to the homepage	IBM COGNOS ANALYTICS WITH WATSON	1.Enter URL and click go to the IBM COGNOS ANALYTICS website 2.Login with the registered credentials and navigate to the homepage	https://us1.ca.analytics.ibm.com/bi/?perspective=home	The Homepage is been viewed	Working as expected	Pass	NIL	Y	NIL	SAKTHI PRIYA S
3	LoginPage_TC_OO2	Functional	Exploration	Verify the user can view the explorations, and identify the pattern that turns the data into insights for a business.	IBM COGNOS ANALYTICS WITH WATSON	1. Enter the Analytics Homepage 2. Click the Exploration Option 3. View the embedded exploration data in HTML Page or click the IBM Cognos link to directly view the exploration in IBM Cognos Watson 4. The Explorations can be viewed for filtered data such as the data is been visualized by charts.	https://us1.ca.analytics.ibm.com/bi/?perspective=ca-modeller&pathRef=.my_folders%2FNew%2Bdata%2Bmodule	Data exploration workspace is the first step of data analysis used to explore and visualize data to uncover insights from the start or identify areas or patterns to dig into more..	Working as expected	Pass	NIL	Y	NIL	NITHISREE R
4	LoginPage_TC_OO3	Functional	Dashboard	Verify that users can view the responsive Data analytics dashboard.	IBM COGNOS ANALYTICS WITH WATSON	1. Enter the Analytics Homepage 2. Click the Dashboard option 3. View the embedded dashboard data in html page or click the IBM Cognos link to directly view the dashboard in IBM Cognos. 4.Next, the dashboard is created by combining the visualized charts into a dashboard that can be viewed by and necessary actions can be taken.	https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FGlobal%2BSales%2BDashboard&action=view&mode=dashboard&subView=model000001845b9931fc_00000000	Dashboard is viewed by the user to multi-task, visualize, analyze, and track data. The overall purpose of a data analytics dashboard is to make it easier for data analysts, decision makers, and average users to understand their data.	Working as expected	Pass	NIL	Y	NIL	SHARON BLESSY P
5	LoginPage_TC_OO4	Functional	Story	Verify whether the story is functioned on the Analytics Dashboard.	IBM COGNOS ANALYTICS WITH WATSON	1. Enter the Analytics Homepage 2. Click the Story option 3. The story is been viewed by telling the story for each visualized chart for the user.	https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FGlobal%2BSales%2BStory&action=view&sceneId=model000001849b04f3c4_00000000&sceneTime=0	A story is a type of storytelling that contains a set of scenes that are displayed in sequence over time for the user.	Working as expected	Pass	NIL	Y		HARSHINI S
	LoginPage_TC_OO5	Functional	Reports	Verify that user can view and run the Reports in it.	IBM COGNOS ANALYTICS WITH WATSON	1.Enter the Analytics Homepage 2. Click the Reports option 3. View the embedded Report about the data. 4. Thus the Reports for the various	https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FSALES%2BREPORT&action=run&format=HTML&prompt=false	Reports can be viewed by the user showed in a type of business report in which you present quantitative and qualitative data to evaluate your strategies and performance.	Working as expected	Pass	NIL	Y	NIL	SAKTHI PRIYA S

8.2 User Acceptance Testing

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [ProductName] project at the time of the release to User Acceptance Testing (UAT).

2. 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	8	4	2	2	16
Duplicate	4	2	3	0	9
External	2	3	0	1	6
Fixed	22	7	4	18	51
Not Reproduced	0	0	1	0	1
Skipped	1	1	0	0	2
Won't Fix	4	0	2	1	7
Totals	41	17	12	22	92

3. 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	4	0	0	4
Client Application	45	0	4	49
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9
Final Report Output	4	0	0	4
Version Control	2	0	0	2

9. RESULTS

9.1 Performance Metrics'

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No	Parameter	Screenshot / Values
1.	Dashboard design	The dashboard provides visualisations of different analysis categories. https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FGlobal%2BSales%2BDashboard&action=view&mode=dashboard&subView=model000001845b9931fc_00000000
2.	Data Responsiveness	The data is downloaded from the external API (Kaggle Data Set) which is uploaded in the IBM Cognos Analytics with Watson and then the data module is created.
3.	Amount Data to Rendered (DB2 Metrics)	The dataset which is downloaded from the external API and uploaded is rendered from the DB2 Metrics.
4.	Utilization of Data Filters	The process of examining a dataset to exclude, rearrange data according to certain criteria. It involves in finding the total no of sales per quarter and excluding records from last month. Utilization of Data Filters - 12
5.	Effective User Story	No of Scene Added – 5 https://us3.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FGlobal%2BSales%2BStory&action=view&sceneId=model000001849b04f3c4_00000000&sceneTime=0
6.	Descriptive Reports	No of Visualizations / Graphs – 119 https://us3.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FSALES%2BREPORT&action=run&format=HTML&prompt=false

10. ADVANTAGES & DISADVANTAGES

Advantages:

● Enhanced Visibility: Dashboards provide greater visibility with information available whenever it is required to ensure businesses are better placed to respond to changing market conditions.

● Time saving Efficiency: With dashboards, we are no longer wasting valuable time generating reports from multiple systems. Instead, data is drawn from a source and displayed as an easy to interpret visual overview .

● Better Forecasting: With greater insight into the data, future demand can be more accurately predicted using historic information. Businesses can be more effectively planned for demand fluctuations, setting measurable goals and deliverables for greater success.

● Better Decision Making: Whether you're providing reporting and analysis for the entire organisation or functional areas of the business, a dashboard allows companies to analyse key data quickly and meticulously. Visualised interactivity serves to deliver overwhelming amounts of data in a way that is easy to understand. With the ability to easily identify what the data really means; better decisions can be made relevant to the business.

Disadvantages:

● Flashy or cluttered design, with users attempting to incorporate too much information without understanding constraints or considering their specific needs from the range of different measurables detailed data analysis provides.

● The technology used in the development of dashboards differs from other software solutions already employed in organisations and can be initially difficult to understand. ● The business has no predetermined rules and hierarchies for how dashboard metrics are used. This means each employee can use the metrics in different ways, resulting in a diverse set of data being reported.

11. CONCLUSION

From this project, we have successfully,

- Created multiple analysis charts / graphs .
- Used the analysed chart for creation of dashboard .
- Used the analysed chart for creation of report and story.
- Saved and visualized the dashboard, report and story using IBM Cognos

12. FUTURE SCOPE

Sellers make websites where they display images of their products with price and description. Shoppers who buy the products have multiple payment options like COD, e-wallet, net banking, credit card, and so on. Online sellers have the responsibility of shipping the product to the buyer and ensuring safe and timely delivery.Various charts can be prepared like regarding Year_Order and Day_Order Columns, Market and Shipping Costs Columns, country and state wise sales column, segment wise price column, order priority wise shipping mode and shipping cost, city wise profit and sales columns etc...can be visualized. Interactive dashboards can be created with more number of visualization. User friendly and interactive web application can be created with latest technology for different type of datasets. The analysis and the insights help us in taking decisions and making predictions.

13. APPENDIX

Source Code GitHub

https://github.com/IBM-EPBL/IBM-Project-2734-1658481949

Project Demo Link

https://drive.google.com/file/d/1oDYBWW_fGtMGHCpUQYvmeKygrvBoPdKW/view?usp=sharing