GLOBAL SALES DATA ANALYTICS

PROJECT REPORT
Submitted by

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BACHELOR OF ENGINEERING IN
COMPUTER SCIENCE AND ENGINEERING

TEAM ID : PNT2022TMID49365

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LIST OF CONTENTS

1. Indroduction:

1.1 Project Overview:

Shopping online is currently the need of the hour. Because of this COVID, it's 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.

1.2 Purpose:

By the end of this Project, you will:

● Know fundamental concepts and can work on IBM Cognos Analytics.
● Gain a broad understanding of plotting different visualizations to provide a suitable solution.
● Able to create meaningful Visualizations and Dashboard(s).

2.LITRATURE SURVEY

2.1Existing Problem:

Crafting a good sales pitch from sales data analysis can be difficult. Getting the right data, hitting the right client pain points, crystallizing why your services are better than the competitors, all takes hard work. One of the best ways we've found to build a good sales pitch is to use data you already have. In the digital world, there is no shortage of data, which translates into no shortage of potential competitive insights and advantages. With databases, data warehouses, corporate intranets, best practice sharing, web analytics, voice of the customer information, and QA or Six Sigma data, you are well-poised for discovering good information.

2.2References:

1. Han Jiawei, Micheline Kamber and Jian Pei, "Data Mining Concepts and Techniques" in , MK Publications, 2009. Show in Context Google Scholar

2. M. Tennekes and E. de Jonge, "Top-down Data Analysis with Tree maps" Proceedings of the International Conference on Information Visualization Theory and Applications (IVAPP' 11), pp. 236-241, March 2011. Show in Context Google Scholar

3. P. Hoek, "Parallel Arc Diagrams: Visualizing Temporal Interactions", Journal of Social Structure, vol. 12, 2011. Show in Context Google Scholar

2.3 Problem State Definition:

Our goal ito design and create Dashboard using the Superstore Salesdata(which is really close to reality)to provide answer to the following questions:

1.What are the perfomnance indicators value for the past month?

It's necessray for stock taking and comparing it against the same period last year.

2.What key factors do affect the profit growth?

3.What categories,subcategories,products and clients generate more profits,and what ones that bring losses?

3. IDEATION&PROPOSEDSOLUTION:

3.1.Empathy Map Canvas:

3.2. Ideation & Brainstorming:

ARJUN T

Target sales	Marketing strategies
Sales order	Sales delivery

GOWTHAMAN M

Key performan e	Indicator boost sales
Encourage distributor	Achieve target

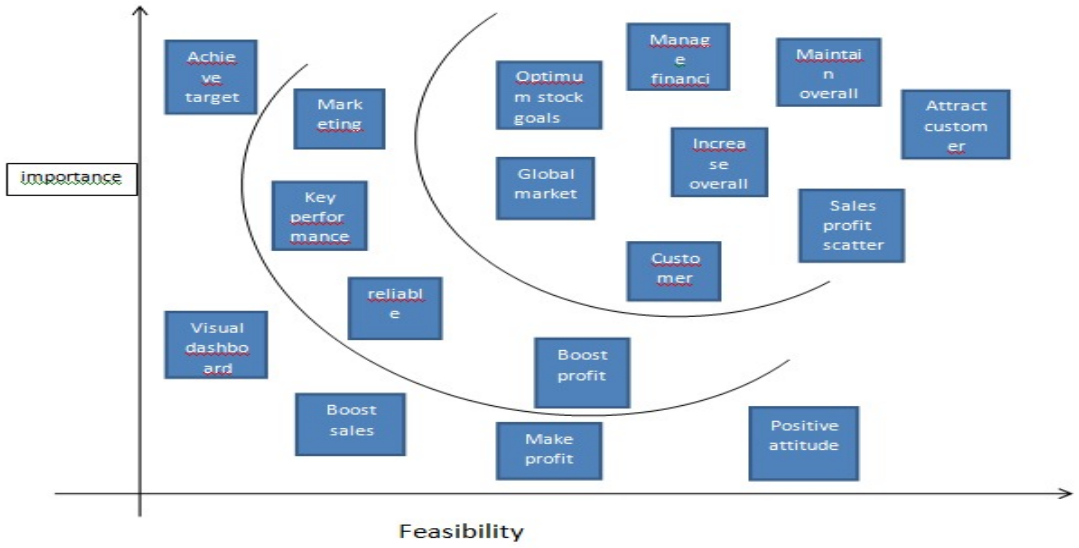
ARUN JEEVA C

Make more profit	Boost sales
Boost profit	Positive attitude

NITHISH PANDI M

Stock goals	Increase overall sales
Global market	Financial status

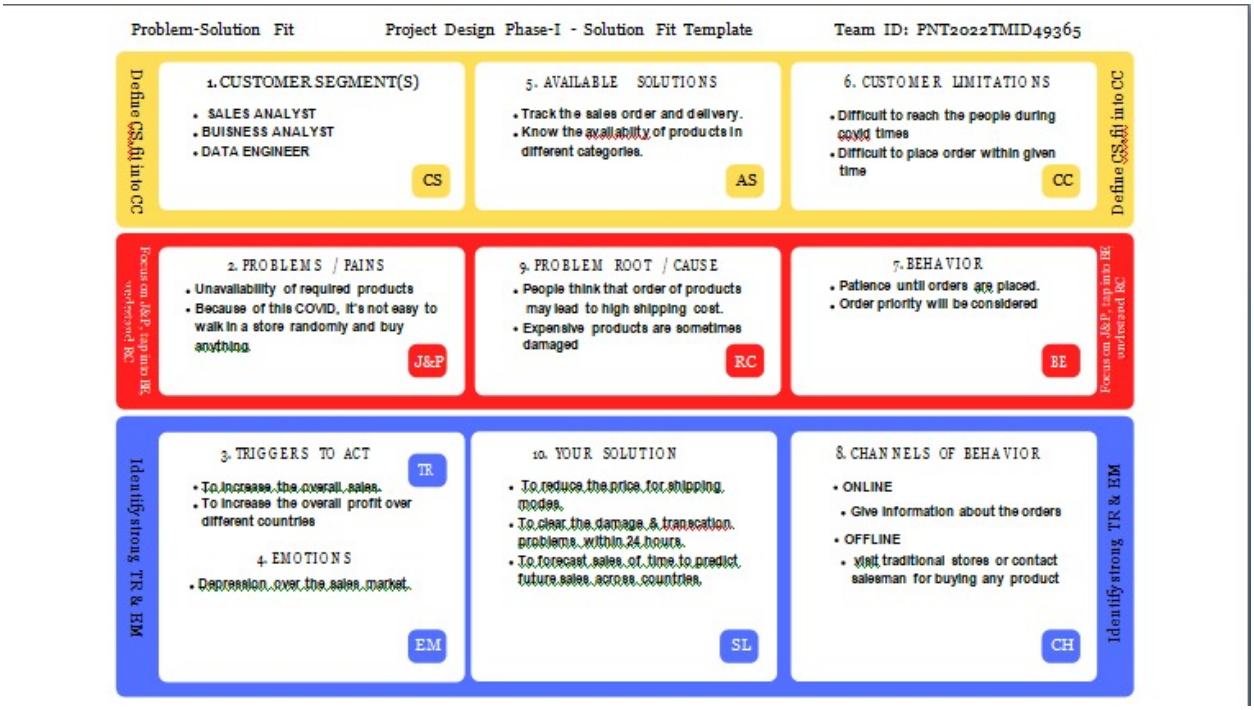
Prioritize :



3.3. Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Shopping online is currently the need of the hour. Because of this COVID, it's 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.
2.	Idea / Solution description	The described solution is by using IBM cognos we can display all the records and previous year global sales of product names, category and sub category as a graphical representation.
3.	Novelty / Uniqueness	we are going to provide discounts to the customers to increase the sales by providing free door step delivery of products to customers.
4.	Social Impact / Customer Satisfaction	Customer should know the available products and nearest location of the shops which gives the idea to customer for purchase.
5.	Business Model (Revenue Model)	This method focuses on the actual sales numbers from the customers. This helps to determine which products are top performers and multiplying the shop and increasing the product quantity.
6.	Scalability of the Solution	Using this approach, the price of products across the world are kept same so the customers will be reliable.

3.4. Problem Solution Fit:



4.Requirement Analysis:

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	03 October 2022
Team ID	PNT2022TMID49365
Project Name	Project – Global sales data analytics
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Download the dataset	Get the data from the given resource
FR-2	Data pre processing	Fill missing values, Remove duplicate values
FR-3	Choose the tool for visualization	IBM Cognos analytics is chosen
FR-4	Data visualization	Required graph, charts are chosen for visualization and
FR-5	Prepare dashboards	Dashboards, story boards and reports are created in IBM Cognos analytics

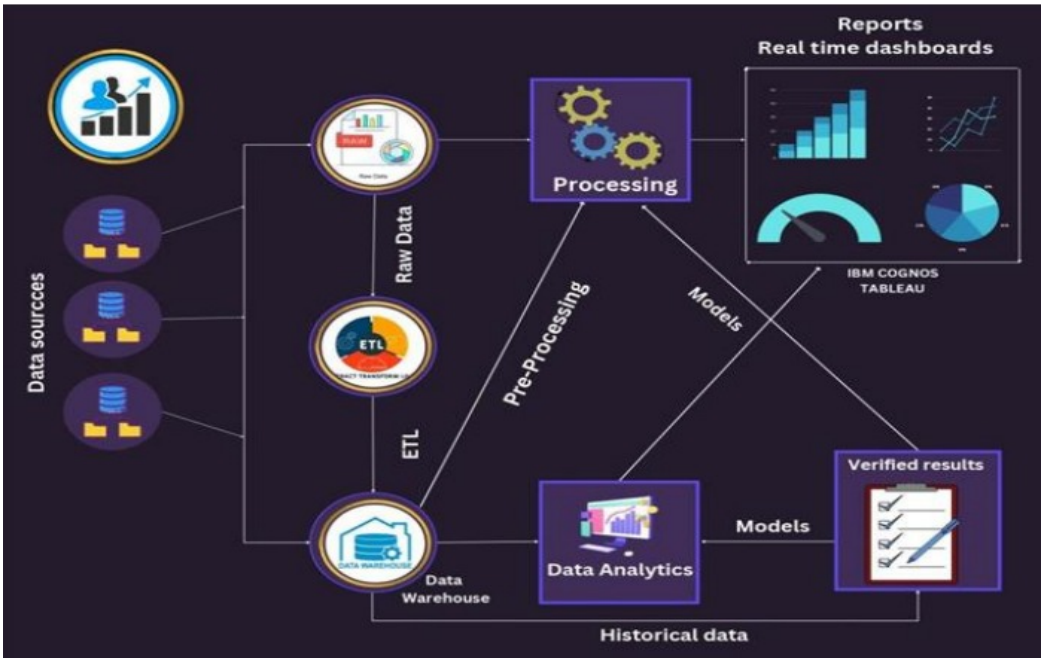
Non-functional Requirements:

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

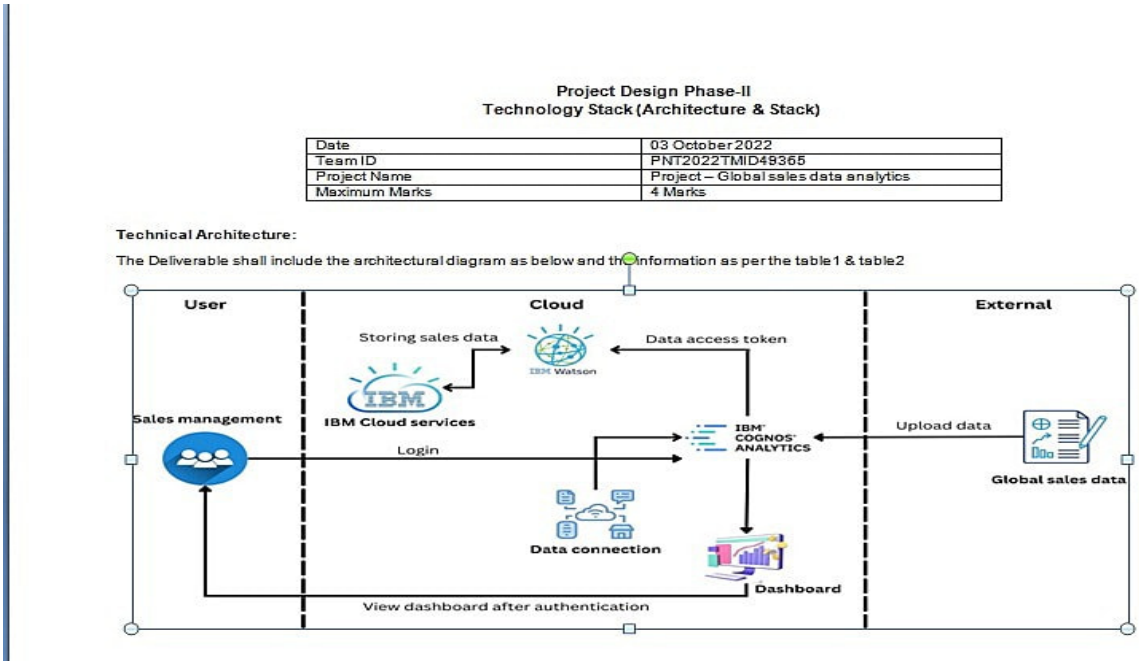
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	It should be easier to understand the insights for the customers.
NFR-2	**Security**	The data is protected from unauthorized access.
NFR-3	**Reliability**	Connecting the data to the software and further process.
NFR-4	**Performance**	The analysed information is recorded and updated.
NFR-5	**Availability**	The tool is only available for the authorized persons to create, update, remove and the record customer information.
NFR-6	**Scalability**	Everyday activities are monitored for the growth of work. Analytic tool should support even the size of data is increased.

5.Project Design:

5.1 Data Flow Diagrams:



5.2.Solution & Technical Architecture:



Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID49365
Project Name	Project – Global sales data analytics
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table2

5.3.User Stories:

User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Sales analyst/Customer	User Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can get the details of customer based on Requirements.	High	Sprint-1
			As a user, I will receive confirmation email once I have registered for the application		High	Sprint-1
	Login	USN-2	As a user, I will log in to the desired application using login credentials.	I can get the order details, sales and profit dashboards, reports, and stories used for customer analysis and product analysis.	Low	Sprint-2
	Dashboards	USN-3	As a sales analyst/customer, I can view the important sales and profit of the products and other information in real-time.		High	Sprint-1
Administrator		USN-4	As an administrator, I can access the database of the customers, sales reports, and a secure interface.	Customer relationship is managed and responsible for maintaining, updating the data.	High	Sprint-2

6.Project Planning & Scheduling:

TITLE	DESCRIPTION	COMPLETED DATE
Literature Survey & Information Gathering	Prepare Literature survey for the selected project & gathering information	1 NOVEMBER 2022
Prepare Empathy Map	Prepare Empathy Map Canvas to capture the user Pains & Gains, Prepare list of problem statements	1 NOVEMBER 2022
Ideation	List the by organizing the brainstorming session and prioritize the top 3 ideas based on the feasibility & importance.	1 NOVEMBER 2022
Proposed Solution	Prepare the proposed solution document, which includes the novelty, feasibility of idea, business model, social impact, scalability of solution, etc.	7 NOVEMBER 2022
Problem Solution Fit	Prepare problem - solution fit document.	7 NOVEMBER 2022
Solution Architecture	Prepare solution architecture document.	7 NOVEMBER 2022

6.2.Sprint Delivery Schedule:

Project Planning Phase

Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

Date	18 October 2022
Team ID	PNT2022TMID49365
Project Name	Global sales data analysis
Maximum Marks	8 Marks

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	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Arjun Gowthaman Arun Jeeva Nithish Pandi
		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	Low	
		USN-3	As a user, I will log in to the desired application using login credentials.	1	Medium	
Sprint-2	Pre processing	USN-4	As a user, I can do the data cleaning process.	2	High	Arjun Gowthaman Arun Jeeva Nithish Pandi
		USN-5	As a user, I can perform Extract, Transform Load (ETL) process.	2	High	
Sprint-3	Dashboard	USN-6	As a user, I can upload the data of global sales for analysis.	1	Medium	

7.Project Development Phase:

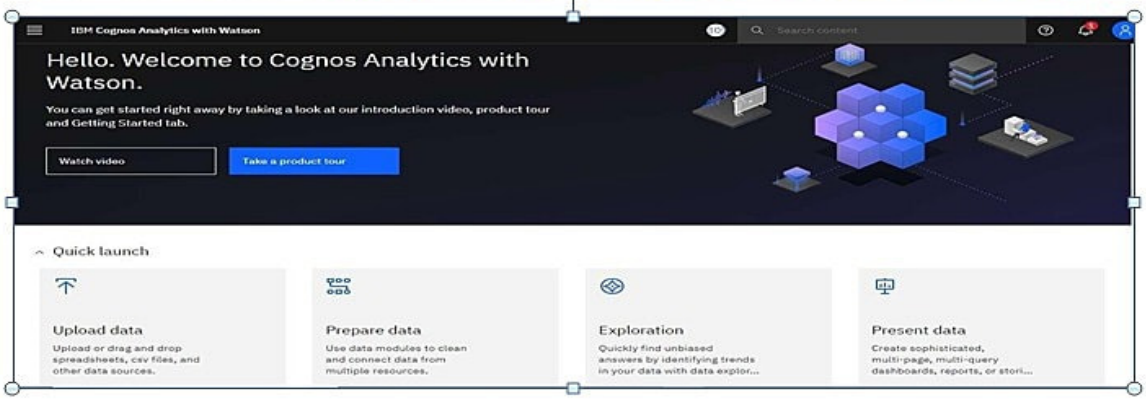
Sprint 1

DATA COLLECTION:

Sprint -1:

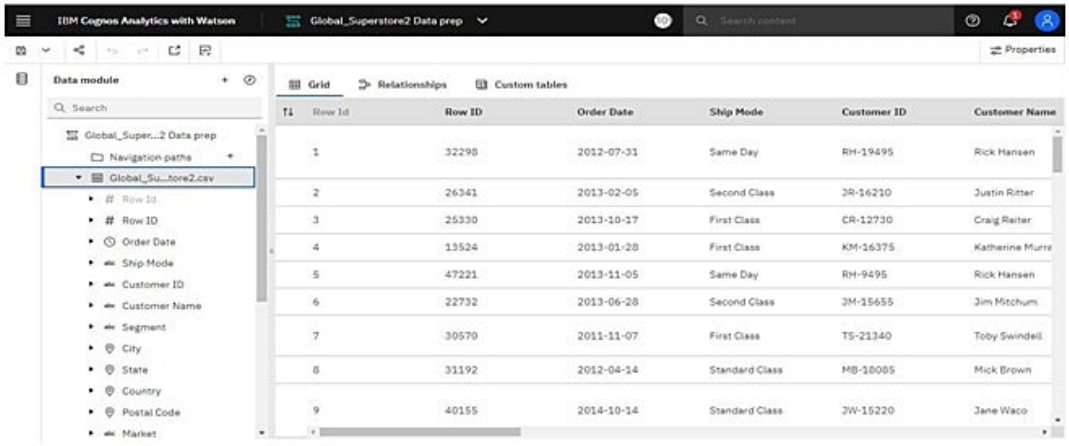
Registration and Data upload

Download the Dataset: https:https://www.kaggle.com/datasets/apoorvaappz/global-super-store-dataset



DATA PREPARATION

Prepare the Dataset



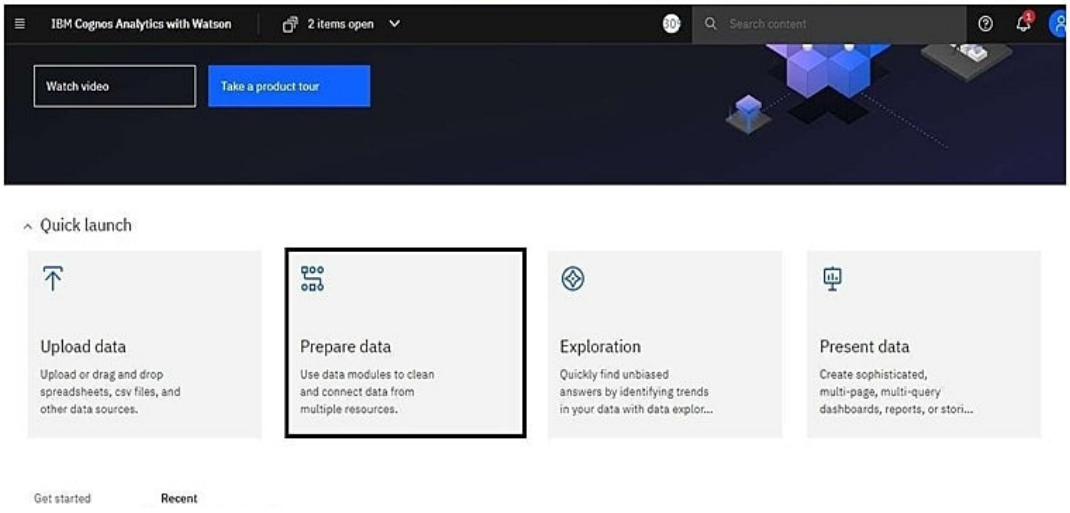
Sprint 2:

DATA PREPROCESSING:

Sprint -2:

Registration and Data upload

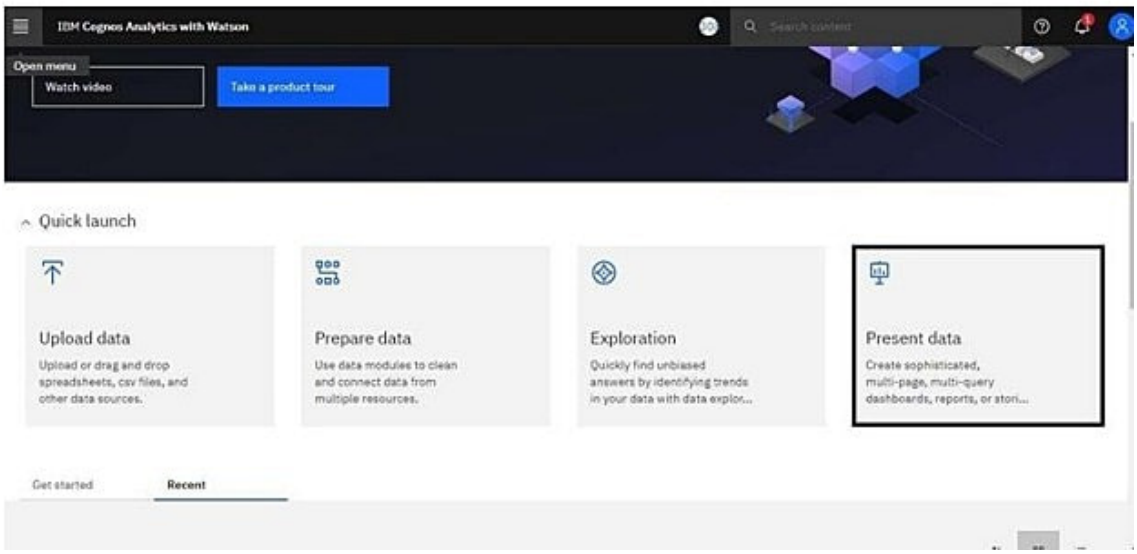
Download the Dataset: https:https://www.kaggle.com/datasets/apoorvaappz/global-super-store-dataset

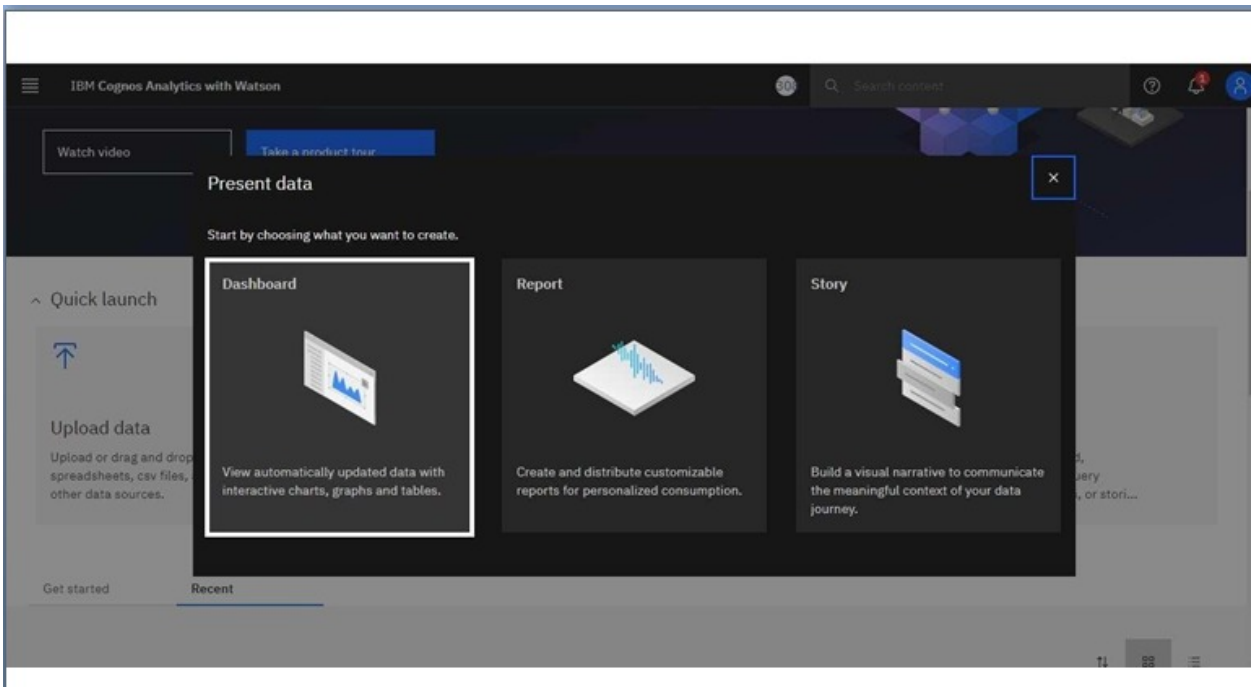


SELECTING THE SOURCE

Sprint 3

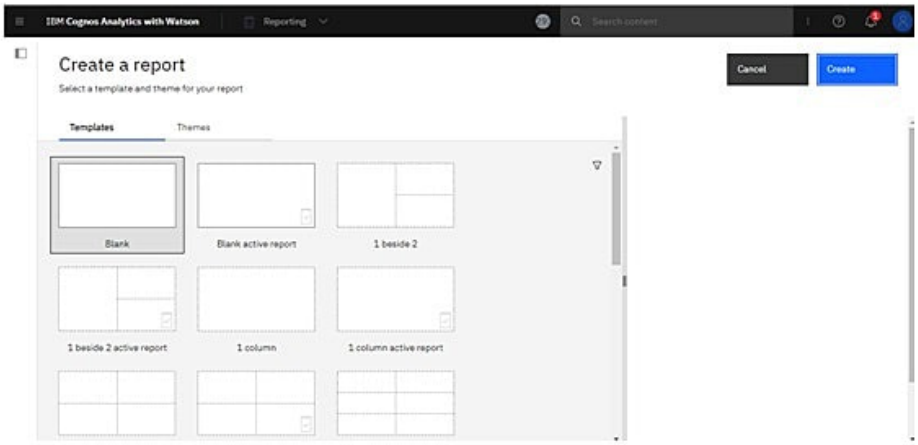
Sprint3:



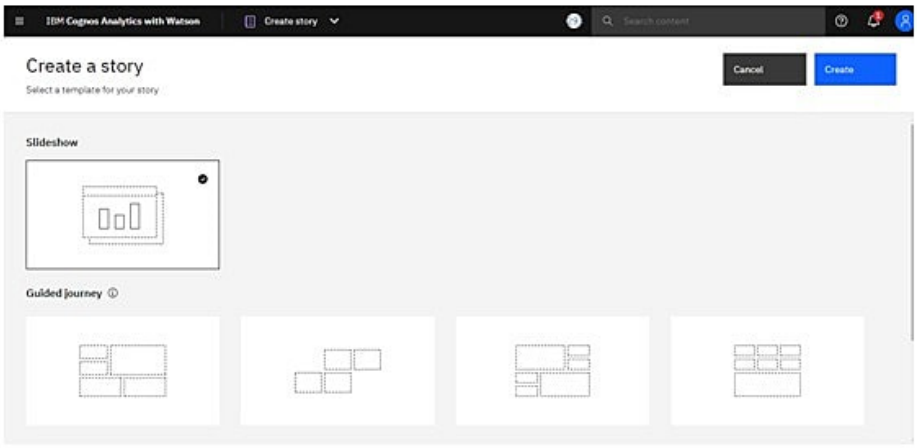


Sprint 4

REPORT



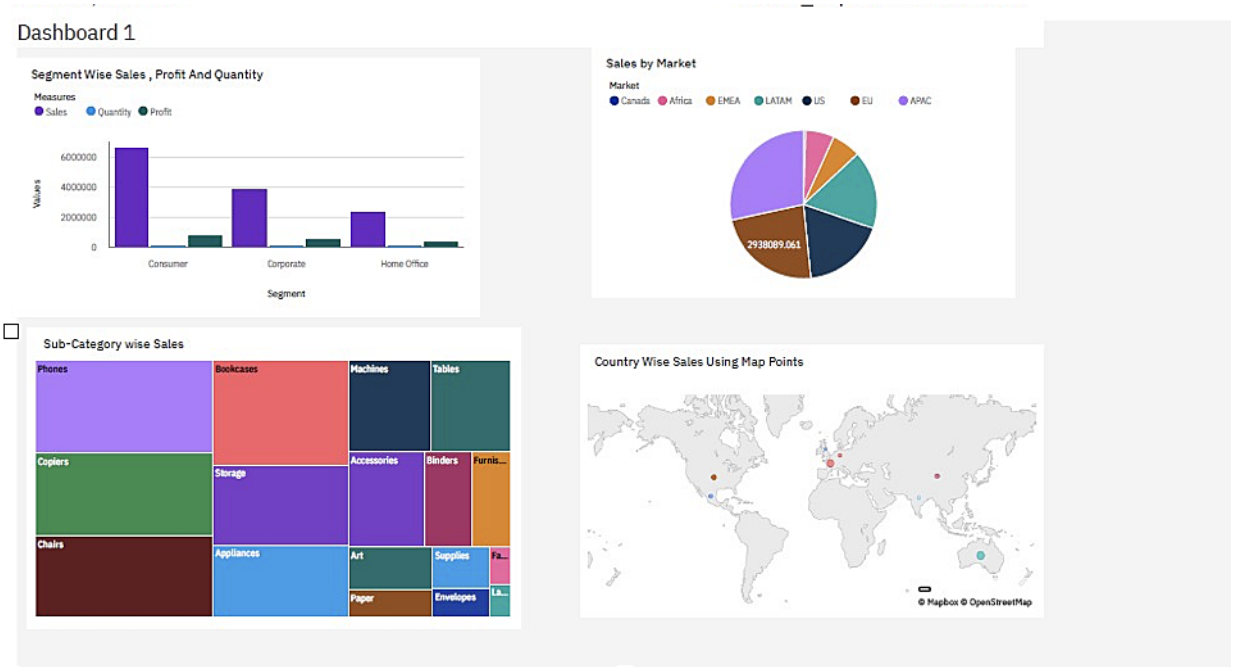
STORY



Results:

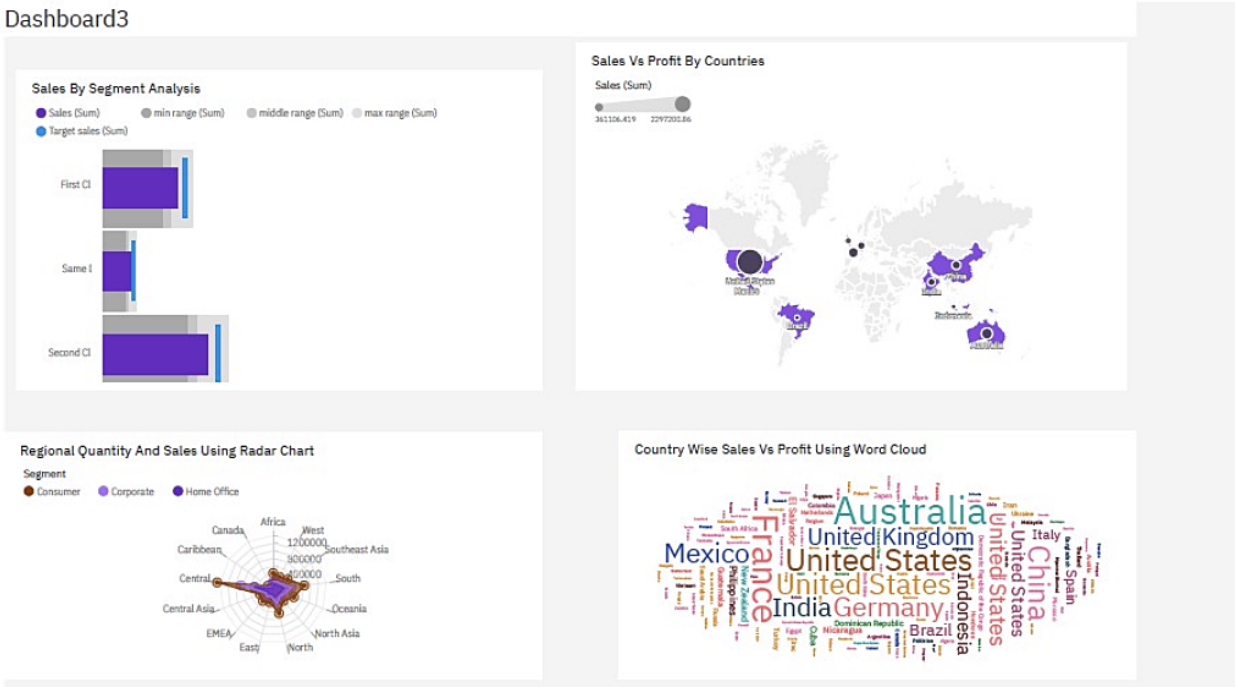
Perfomance Metrics:

Dashboard 1

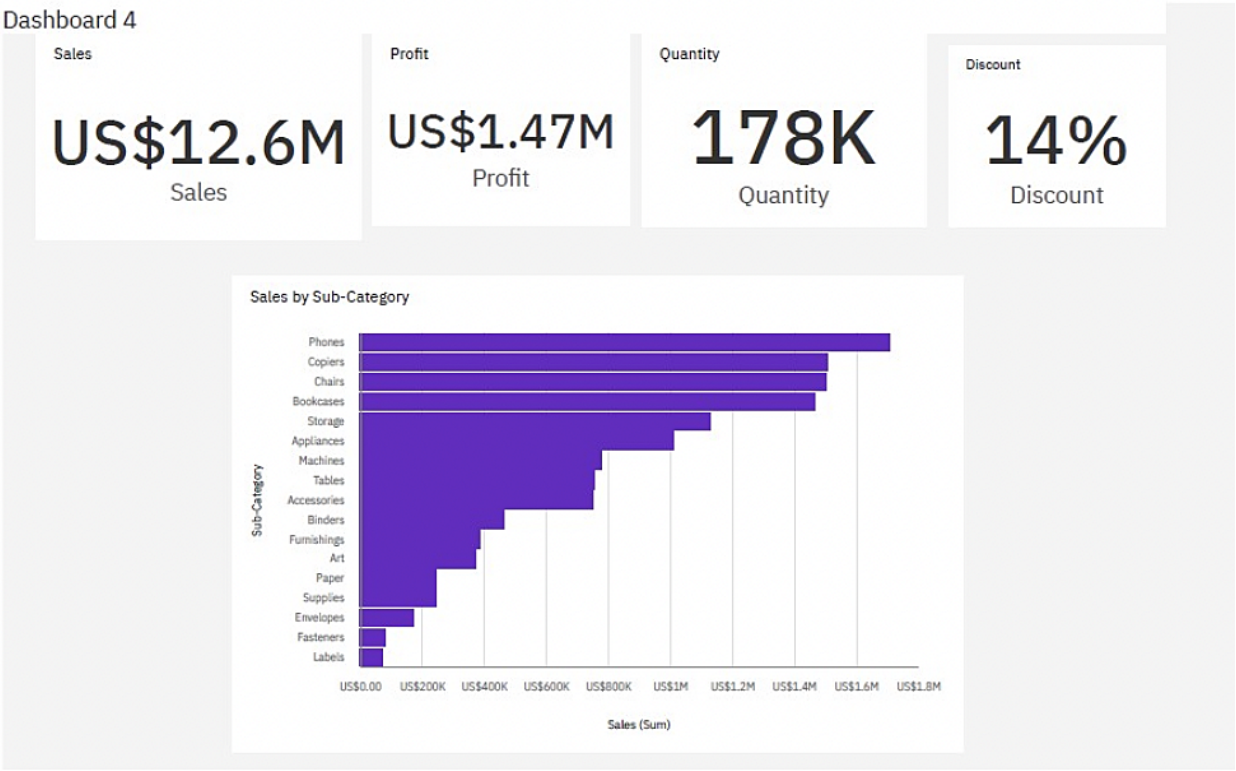


Dashboard 2

Dashboard 3



Dashboard 4



8.Advantages & Disadvantages:

Advantages:

a. It was the cost efficiency project.
b. Receive full-scale services Maximize presentation
c. It was the timing saving project for peoples.

Disadvantages:

a. The lack of data security is the big disadvantages in this project.
b. Risk of choosing the wrong provider .

9.Conclusion:

By implementing this analytics solution, the company brought their competitive and sales data reporting in-house, cut costs and increased the accuracy of their reporting and analysis. As the company moves forward with this new solution, their sales reporting costs will most likely be reduced by 50 to 70%.

They are now able to analyse raw data themselves, respond more quickly to changes in market trends and perform root cause analysis to determine those shifts in the market. By securing quicker access to their data with the new solution, the company was also able to reduce the risk associated with delayed responses to changes in their markets.

With the new solution, the company can now process sales reports faster than the outsourced solution, reducing turnaround time between 50% to 60%. The reporting needs of the company have been streamlined, consolidating over 10 reports into the centralized dashboard solution.

The company's competitive analysis group is also able to more quickly respond to internal data requests given they have the ability to pull the information themselves. With this quicker response, the company is better able to react to changes in the market and predict opportunities for its sales force.

The business also experienced an increase in the overall understanding of their sales data throughout the organization. The company now has great flexibility in the presentation of their sales and competitive data, while also being able to integrate sales data with other key data points for the organization.

10. FUTURE SCOPE:

Sales analytics refers to the use of technology to collect and use sales data to derive actionable insights. It is used to identify, optimize, and forecast sales. It uses different metrics and KPIs to plan an efficient sales model that generates higher revenue for the business.

GITHUB PROJECT LINK

GITHUB Link:

https://github.com/IBM-EPBL/IBM-Project-5164-1658749867