Estimation of Business Expenses

Project Based Experiential Learning Program

TEAM MEMBERS:

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Estimation of Business Expenses

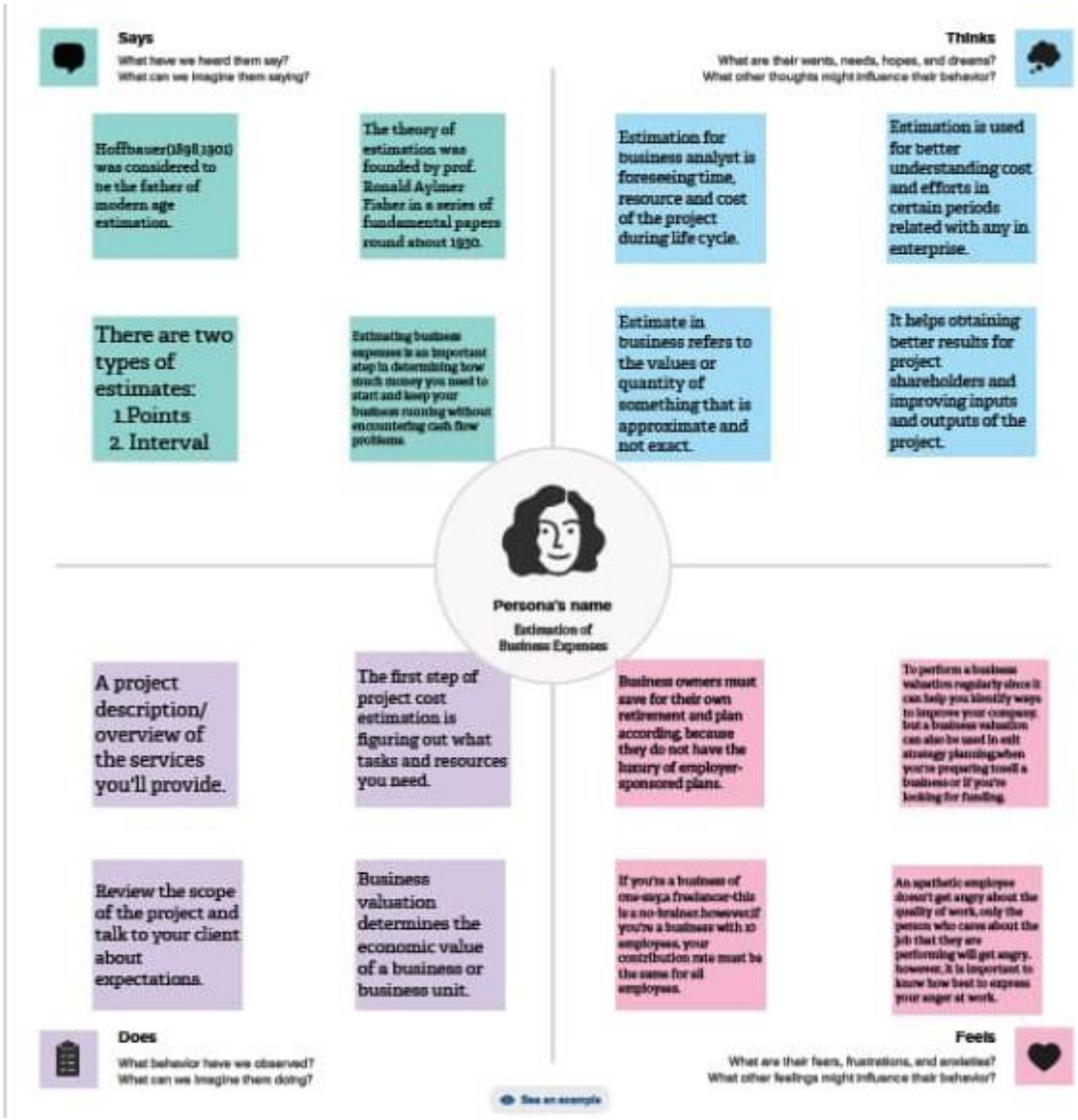
Introduction:

This report delves into the fascinating realm of business expenses and provides a visual exploration of the various expenditures incurred by different businesses. It showcases the distribution of expenses, identifies key cost drivers, and highlights areas of potential optimization or concern. The visual representations allow for intuitive analysis, facilitating a deeper understanding of expenditure patterns and their implications for business performance. Decision-makers, financial analysts, and stakeholders can gain valuable insights into the financial health of businesses, identify areas of inefficiency or opportunity, and make informed decisions to optimize resources and drive growth. To Extract the Insights from the data and put the data in the form of visualizations, Dashboards and Story we employed Tableau tool.

Milestone 1: Define Problem / Problem Understanding

Activity 1: Specify the business problem

Empathy Map:



Brainstorming Map:

Activity 2: Business requirements

The primary business requirements for this report are to visualize and analyze business expenses, provide industry-specific insights, identify cost drivers, highlight outliers, and offer interactive functionality. Stakeholders need a visual representation of expenses to compare and analyze spending patterns across different businesses and industries. The report should facilitate the identification of key cost drivers, enabling stakeholders to understand the primary factors contributing to expenses. Additionally, it should flag any outliers or anomalies for further investigation.

Activity 3: Literature Survey

Cost drivers were a significant focus in the literature survey, with researchers extensively investigating the factors influencing business expenses. Studies highlighted labour costs, material costs, overhead expenses, and marketing expenditures as key drivers. Accurately identifying and tracking these drivers was emphasized as essential for effective expense management and control.

The role of technology in expense analysis emerged as a significant theme. Researchers underscored the utilization of advanced data analytics tools and techniques, including data visualization platforms like Tableau, to enhance expense analysis and reporting.

These technologies enable businesses to gain deeper insights into their spending patterns, identify trends, and make data-driven decisions for cost optimization.
Overall, the literature survey revealed a rich body of knowledge on business expenses, covering cost analysis methodologies, cost drivers, benchmarking approaches, and the role of technology. These insights serve as a foundation for our subsequent analysis and visualization of expenses in this report.

Activity 4: Social or Business Impact.

Social Impact: The analysis of business expenses and financial management has a significant social impact. It contributes to economic stability by optimizing costs and fostering long-term sustainability. Effective expense management creates job opportunities and supports the workforce. It allows for better resource allocation, enabling businesses to invest in innovation and community engagement. Responsible expense management aligns with societal expectations and promotes social responsibility. Non-profit organizations benefit from expense analysis, enabling them to maximize their impact. Overall, analysing and managing expenses positively influences economic growth, employment, stakeholder well-being, and social responsibility.

Business Impact: Analysing business expenses has a profound impact on various aspects of business operations. It helps optimize costs, improve profitability, and ensure financial stability. Expense analysis enables businesses to allocate resources effectively, make informed decisions, and create realistic budgets and forecasts. It enhances competitiveness, attracts investors, and mitigates financial risks. By understanding and managing expenses, companies can drive growth, maintain a strong financial position, and make strategic business decisions with confidence.

Milestone 2: Data Collection & Extraction

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, evaluate outcomes and generate insights from the data.

Activity 1: Downloading the dataset

Activity 1.1: Understand the data

Data consists of 33 rows which correspond to 33 different business types and 29 columns that correspond to different operating expenses.

Column Description of the Dataset:

naics_code : Unique code given to each business type

Business_types : Different Business Types present (33)

operating_expenses : Total Operating expenses

annual_payroll : Total yearly payment

employer_cost : Amount spent on employees

employer_costs_health_insurance : Amount spent on health insurance for employees

employer_costs_contribution_plans : Amount spent on retirement plans for employees

employer_costs_pension_plans : Amount spent on pension plans for employees

employer_costs_benefits : Amount spent to provide various benefits to the employees

contract_labor_costs : Amount spent on contract labourers

expensed_equipment_amount : Amount spent on equipment

packaging_materials_and_containers: Amount spent on packaging

parts_and_supplies_not_for_resale: Amount spent on necessary parts and supplies not for sale

purchases_of_software: Amount spent to purchase software

data_processing_and_computer_services: Amount spent to computer services

commission_expense_amount : Amount spent on commissions given to employees based on their performance

communication_services: Amount spent on transmission and reception of data.

repairs_and_maintenance_of_equipment : Amount spent on repairs and maintenance

maintenance_of_buildings_offices: Amount spent on maintenance of buildings

rental_payment_for_machinery: Amount spent on leasing machinery

rental_payments_for_buildings_offices: Amount spent on leasing buildings for offices

electricity: Amount spent on electricity

water_sewer_and_other_utility: Amount spent on water sewer treatment

transportation_shipping_warehousing: Amount spent on transport, shipping and warehousing.

advertising_and_promotional_services: Amount spent on advertising

professional_and_technical_services: Amount spent on technical services

depreciation_and_amortization: Amount of depreciation

taxes_and_license: Amount spent on taxes and licenses

Milestone 3: Data Preparation

Activity 1: Prepare the Data for Visualization

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualizations to gain insights into the performance and efficiency.

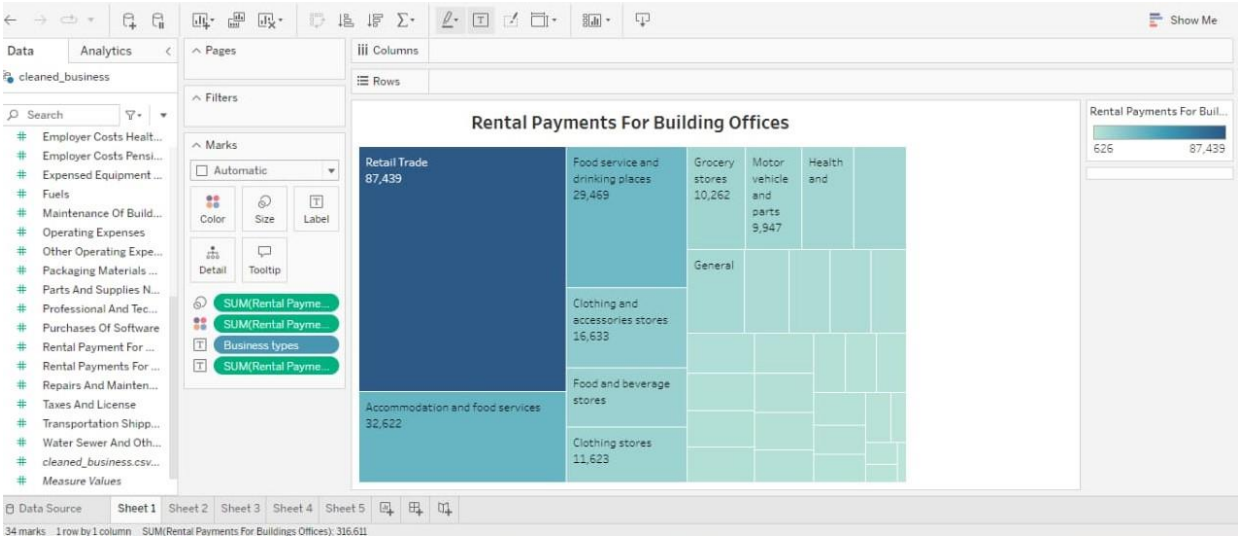
Milestone 4: Data Visualization

Data visualization is the process of creating graphical representations of data to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.

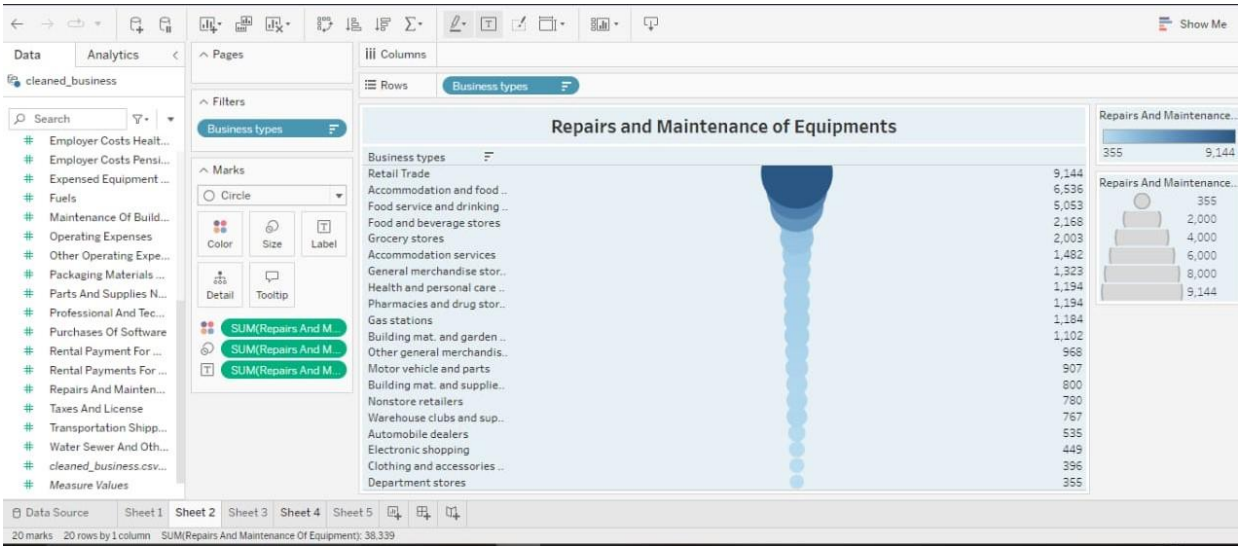
Activity 1: No of Unique Visualizations

The number of unique visualizations that can be created with a given dataset. Some common types of visualizations that can be used to analyse the performance and efficiency of banks include bar charts, line charts, heat maps, scatter plots, pie charts, Maps etc.

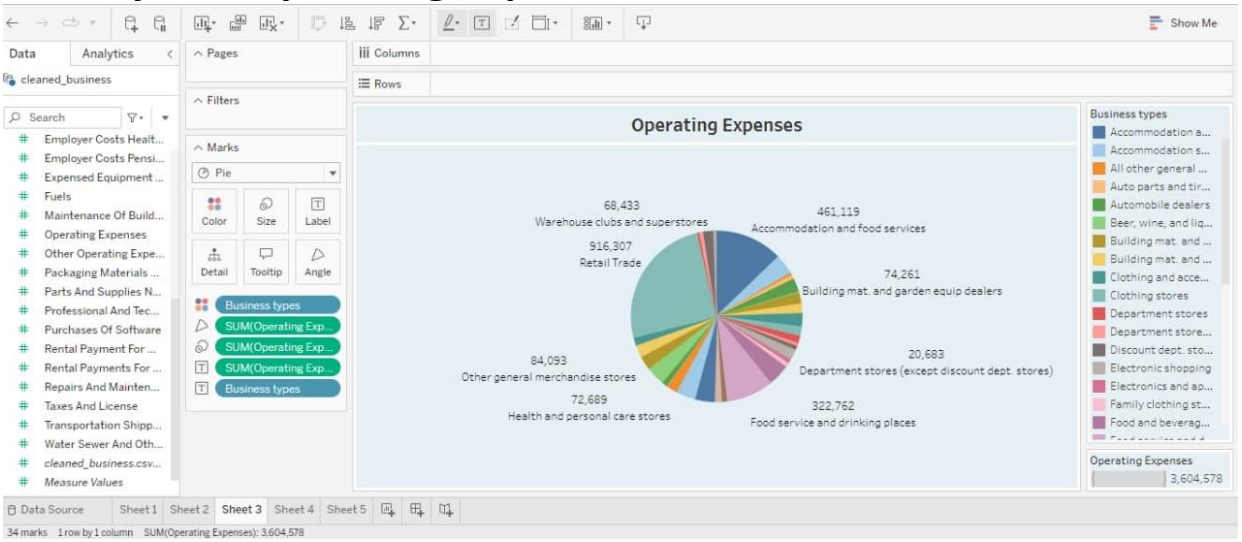
Activity 1.1:
Rental Payments for Building Offices:



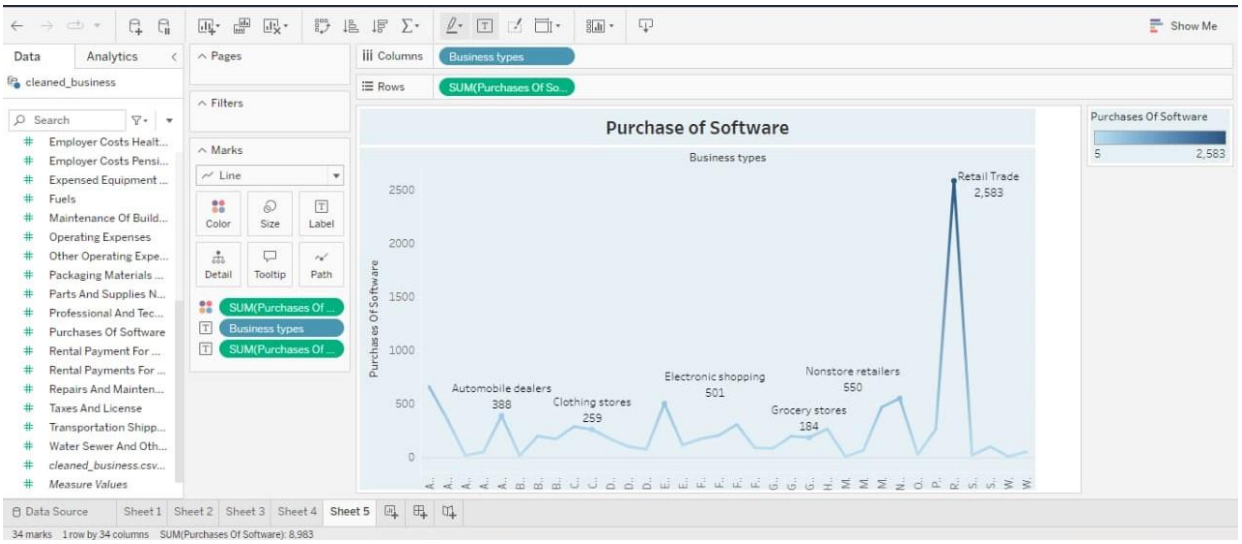
Activity 1.2: Repairs and Maintenance of Equipments:



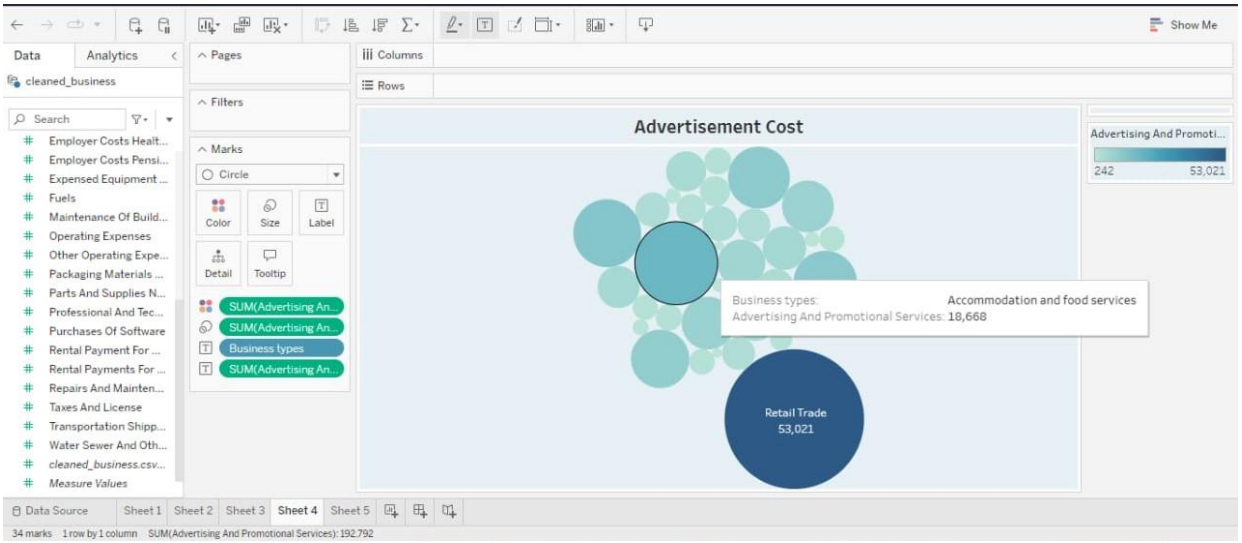
Activity 1.3: Operating Expenses:



Activity 4: Purchase of Software:



Activity 5: Advertisement Cost:



Milestone 5: Dashboard

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.

Activity 1: Responsive and Design of dashboard

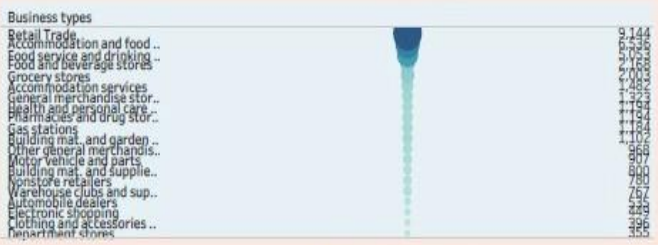
Once you have created views on different sheets in Tableau, you can pull them into a dashboard.

Activity 1.1 : Dashboard

DEMO DASHBOARD

Rental Payments For Building Offices

Repairs and Maintenance of Equipments



Operating Expenses

Purchase of Software

Advertisement Cost

Milestone 6: Story

A data story is a way of presenting data and analysis in a narrative format, intending to make the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis logically and systematically, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.

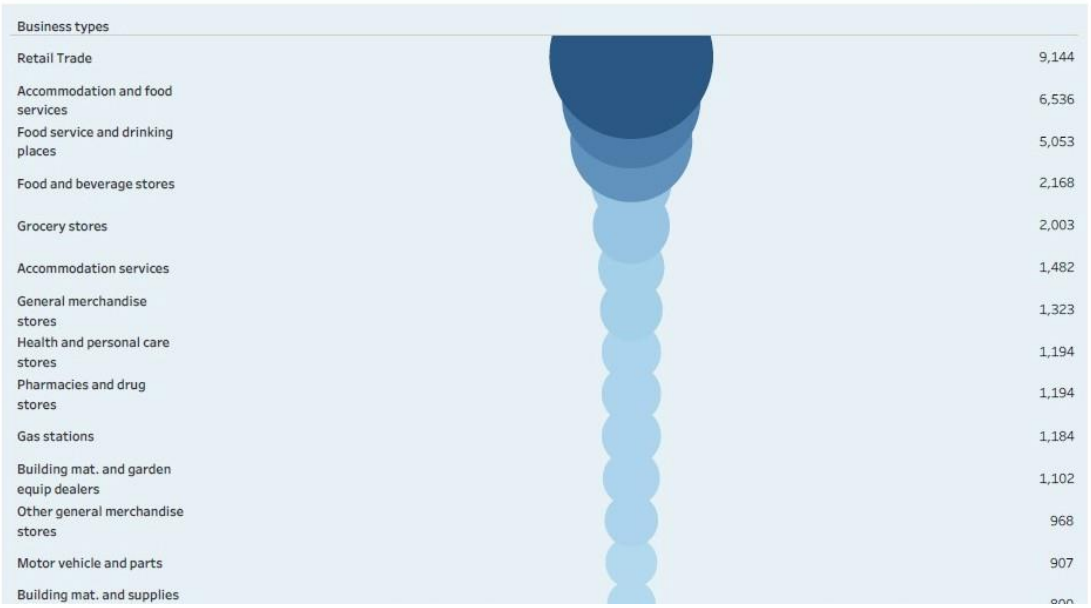
Activity 1: Number of scenes in a story

The number of scenes in a storyboard for a data visualization analysis of the performance of banks will depend on the complexity of the analysis and the specific insights that are trying to be conveyed. A storyboard is a visual representation of the data analysis process and it breaks down the analysis into a series of steps or scenes.

Activity 1.1 : Story 1

Story 1

This visualization shows the lowest ren.. | This Visualization shows the highest re.. | This visualization shows the highest op.. | The business type that has the leading purch.. | The visualization shows the count of ad..



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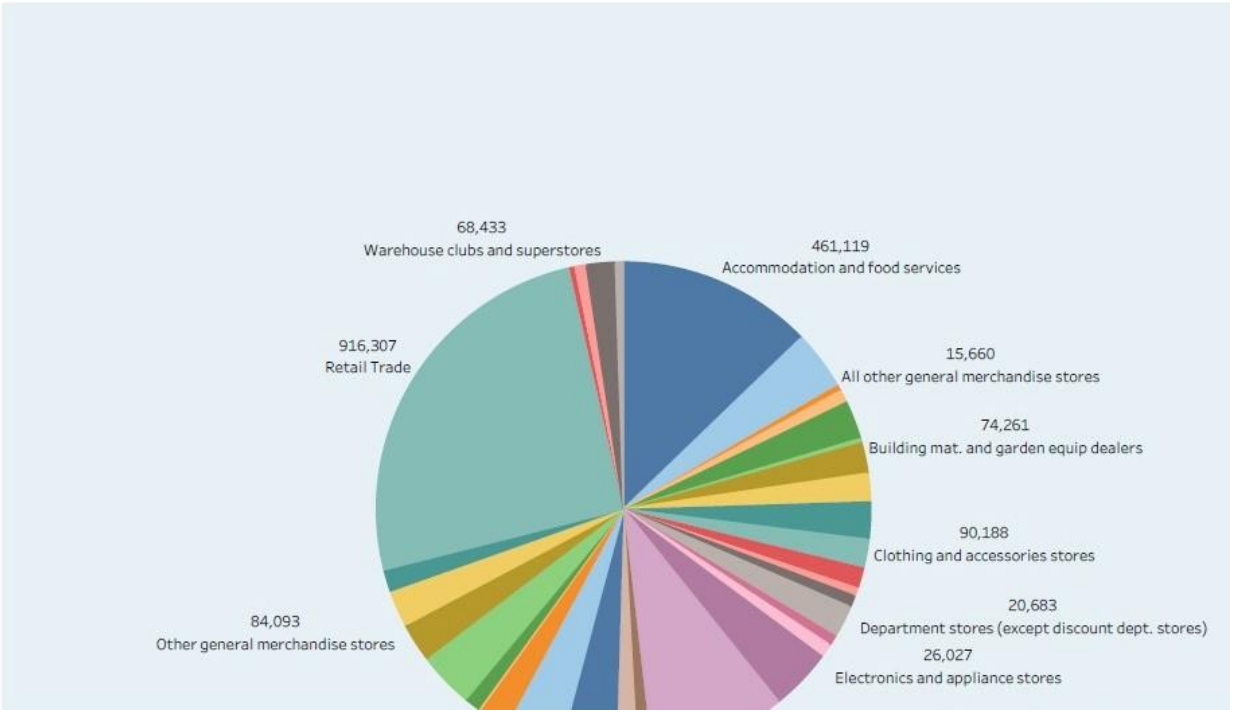
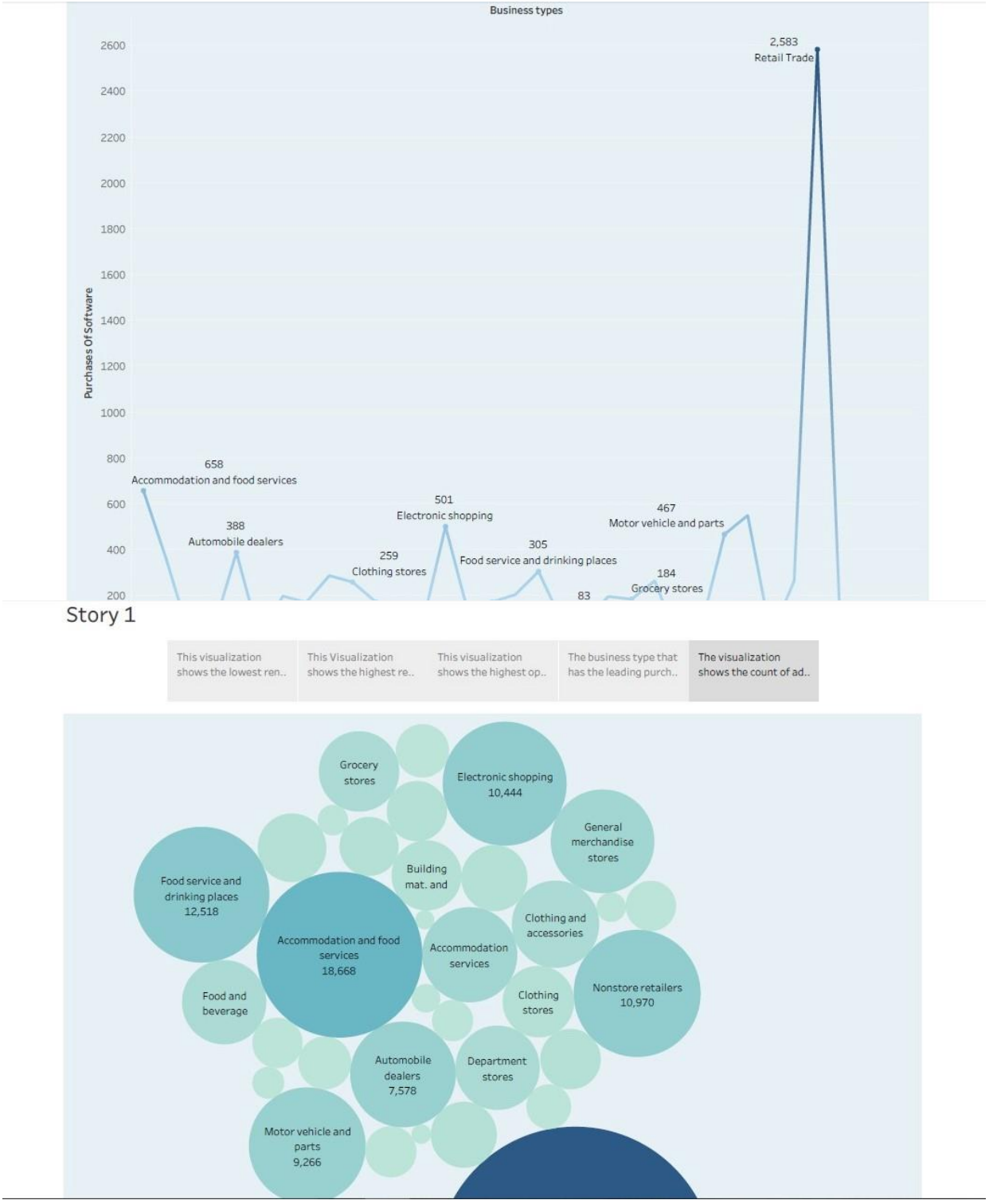


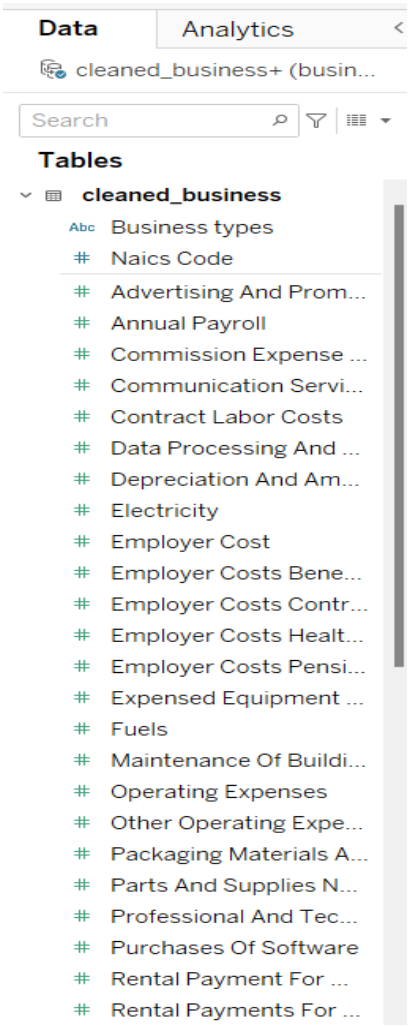


Milestone 7: Performance Testing

Activity 1: Amount of Data Rendered to Tableau

- The amount of data that is rendered to a Tableau depends on the size of the dataset

Activity 2: Number of calculation fields



Activity 3: Number of visualizations

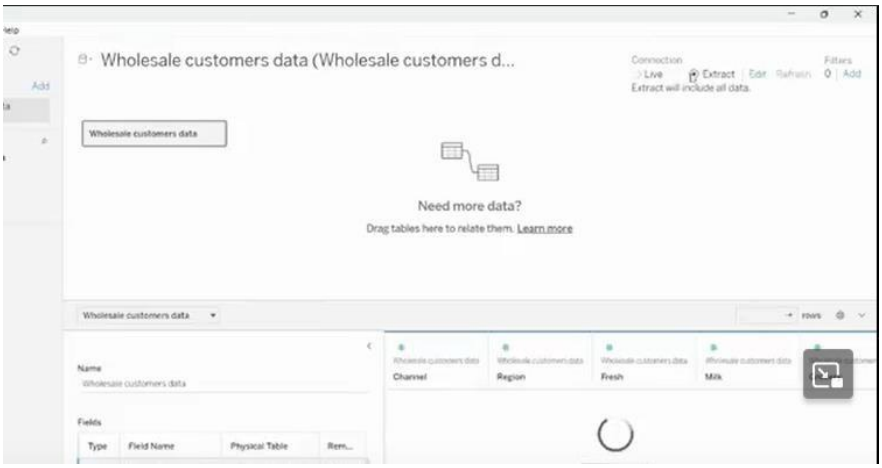
- Rental Payments for Building Offices
- Repairs and maintenance of Equipments
- Operating Expenses
- Purchase of Software
- Advertisement Cost

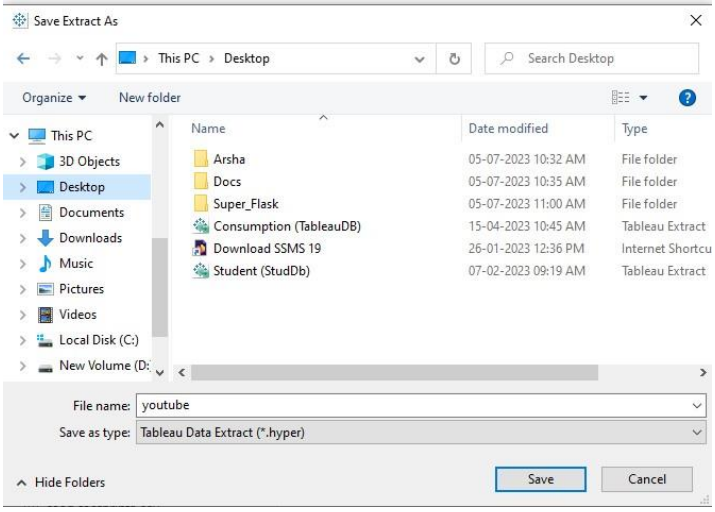
Milestone 8: Publishing

Publishing helps us to track and monitor key performance metrics and to communicate results and progress. help a publisher stay informed, make better decisions, and communicate their performance to others.

Publishing dashboard and reports to tableau public

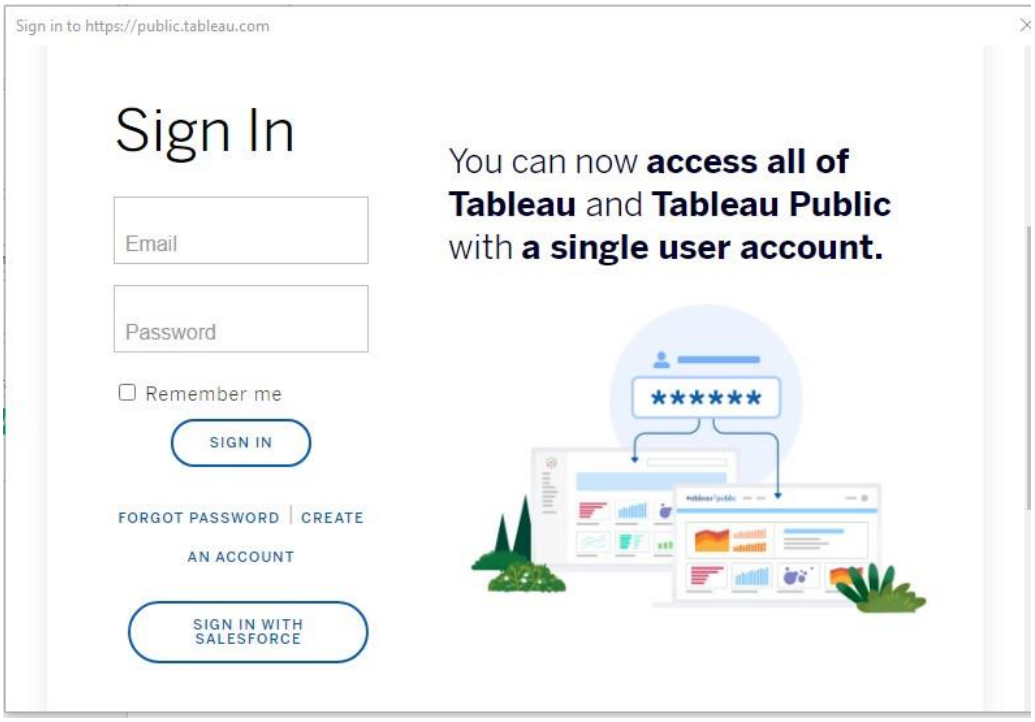
Step 1 : Go to data Source and Select Extract so that .hyper extension files are created and save it at your desktop.
(please wait for pop up of file to save)





Step 2: Go to Dashboard/story, click on share button on the top ribbon

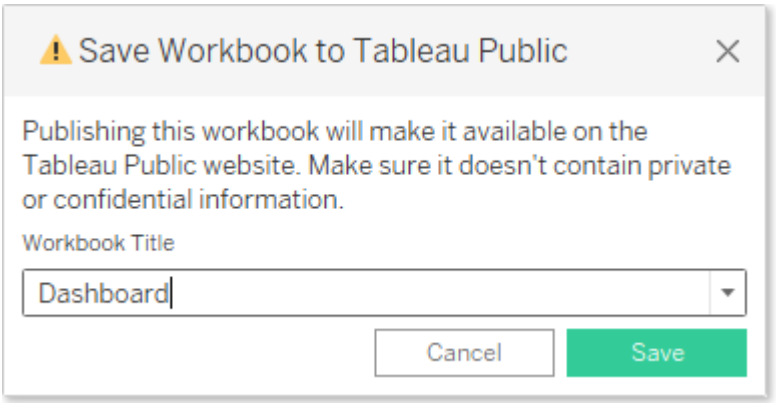
Give the server address of your tableau public account and click on connect.



Sign in to your Tableau Public account or create a new account if you don't have one. You can visit the Tableau Public website (public.tableau.com) and click on the "Sign In" or "Join" button.

In the "Tableau Public Sign In" window, enter your Tableau Public account credentials and click "Sign In."

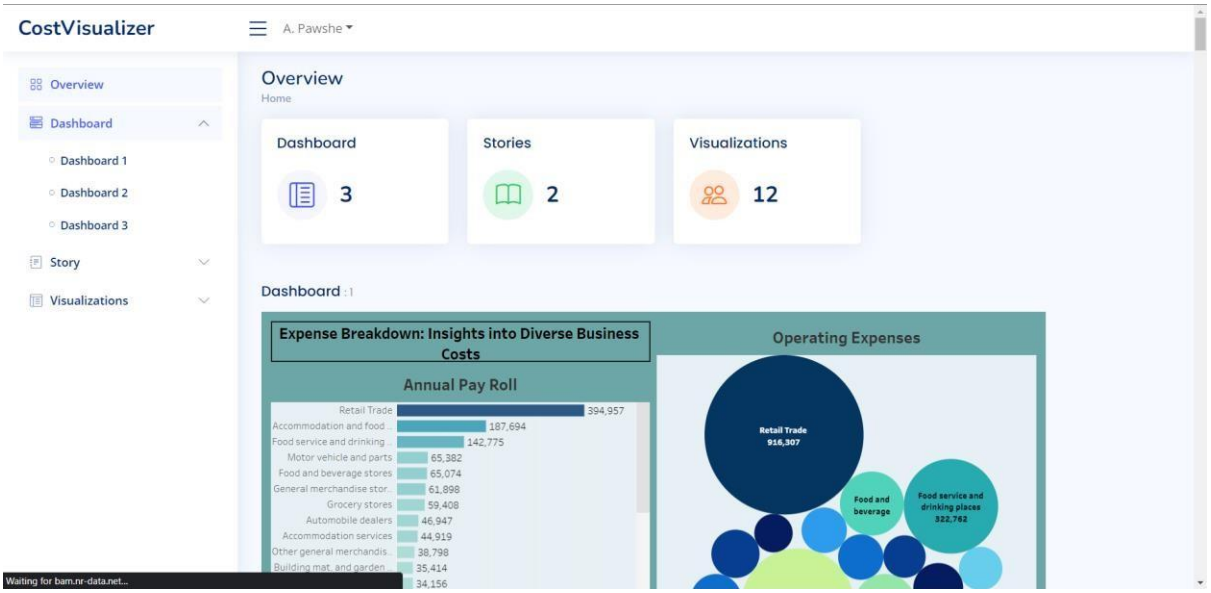
Next, you'll need to provide a title and description for your workbook. Fill in the appropriate details in the provided field of workbook Title

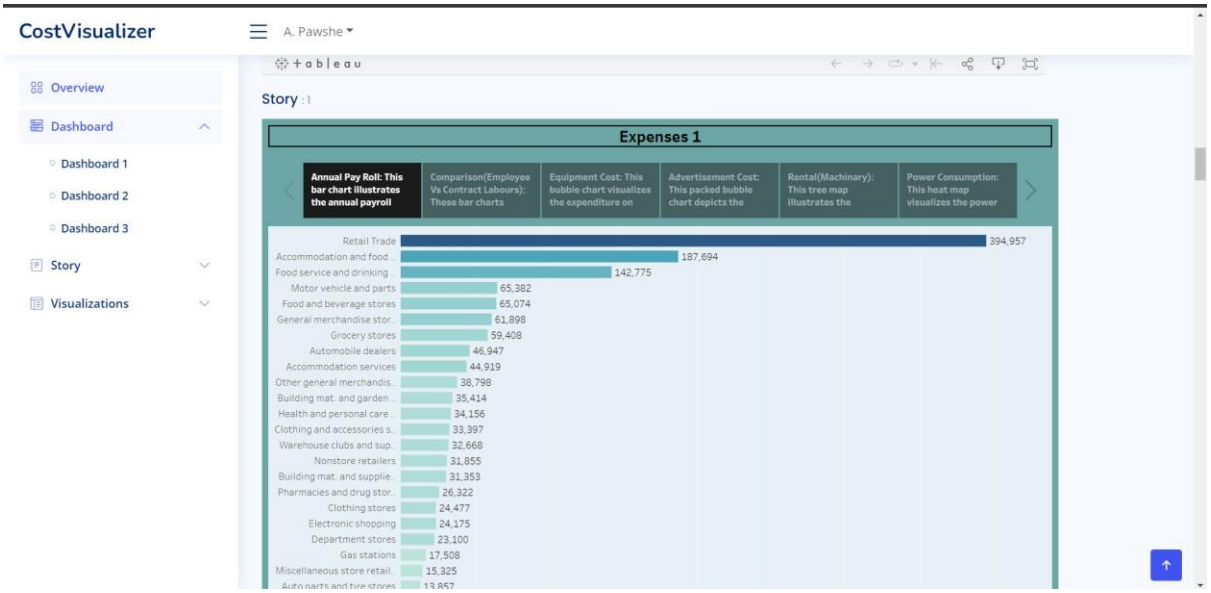


Click on the "Save" button to start the publishing process. Tableau Desktop will upload your workbook to Tableau Public.

Once the upload is complete, a browser window will automatically open, displaying your published workbook on Tableau Public. Review the workbook to ensure that everything appears as expected.

So in Similar way we can also publish Story to tableau public.


CostVisualizer
A. Pawshe
Overview
Dashboard
Dashboard 1
Dashboard 2
Dashboard 3
Story
Visualizations
Overview
Home
Dashboard
3
Stories
2
Visualizations
12
Dashboard :1
Expense Breakdown: Insights into Diverse Business Costs
Annual Pay Roll
Retail Trade 394,957
Accommodation and food ... 187,694
Food service and drinking ... 142,775
Motor vehicle and parts 65,382
Food and beverage stores 65,074
General merchandise stor... 61,898
Grocery stores 59,408
Automobile dealers 46,947
Accommodation services 44,919
Other general merchandis... 38,798
Building mat. and garden ... 35,414
34,156
Operating Expenses
Retail Trade
916,307
Food and beverage
Food service and drinking places
322,762
Waiting for bam.nr-data.net...


CostVisualizer
A. Pawshe
Overview
Dashboard
Dashboard 1
Dashboard 2
Dashboard 3
Story
Visualizations
+ableau
Story :1
Expenses 1
Annual Pay Roll: This bar chart illustrates the annual payroll
Comparison(Employee Vs Contract Labours): These bar charts
Equipment Cost: This bubble chart visualizes the expenditure on
Advertisement Cost: This packed bubble chart depicts the
Rental(Machinary): This tree map illustrates the
Power Consumption: This heat map visualizes the power
Retail Trade 394,957
Accommodation and food ... 187,694
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Grocery stores 59,408
Automobile dealers 46,947
Accommodation services 44,919
Other general merchandis... 38,798
Building mat. and garden ... 35,414
Health and personal care ... 34,156
Clothing and accessories s... 33,397
Warehouse clubs and sup... 32,668
Nonstore retailers 31,855
Building mat. and supplie... 31,353
Pharmacies and drug stor... 26,322
Clothing stores 24,477
Electronic shopping 24,175
Department stores 23,100
Gas stations 17,508
Miscellaneous store retail... 15,325
Auto parts and tire stores 13,857

Advantages and Disadvantages of Estimation of Business Expenses:

- It allows you to know whether you need to raise the price of your product or if you can keep it at a steady cost. Estimating business costs involves knowing your profit margins, accurate estimating of the time that will take, and considering the risks involved with completing the job.
- The disadvantages of bottom-up estimating include the high level of detail required, the need for expect opinion, the time-consuming nature of decomposing a project, and the inherent costs associated with the additional time ad team members required to generate such an estimate.

Applications:

- Cost estimation helps you determine your project's budget, schedule the work necessary and manage new resources. Cost estimates are also very crucial when it comes to winning new business. Property owners also use cost estimates to assess the feasibility of their projects before embarking on actual construction.

Conclusion:

In conclusion, cost estimation is an important components of project management that ensures projects are finished on schedule and within budget. Since inaccurate cost estimates can have serious financial consequences for businesses, accurate cost estimating is crucial for all stakeholders engaged in a project.

Future scope:

- Cost estimation in project management is the process of forecasting the financial and other resources needed to complete a project within a defined scope. Cost estimation accounts for each element required for the project-from materials to labor-and calculates a total amount that determines a project's budget.