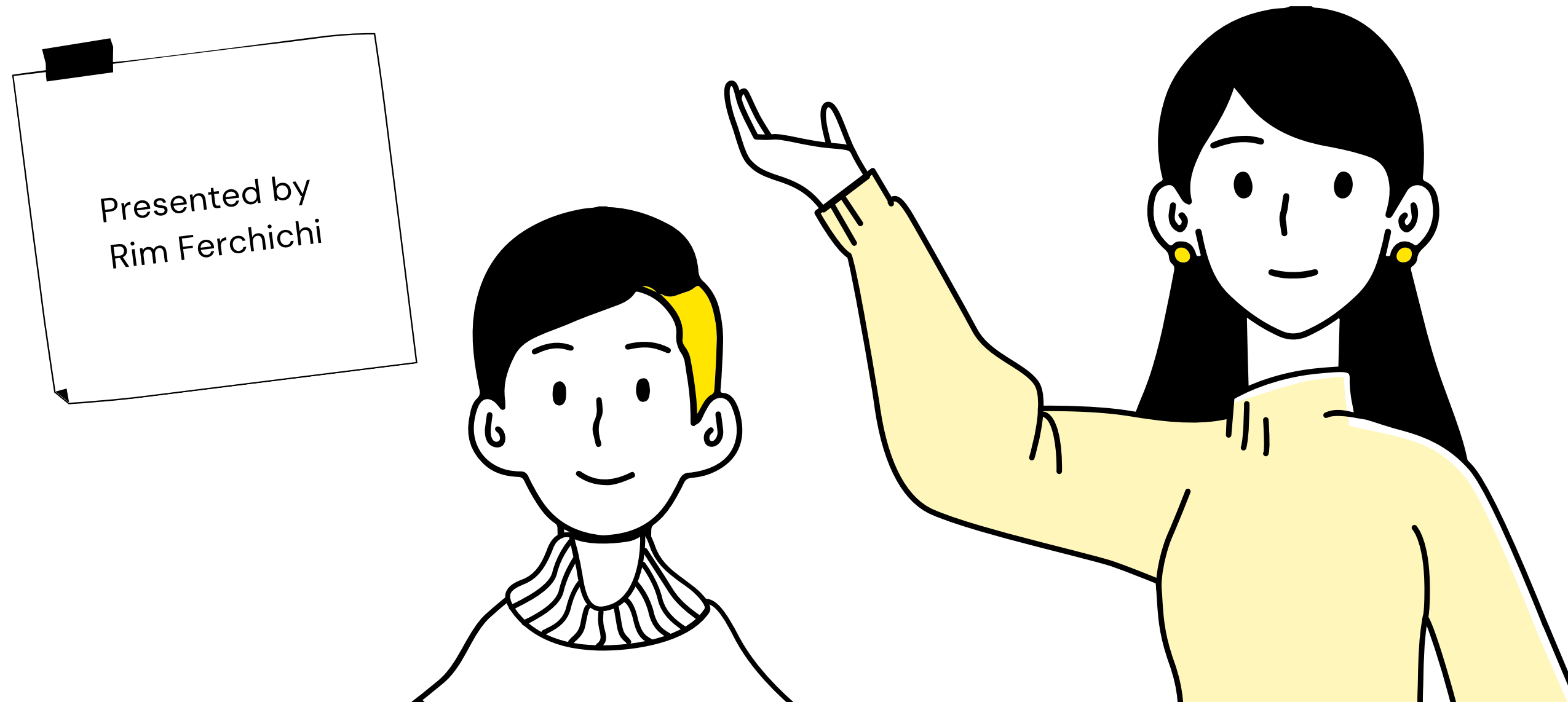


Project Presentation



This business intelligence project analyzes a Bike Rental dataset aiming to uncover a complex demand pattern.

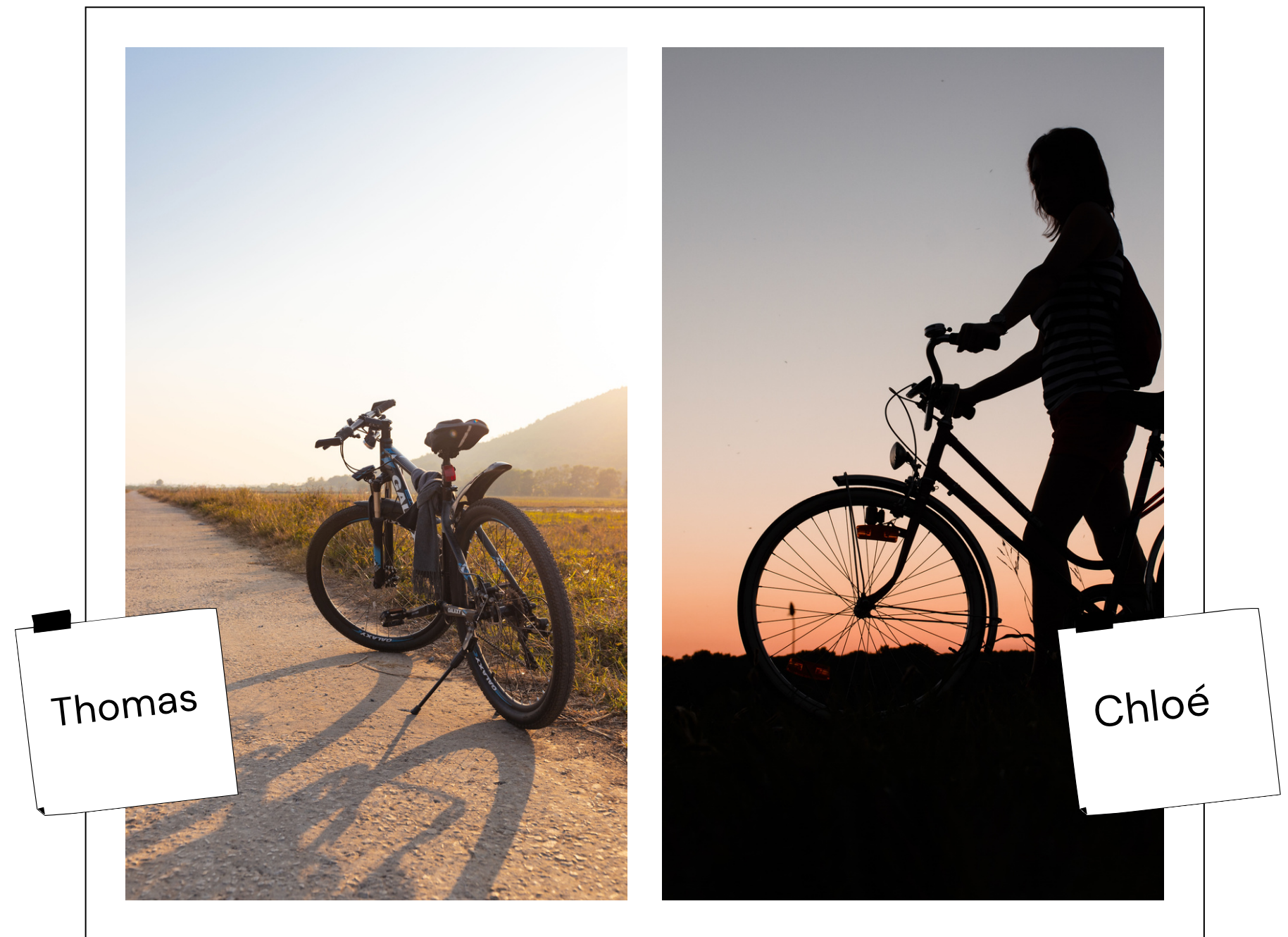
Project Introduction

The project adds value by converting historical bike rental data into actionable insights, facilitating proactive decision-making for optimizing resource planning and responding to fluctuating demand. It enhances operational efficiency and empowers managers with strategic tools for data-driven decision-making.

Project Purpose

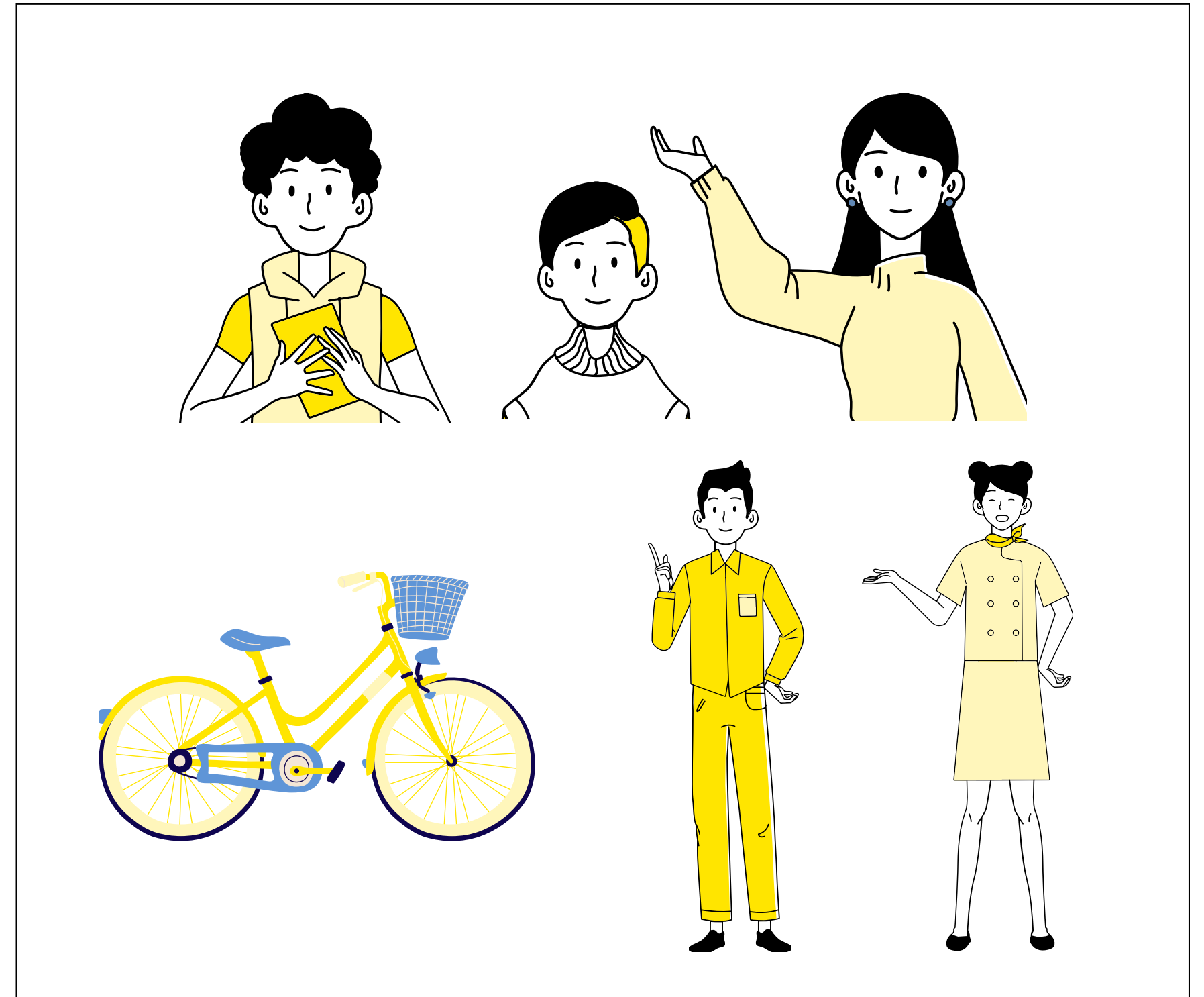
The bike rental system consists of a series of shops/stations where clients can rent bikes on an hourly basis and must return them to either the original location or another one within the series.

The database records the number of total available and rented bikes per hour, along with additional information about the weather and a description of the day of the measurement.





Goals

The objective is to ascertain the demand for rented bikes by analyzing patterns influenced by weekdays, weekends, weather, and seasonal variations. The project aims to furnish managers with valuable insights into customer demand dynamics, enabling informed decisions regarding resource allocation and operational strategies based on these influencing factors.



The raw dataset

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Bike Sharing Dataset

Donated on 12/19/2013

This dataset contains the hourly and daily count of rental bikes between years 2011 and 2012 in Capital bikeshare system with the corresponding weather and seasonal information.

Dataset Characteristics	Subject Area	Associated Tasks
Multivariate	Social Science	Regression
Feature Type	# Instances	# Features
Integer, Real	17389	13

Dataset Information

Additional Information
Bike sharing systems are new generation of traditional bike rentals where whole process from membership, rental and return back has become automatic. Through these systems, user is able to easily rent a bike from a particular position and return back at another position. Currently, there are about over 500 bike-sharing programs around the world which is composed of over ...

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11 citations
61685 views

Creators
Hadi Fanaee-T

DOI
10.24432/C5W894

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day

Microsoft Excel Comma S...



hour

Microsoft Excel Comma S...



Readme

Text Document

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	instant	dteday	season	yr	mnth	holiday	weekday	workingday	weathersit	temp	atemp	hum	windspeed	casual	registered	cnt			
2	1	1/1/2011	1	0	1	0	6	0	2	0.344167	0.363625	0.805833	0.160446	331	654	985			
3	2	1/2/2011	1	0	1	0	0	0	2	0.363478	0.353739	0.696087	0.248539	131	670	801			
4	3	1/3/2011	1	0	1	0	1	1	1	0.196364	0.189405	0.437273	0.248309	120	1229	1349			
5	4	1/4/2011	1	0	1	0	2	1	1	0.2	0.212122	0.590435	0.160296	108	1454	1562			
6	5	1/5/2011	1	0	1	0	3	1	1	0.226957	0.22927	0.436957	0.1869	82	1518	1600			
7	6	1/6/2011	1	0	1	0	4	1	1	0.204348	0.233209	0.518261	0.0895652	88	1518	1606			
8	7	1/7/2011	1	0	1	0	5	1	2	0.196522	0.208839	0.498696	0.168726	148	1362	1510			
9	8	1/8/2011	1	0	1	0	6	0	2	0.165	0.162254	0.535833	0.266804	68	891	959			
10	9	1/9/2011	1	0	1	0	0	0	1	0.138333	0.116175	0.434167	0.36195	54	768	822			
11	10	#####	1	0	1	0	1	1	1	0.150833	0.150888	0.482917	0.223267	41	1280	1321			
12	11	#####	1	0	1	0	2	1	2	0.169091	0.191464	0.686364	0.122132	43	1220	1263			
13	12	#####	1	0	1	0	3	1	1	0.172727	0.160473	0.599545	0.304627	25	1137	1162			
14	13	#####	1	0	1	0	4	1	1	0.165	0.150888	0.470417	0.301	38	1268	1406			

What data are we analyzing?

1

The data was collected between 2011 and 2012 (historical)

2

we have more than 17000 instances

3

2 CSV documents + 1 text document

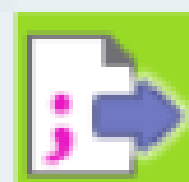
4

No missing values / outliers

What steps did we follow ?

- The data was presented in two CSV documents therefore I converted one of them into a text file to have two types of input.
- Following the steps of the Talend lab I merged the two documents into one CSV output
- While merging the data sources, I worked on removing non useful data columns along with redundant data





Day

1449 rows - 42.85s

33.81 rows/s
row1 (Main)



tMap_1

17379 rows in 0,32s

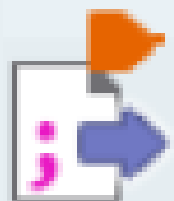
53972,05 rows/s
row2 (Lookup)

25176942 rows - 42.87s

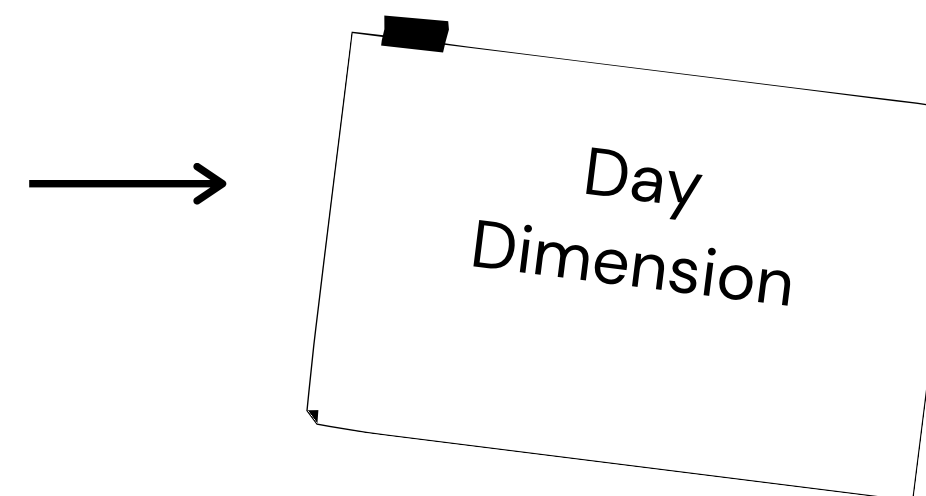
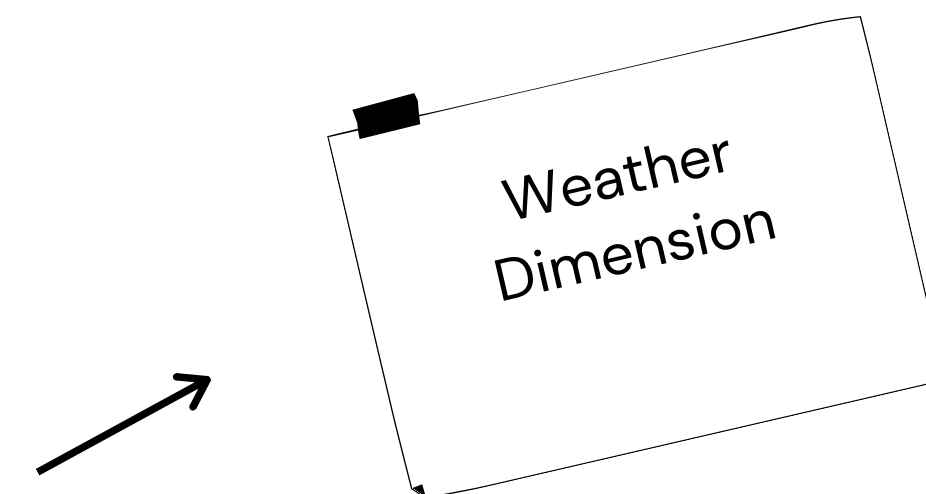
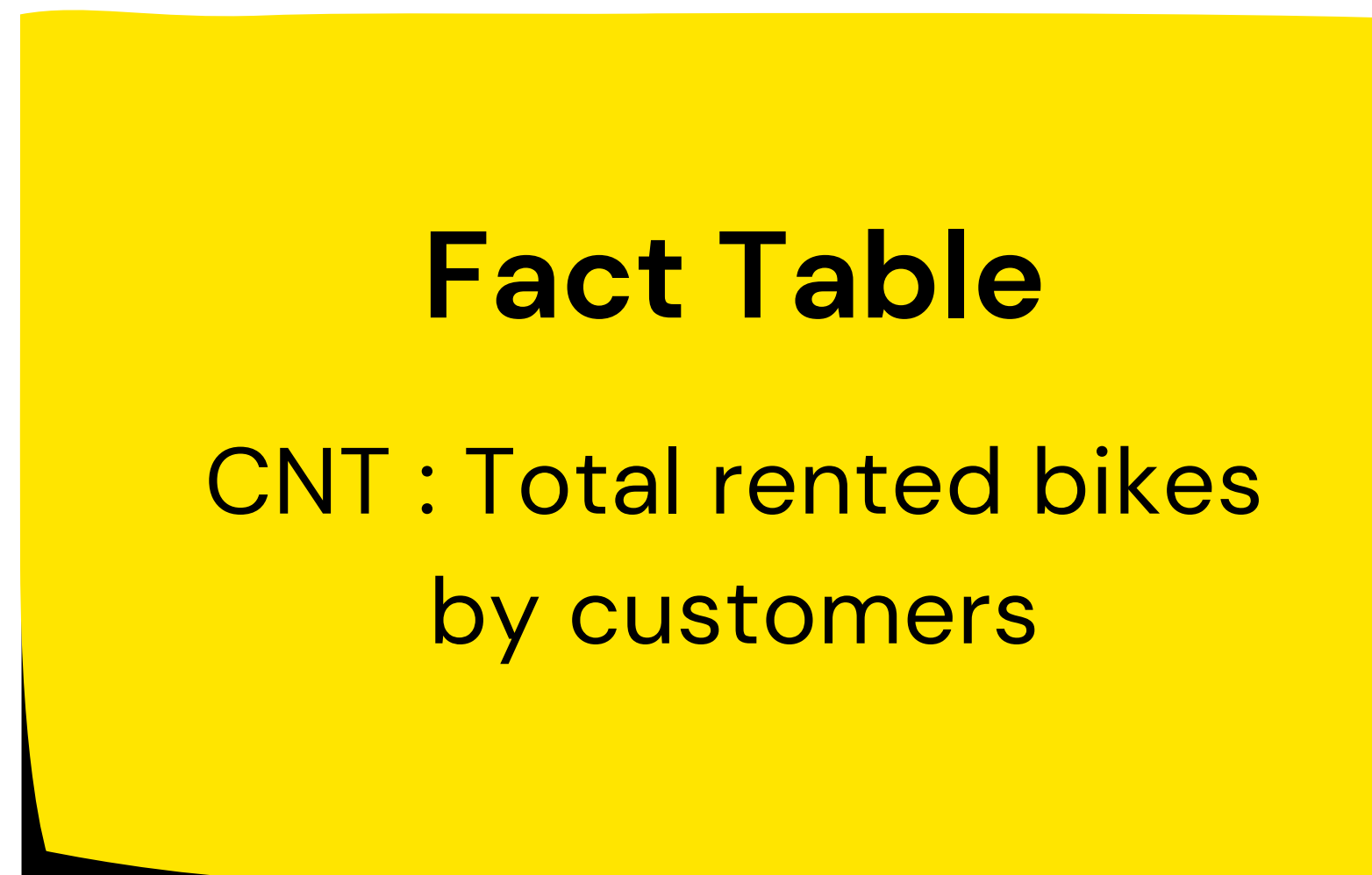
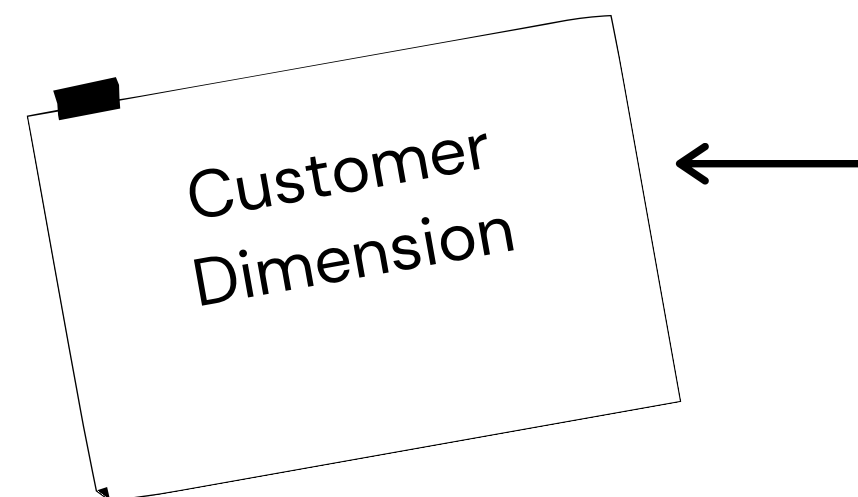
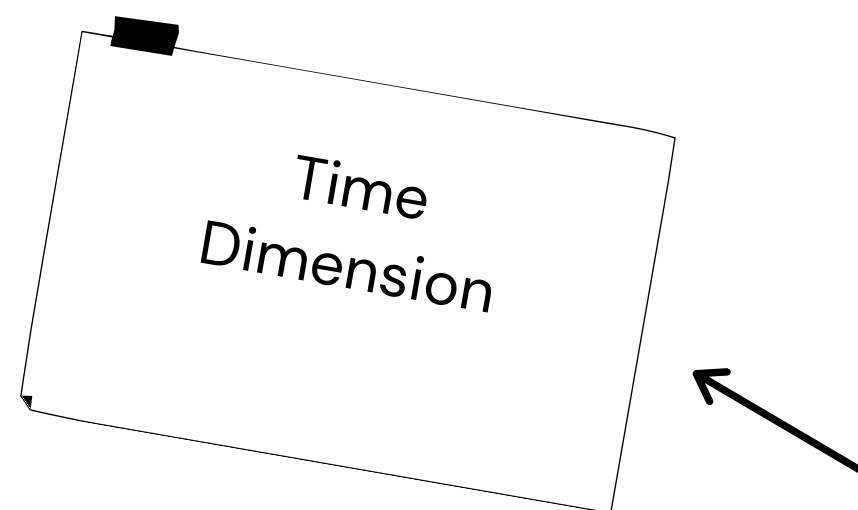
587258,4 rows/s
sortie (Main)

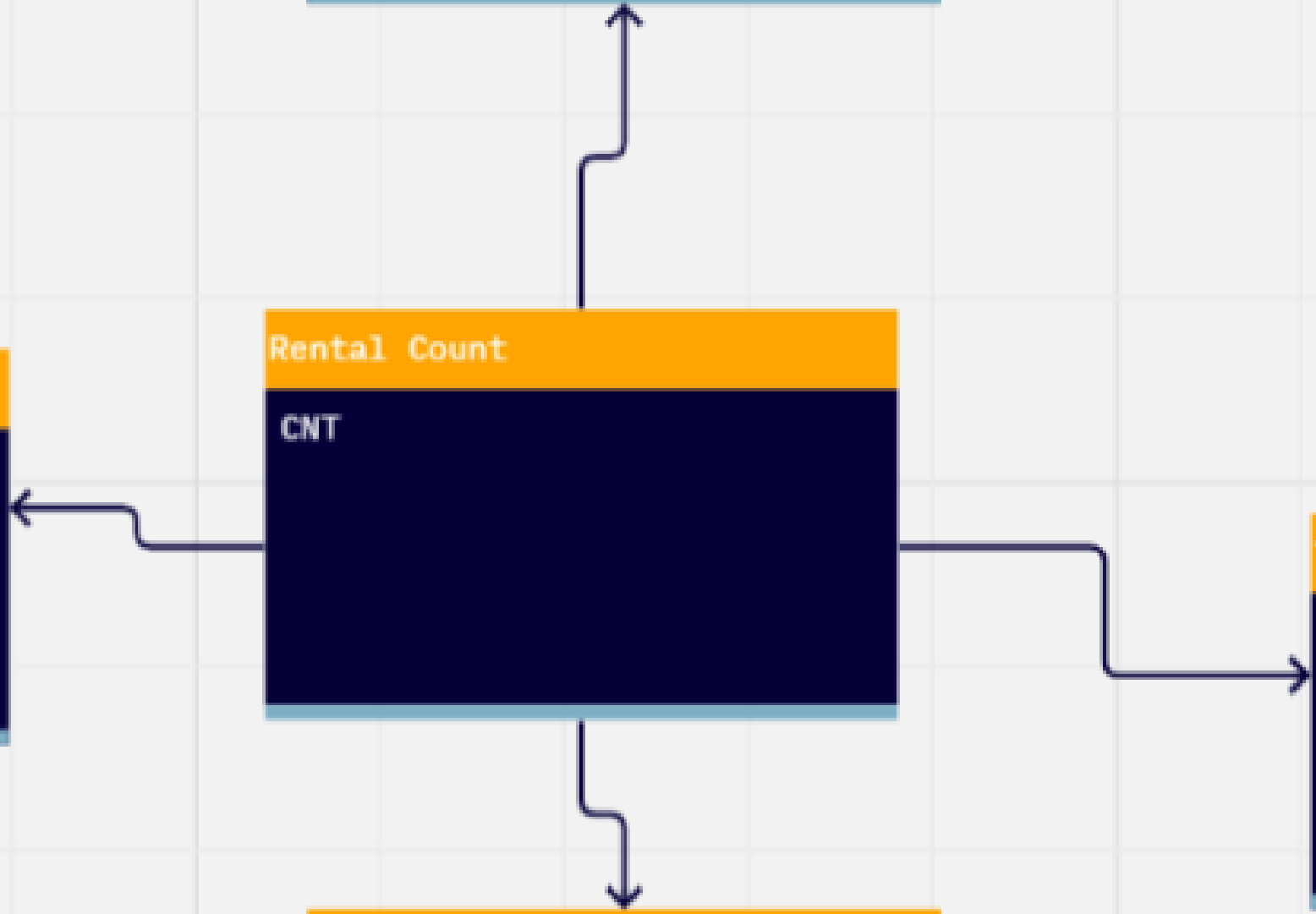
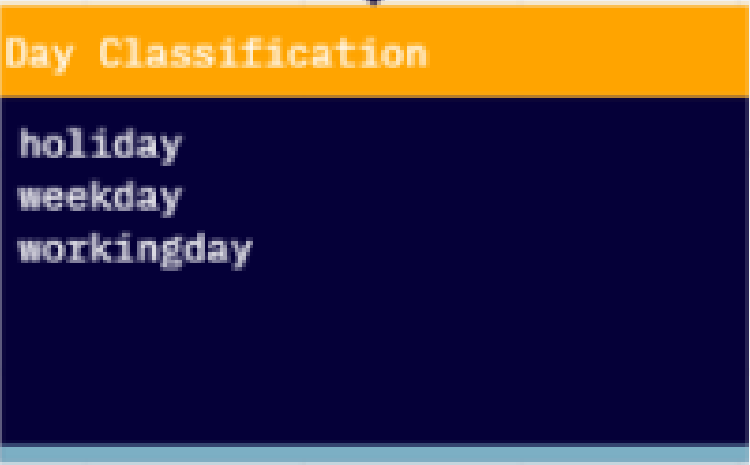
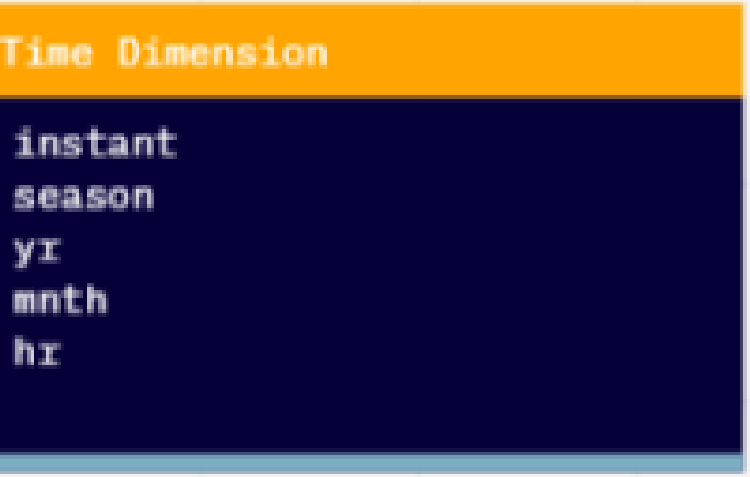
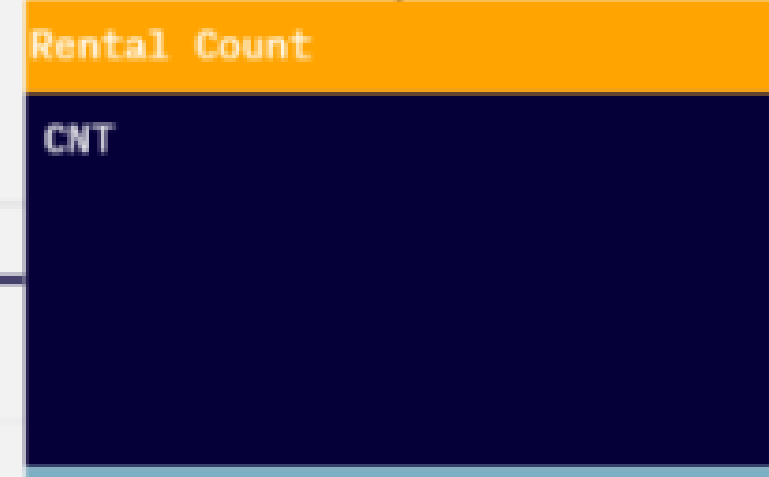
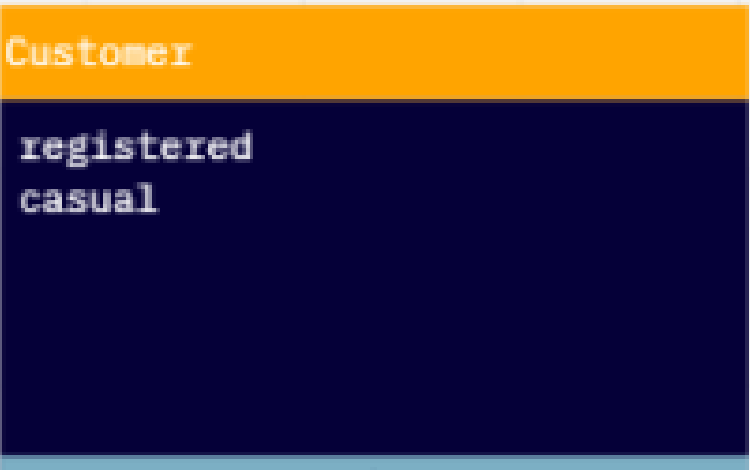


tFileOutputDelimited_1



Hours

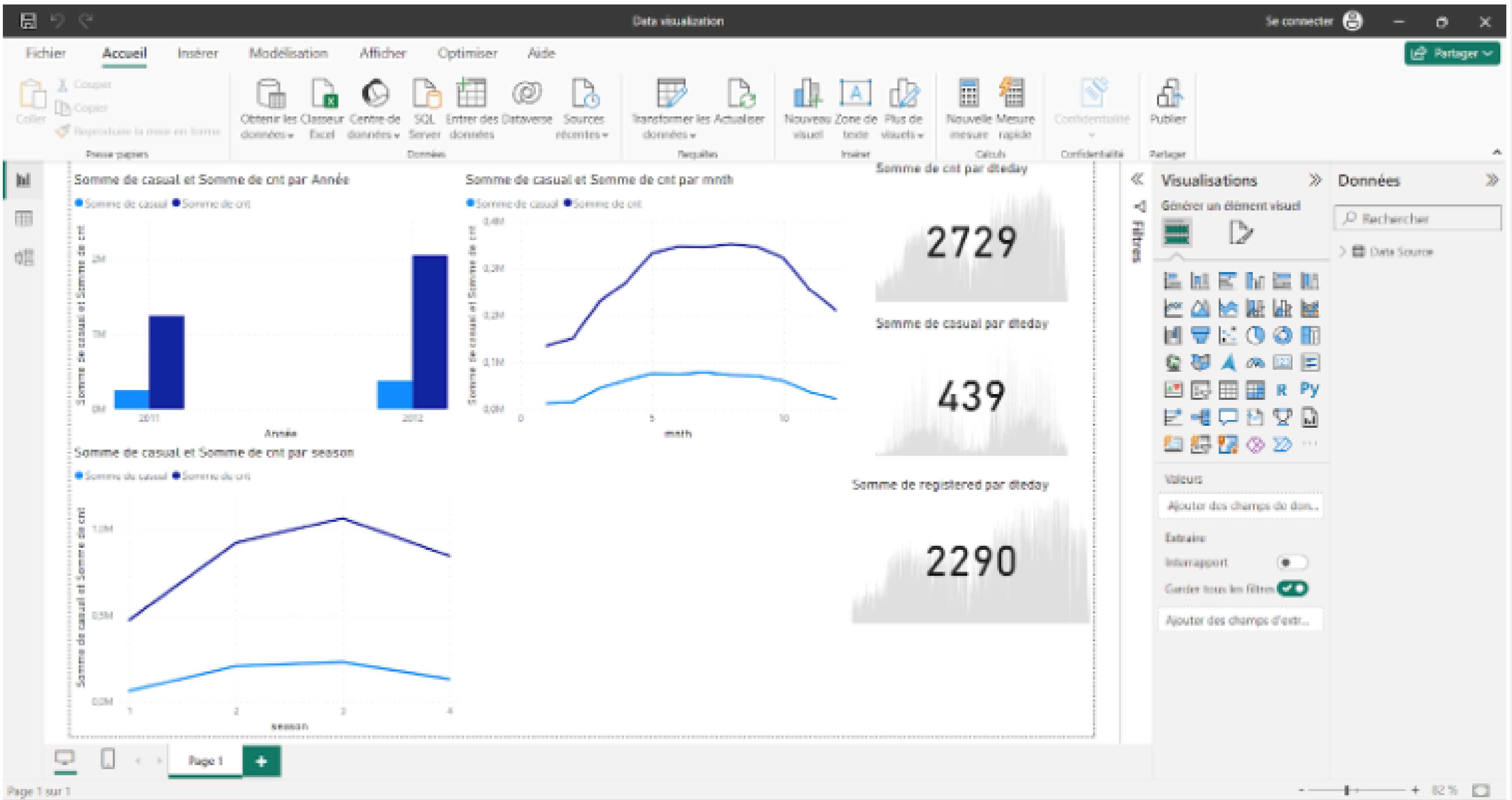




- The CSV file (output) was added to power BI desktop to prepare an interactive dashboard which helped in summarizing the data and facilitated the interpretation



Power BI



Measured KPIs



Number of Bike Rentals per Year (2011 / 2012) – Segmented by Category:

- Purpose: This KPI helps users understand the overall trend of bike rentals across two consecutive years, distinguishing between registered members and casual members.
- Usefulness: It allows stakeholders to identify growth or decline in overall bike usage and assess the contribution of registered versus casual members to these trends. This insight aids in strategic planning, marketing, and resource allocation.

Number of Bike Rentals per Season – Segmented by Category:

- Purpose: This KPI provides a seasonal breakdown of bike rentals, allowing users to identify patterns influenced by weather conditions and member categories.
- Usefulness: Stakeholders can understand the seasonality of bike usage and tailor marketing or operational strategies accordingly. For example, adjustments in bike availability or promotional campaigns can be optimized based on seasonal demand.

Average Total Rentals per Day:

- Purpose: This KPI offers a daily average of total bike rentals, providing an overview of the system's overall utilization.
- Usefulness: Users can gauge the system's general popularity and establish benchmarks for daily performance. Fluctuations in this metric may prompt further investigation into specific days that deviate from the average.

Average Rentals by Registered Members:

- Purpose: Focuses on the average number of rentals made by registered members, providing insights into their consistent engagement.
- Usefulness: This KPI helps in understanding the loyalty and regularity of registered users. It's crucial for customer relationship management and can inform loyalty programs or incentives tailored for this segment.

Average Rentals by Casual Members:

- Purpose: Similar to the previous KPI, this focuses on the average rentals but for casual members.
- Usefulness: Allows users to understand the behavior of occasional or one-time users. Tailoring marketing strategies or promotions for this segment can be based on these insights.

Total Rentals per Day:

- Purpose: Provides a straightforward count of total bike rentals each day, emphasizing the daily demand.
- Usefulness: Users can identify peak days of activity, which is crucial for operational planning, staffing adjustments, and ensuring the availability of sufficient bikes during high-demand periods.

Thank you for your attention!

