“EXCEL DATA TRANSFORMATION: CLEANING, PIVOT TABLES, AND DASHBOARDS”

This simple Excel project consists of several parts:

Introduction: Provides an overview of the project's objectives and scope.

Data Cleaning and Preparation: Involves the process of refining and organizing the raw data to ensure its accuracy and usability for analysis.

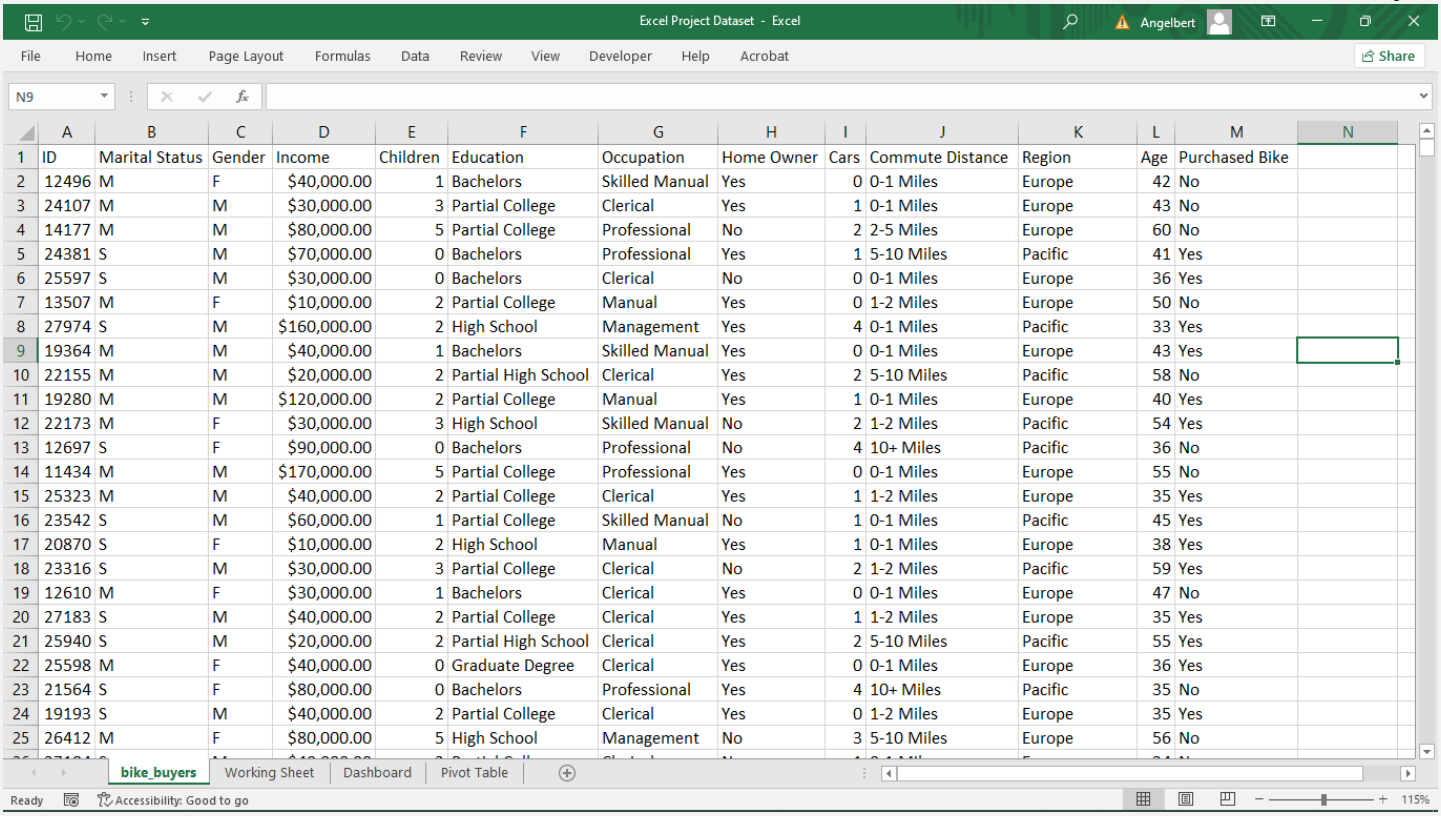
Pivot Table Creation: Involves the creation of pivot tables to summarize and analyze the cleaned data effectively.

Dashboard Creation: Involves the development of a visual dashboard to present key insights and findings derived from the pivot tables in a clear and informative manner.

INTRODUCTION

This is a simple Excel project focused on leveraging data analytics techniques to enhance decision-making. It involved initial steps such as thorough data cleansing and preparation to ensure accuracy and reliability. Through the utilization of pivot tables, I aimed to organize and summarize the bike sales dataset obtained from AlextheAnalyst's GitHub repository. Furthermore, I delved into the creation of insightful dashboards, enabling a comprehensive exploration of trends and patterns within the data. By applying these analytical tools, I endeavored to extract valuable insights that could inform strategic business decisions.

The dataset comprises of 1027 rows and 12 columns, indicating a substantial volume of data points and variables to analyze.



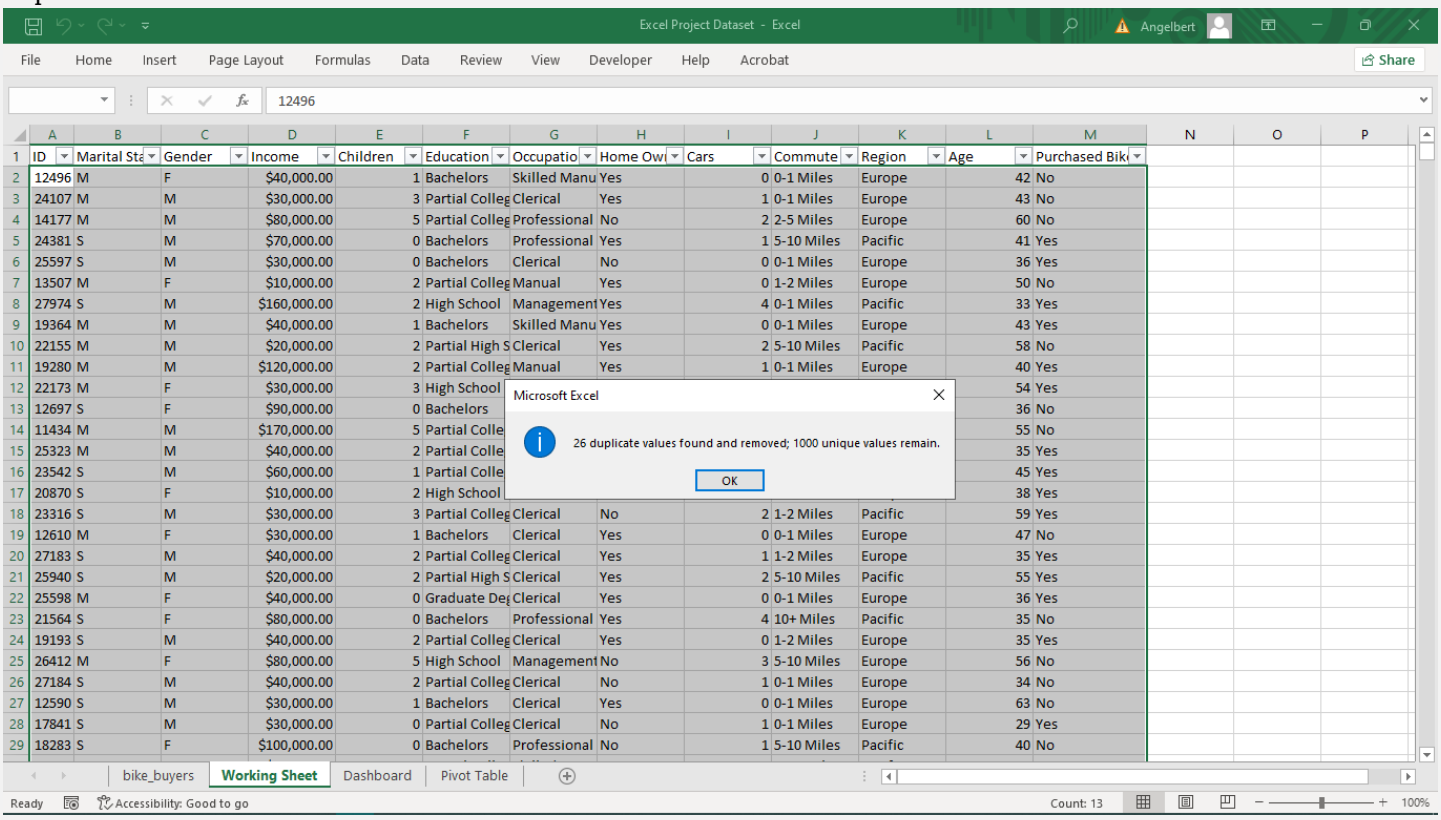
ID	Marital Status	Gender	Income	Children	Education	Occupation	Home Owner	Cars	Commute Distance	Region	Age	Purchased Bike
12496	M	F	$40,000.00	1	Bachelors	Skilled Manual	Yes	0	0-1 Miles	Europe	42	No
24107	M	M	$30,000.00	3	Partial College	Clerical	Yes	1	0-1 Miles	Europe	43	No
14177	M	M	$80,000.00	5	Partial College	Professional	No	2	2-5 Miles	Europe	60	No
24381	S	M	$70,000.00	0	Bachelors	Professional	Yes	1	5-10 Miles	Pacific	41	Yes
25597	S	M	$30,000.00	0	Bachelors	Clerical	No	0	0-1 Miles	Europe	36	Yes
13507	M	F	$10,000.00	2	Partial College	Manual	Yes	0	1-2 Miles	Europe	50	No
27974	S	M	$160,000.00	2	High School	Management	Yes	4	0-1 Miles	Pacific	33	Yes
19364	M	M	$40,000.00	1	Bachelors	Skilled Manual	Yes	0	0-1 Miles	Europe	43	Yes
22155	M	M	$20,000.00	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	58	No
19280	M	M	$120,000.00	2	Partial College	Manual	Yes	1	0-1 Miles	Europe	40	Yes
22173	M	F	$30,000.00	3	High School	Skilled Manual	No	2	1-2 Miles	Pacific	54	Yes
12697	S	F	$90,000.00	0	Bachelors	Professional	No	4	10+ Miles	Pacific	36	No
11434	M	M	$170,000.00	5	Partial College	Professional	Yes	0	0-1 Miles	Europe	55	No
25323	M	M	$40,000.00	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Yes
23542	S	M	$60,000.00	1	Partial College	Skilled Manual	No	1	0-1 Miles	Pacific	45	Yes
20870	S	F	$10,000.00	2	High School	Manual	Yes	1	0-1 Miles	Europe	38	Yes
23316	S	M	$30,000.00	3	Partial College	Clerical	No	2	1-2 Miles	Pacific	59	Yes
12610	M	F	$30,000.00	1	Bachelors	Clerical	Yes	0	0-1 Miles	Europe	47	No
27183	S	M	$40,000.00	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Yes
25940	S	M	$20,000.00	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	55	Yes
25598	M	F	$40,000.00	0	Graduate Degree	Clerical	Yes	0	0-1 Miles	Europe	36	Yes
21564	S	F	$80,000.00	0	Bachelors	Professional	Yes	4	10+ Miles	Pacific	35	No
19193	S	M	$40,000.00	2	Partial College	Clerical	Yes	0	1-2 Miles	Europe	35	Yes
26412	M	F	$80,000.00	5	High School	Management	No	3	5-10 Miles	Europe	56	No

DATA CLEANING AND PREPARATION

The purpose of data cleaning and preparation is to ensure that the dataset is accurate, consistent, and reliable for analysis. This involves identifying and rectifying any errors, inconsistencies, or missing values within the data.

Step 01:

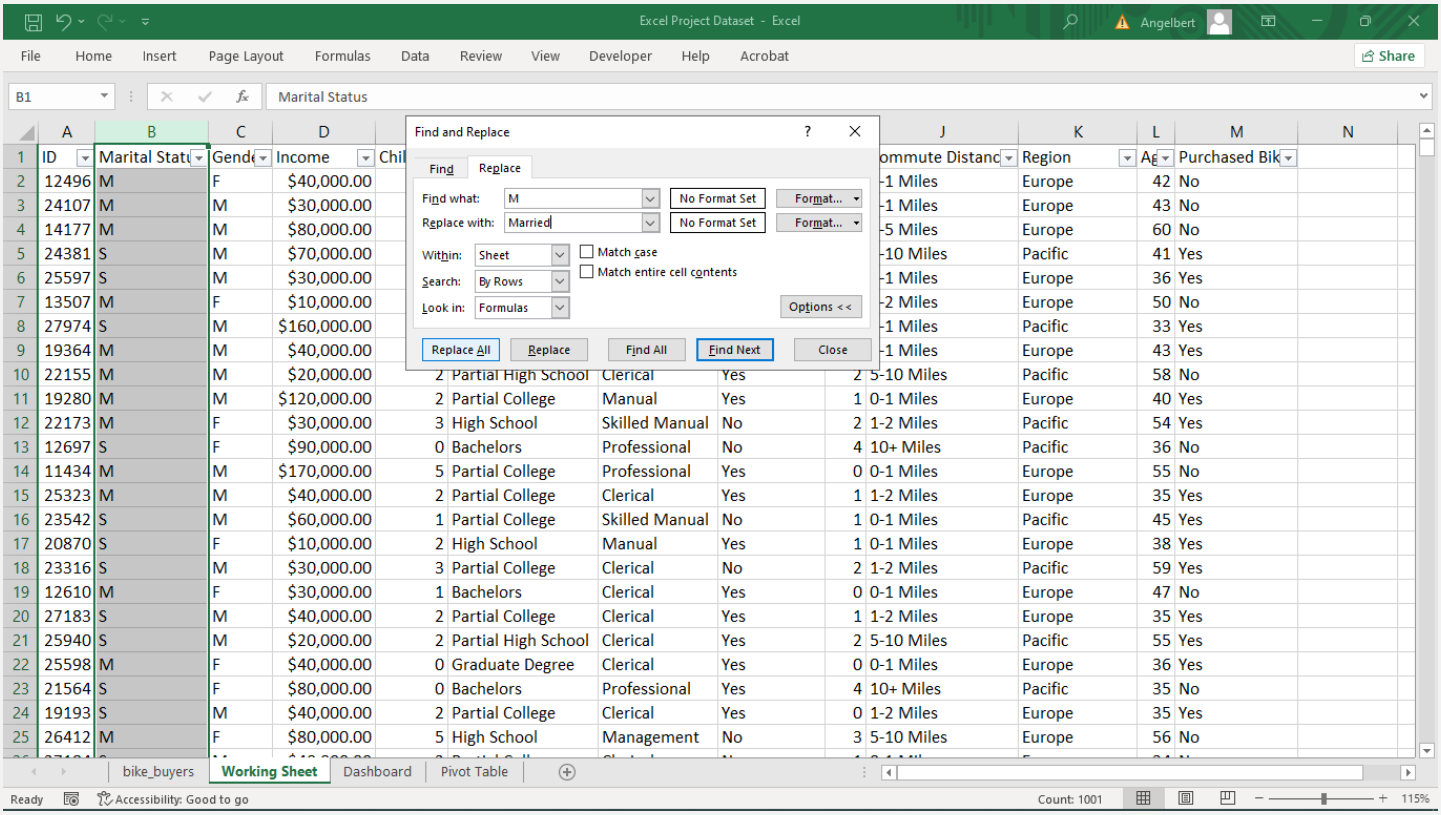
I utilized the "Remove Duplicates" function found in the Data tab options to eliminate approximately 26 duplicate entries from the dataset.



ID	Marital Sta	Gender	Income	Children	Education	Occupatio	Home Ow	Cars	Commute	Region	Age	Purchased Bik
12496	M	F	$40,000.00	1	Bachelors	Skilled Manu	Yes	0	0-1 Miles	Europe	42	No
24107	M	M	$30,000.00	3	Partial Colleg	Clerical	Yes	1	0-1 Miles	Europe	43	No
14177	M	M	$80,000.00	5	Partial Colleg	Professional	No	2	2-5 Miles	Europe	60	No
24381	S	M	$70,000.00	0	Bachelors	Professional	Yes	1	5-10 Miles	Pacific	41	Yes
25597	S	M	$30,000.00	0	Bachelors	Clerical	No	0	0-1 Miles	Europe	36	Yes
13507	M	F	$10,000.00	2	Partial Colleg	Manual	Yes	0	1-2 Miles	Europe	50	No
27974	S	M	$160,000.00	2	High School	Management	Yes	4	0-1 Miles	Pacific	33	Yes
19364	M	M	$40,000.00	1	Bachelors	Skilled Manu	Yes	0	0-1 Miles	Europe	43	Yes
22155	M	M	$20,000.00	2	Partial High S	Clerical	Yes	2	5-10 Miles	Pacific	58	No
19280	M	M	$120,000.00	2	Partial Colleg	Manual	Yes	1	0-1 Miles	Europe	40	Yes
22173	M	F	$30,000.00	3	High School						54	Yes
12697	S	F	$90,000.00	0	Bachelors						36	No
11434	M	M	$170,000.00	5	Partial Colle						55	No
25323	M	M	$40,000.00	2	Partial Colle						35	Yes
23542	S	M	$60,000.00	1	Partial Colle						45	Yes
20870	S	F	$10,000.00	2	High School						38	Yes
23316	S	M	$30,000.00	3	Partial Colleg	Clerical	No	2	1-2 Miles	Pacific	59	Yes
12610	M	F	$30,000.00	1	Bachelors	Clerical	Yes	0	0-1 Miles	Europe	47	No
27183	S	M	$40,000.00	2	Partial Colleg	Clerical	Yes	1	1-2 Miles	Europe	35	Yes
25940	S	M	$20,000.00	2	Partial High S	Clerical	Yes	2	5-10 Miles	Pacific	55	Yes
25598	M	F	$40,000.00	0	Graduate Dei	Clerical	Yes	0	0-1 Miles	Europe	36	Yes
21564	S	F	$80,000.00	0	Bachelors	Professional	Yes	4	10+ Miles	Pacific	35	No
19193	S	M	$40,000.00	2	Partial Colleg	Clerical	Yes	0	1-2 Miles	Europe	35	Yes
26412	M	F	$80,000.00	5	High School	Management	No	3	5-10 Miles	Europe	56	No
27184	S	M	$40,000.00	2	Partial Colleg	Clerical	No	1	0-1 Miles	Europe	34	No
12590	S	M	$30,000.00	1	Bachelors	Clerical	Yes	0	0-1 Miles	Europe	63	No
17841	S	M	$30,000.00	0	Partial Colleg	Clerical	No	1	0-1 Miles	Europe	29	Yes
18283	S	F	$100,000.00	0	Bachelors	Professional	No	1	5-10 Miles	Pacific	40	No

Step 02:

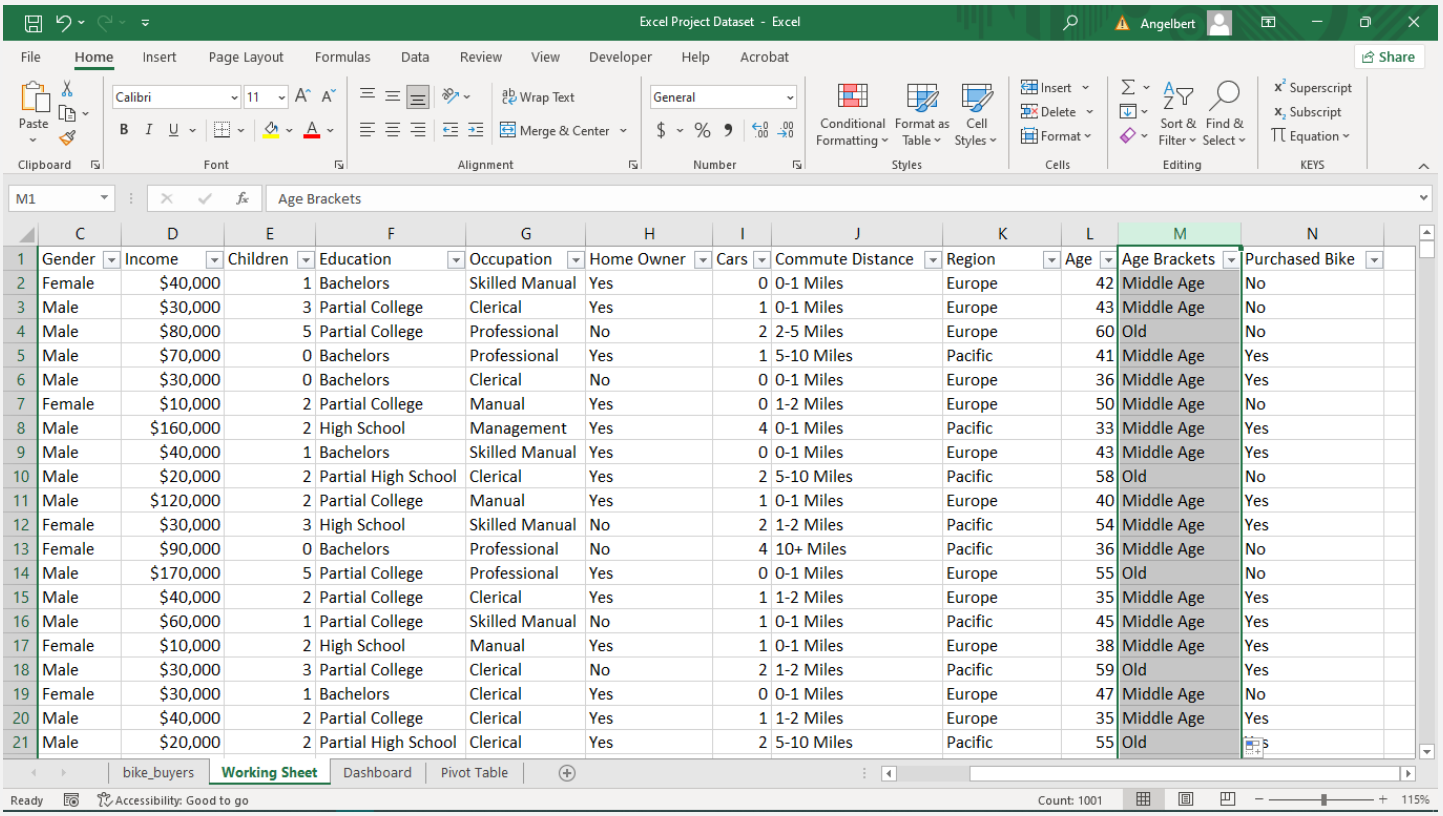
To enhance clarity and comprehension for readers, I revised the abbreviations "M" and "S" to their corresponding full forms, "Married" and "Single," respectively. Similarly, I replaced the abbreviation "M" with "Male" and "F" with "Female" for the gender column. This adjustment aims to ensure that all readers can easily understand the dataset attributes without confusion.



ID	Marital Status	Gender	Income	Children	Education	Occupation	Home Owner	Cars	Commute Distance	Region	Age	Purchased Bike
12496	M	F	$40,000.00						1 Miles	Europe	42	No
24107	M	M	$30,000.00						1 Miles	Europe	43	No
14177	M	M	$80,000.00						5 Miles	Europe	60	No
24381	S	M	$70,000.00						10 Miles	Pacific	41	Yes
25597	S	M	$30,000.00						1 Miles	Europe	36	Yes
13507	M	F	$10,000.00						2 Miles	Europe	50	No
27974	S	M	$160,000.00						1 Miles	Pacific	33	Yes
19364	M	M	$40,000.00						1 Miles	Europe	43	Yes
22155	M	M	$20,000.00	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	58	No
19280	M	M	$120,000.00	2	Partial College	Manual	Yes	1	0-1 Miles	Europe	40	Yes
22173	M	F	$30,000.00	3	High School	Skilled Manual	No	2	1-2 Miles	Pacific	54	Yes
12697	S	F	$90,000.00	0	Bachelors	Professional	No	4	10+ Miles	Pacific	36	No
11434	M	M	$170,000.00	5	Partial College	Professional	Yes	0	0-1 Miles	Europe	55	No
25323	M	M	$40,000.00	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Yes
23542	S	M	$60,000.00	1	Partial College	Skilled Manual	No	1	0-1 Miles	Pacific	45	Yes
20870	S	F	$10,000.00	2	High School	Manual	Yes	1	0-1 Miles	Europe	38	Yes
23316	S	M	$30,000.00	3	Partial College	Clerical	No	2	1-2 Miles	Pacific	59	Yes
12610	M	F	$30,000.00	1	Bachelors	Clerical	Yes	0	0-1 Miles	Europe	47	No
27183	S	M	$40,000.00	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Yes
25940	S	M	$20,000.00	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	55	Yes
25598	M	F	$40,000.00	0	Graduate Degree	Clerical	Yes	0	0-1 Miles	Europe	36	Yes
21564	S	F	$80,000.00	0	Bachelors	Professional	Yes	4	10+ Miles	Pacific	35	No
19193	S	M	$40,000.00	2	Partial College	Clerical	Yes	0	1-2 Miles	Europe	35	Yes
26412	M	F	$80,000.00	5	High School	Management	No	3	5-10 Miles	Europe	56	No

Step 03:

I added a new column titled "Age Brackets" adjacent to the existing "Age" column to introduces a valuable dimension for understanding consumer behavior. I employed Excel formulas to categorize ages into distinct brackets allows for the identification of patterns and trends within different age groups' interests in bikes.

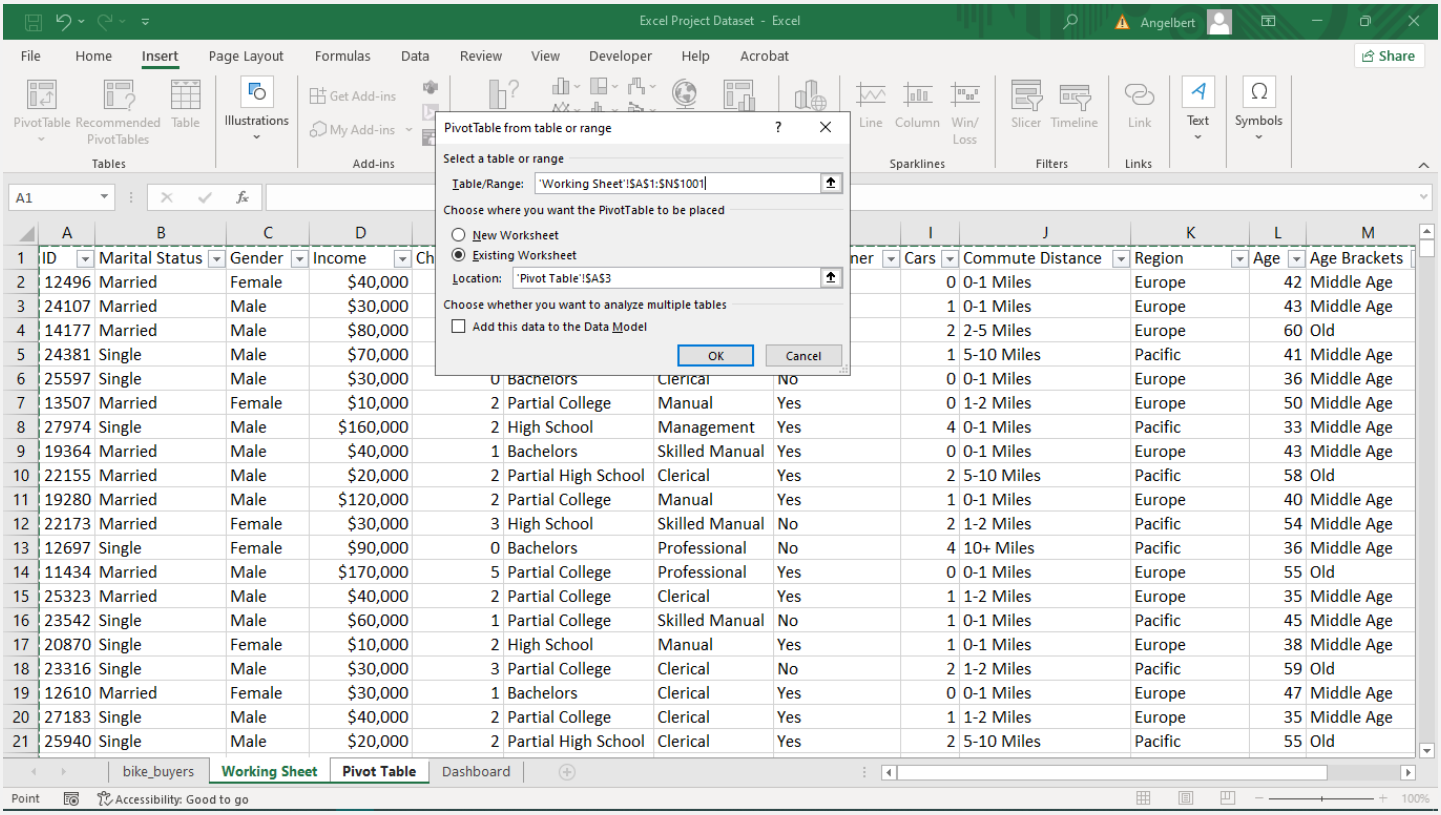


	C	D	E	F	G	H	I	J	K	L	M	N
1	Gender	Income	Children	Education	Occupation	Home Owner	Cars	Commute Distance	Region	Age	Age Brackets	Purchased Bike
2	Female	$40,000	1	Bachelors	Skilled Manual	Yes	0	0-1 Miles	Europe	42	Middle Age	No
3	Male	$30,000	3	Partial College	Clerical	Yes	1	0-1 Miles	Europe	43	Middle Age	No
4	Male	$80,000	5	Partial College	Professional	No	2	2-5 Miles	Europe	60	Old	No
5	Male	$70,000	0	Bachelors	Professional	Yes	1	5-10 Miles	Pacific	41	Middle Age	Yes
6	Male	$30,000	0	Bachelors	Clerical	No	0	0-1 Miles	Europe	36	Middle Age	Yes
7	Female	$10,000	2	Partial College	Manual	Yes	0	1-2 Miles	Europe	50	Middle Age	No
8	Male	$160,000	2	High School	Management	Yes	4	0-1 Miles	Pacific	33	Middle Age	Yes
9	Male	$40,000	1	Bachelors	Skilled Manual	Yes	0	0-1 Miles	Europe	43	Middle Age	Yes
10	Male	$20,000	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	58	Old	No
11	Male	$120,000	2	Partial College	Manual	Yes	1	0-1 Miles	Europe	40	Middle Age	Yes
12	Female	$30,000	3	High School	Skilled Manual	No	2	1-2 Miles	Pacific	54	Middle Age	Yes
13	Female	$90,000	0	Bachelors	Professional	No	4	10+ Miles	Pacific	36	Middle Age	No
14	Male	$170,000	5	Partial College	Professional	Yes	0	0-1 Miles	Europe	55	Old	No
15	Male	$40,000	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Middle Age	Yes
16	Male	$60,000	1	Partial College	Skilled Manual	No	1	0-1 Miles	Pacific	45	Middle Age	Yes
17	Female	$10,000	2	High School	Manual	Yes	1	0-1 Miles	Europe	38	Middle Age	Yes
18	Male	$30,000	3	Partial College	Clerical	No	2	1-2 Miles	Pacific	59	Old	Yes
19	Female	$30,000	1	Bachelors	Clerical	Yes	0	0-1 Miles	Europe	47	Middle Age	No
20	Male	$40,000	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Middle Age	Yes
21	Male	$20,000	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	55	Old	s

Here are additional tasks I completed during the process: (1) I adjusted the column width to fit the content by double-clicking the divider is a simple yet effective way to enhance the readability of data in spreadsheets. (2) I transformed numerical values to an accounting format and adjusted them from decimal to whole number. (3) I also utilized the filter option in the data tab to examine column inputs to ensure the accuracy and uniqueness of the data. This approach helps identify and address any inconsistencies or errors that may have been overlooked during earlier stages of cleaning.

PIVOT TABLE CREATION

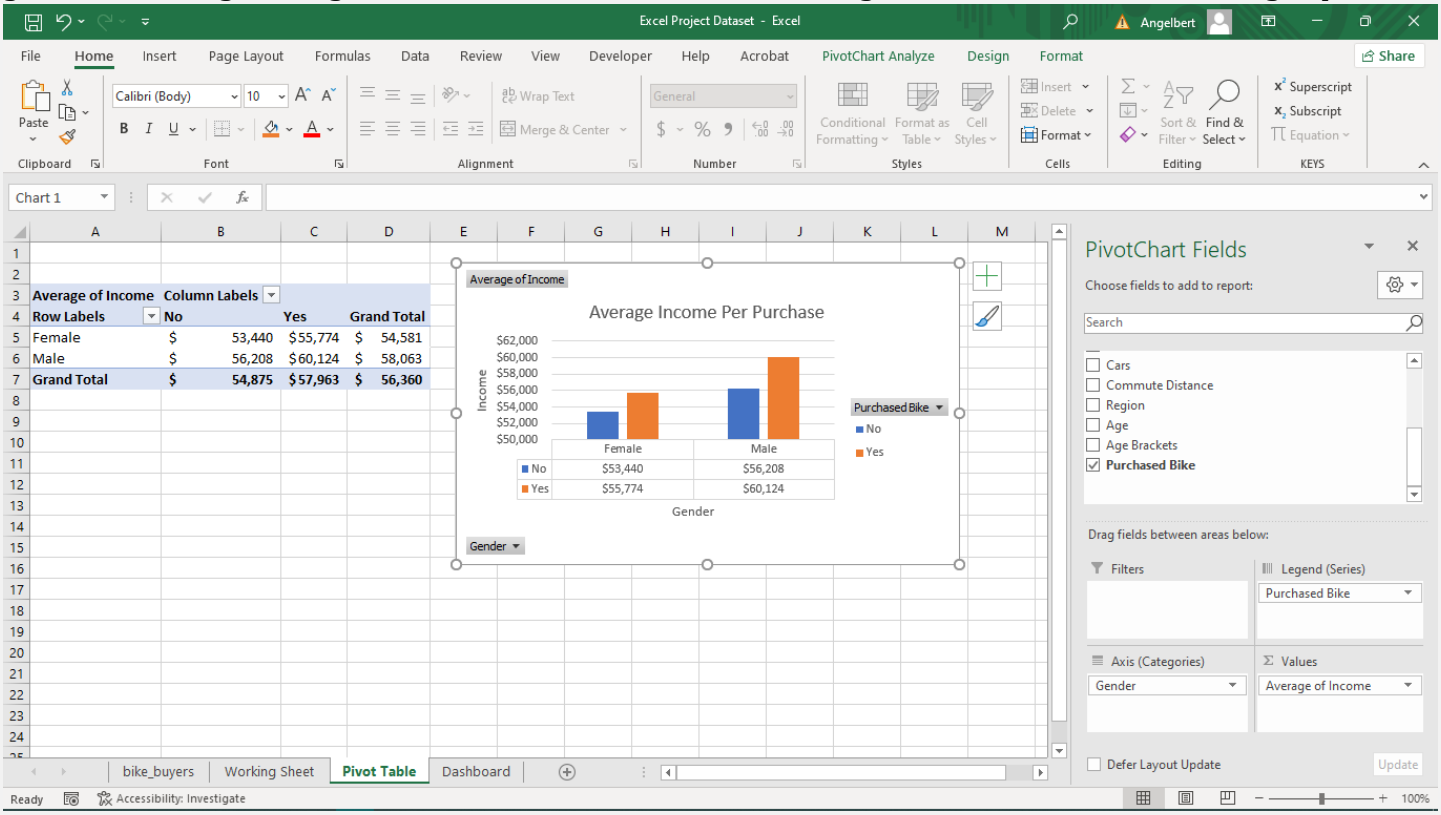
Create a new sheet file and name it Pivot Table. In this sheet file, I stored here the pivot tables, create a corresponding visualization for each pivot table.



ID	Marital Status	Gender	Income	Ch	ner	Cars	Commute Distance	Region	Age	Age Brackets
12496	Married	Female	$40,000			0	0-1 Miles	Europe	42	Middle Age
24107	Married	Male	$30,000			1	0-1 Miles	Europe	43	Middle Age
14177	Married	Male	$80,000			2	2-5 Miles	Europe	60	Old
24381	Single	Male	$70,000			1	5-10 Miles	Pacific	41	Middle Age
25597	Single	Male	$30,000	0	Bachelors	Clerical	No	0	0-1 Miles	Europe	36	Middle Age
13507	Married	Female	$10,000	2	Partial College	Manual	Yes	0	1-2 Miles	Europe	50	Middle Age
27974	Single	Male	$160,000	2	High School	Management	Yes	4	0-1 Miles	Pacific	33	Middle Age
19364	Married	Male	$40,000	1	Bachelors	Skilled Manual	Yes	0	0-1 Miles	Europe	43	Middle Age
22155	Married	Male	$20,000	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	58	Old
19280	Married	Male	$120,000	2	Partial College	Manual	Yes	1	0-1 Miles	Europe	40	Middle Age
22173	Married	Female	$30,000	3	High School	Skilled Manual	No	2	1-2 Miles	Pacific	54	Middle Age
12697	Single	Female	$90,000	0	Bachelors	Professional	No	4	10+ Miles	Pacific	36	Middle Age
11434	Married	Male	$170,000	5	Partial College	Professional	Yes	0	0-1 Miles	Europe	55	Old
25323	Married	Male	$40,000	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Middle Age
23542	Single	Male	$60,000	1	Partial College	Skilled Manual	No	1	0-1 Miles	Pacific	45	Middle Age
20870	Single	Female	$10,000	2	High School	Manual	Yes	1	0-1 Miles	Europe	38	Middle Age
23316	Single	Male	$30,000	3	Partial College	Clerical	No	2	1-2 Miles	Pacific	59	Old
12610	Married	Female	$30,000	1	Bachelors	Clerical	Yes	0	0-1 Miles	Europe	47	Middle Age
27183	Single	Male	$40,000	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Middle Age
25940	Single	Male	$20,000	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	55	Old

Pivot Table 01:

I have separated datasets for males and females. This visualization addresses whether higher earnings are a contributing factor to their purchasing behavior. By comparing income levels with purchasing patterns for each gender, we can gain insights into the correlation between earnings and the likelihood of making a purchase.

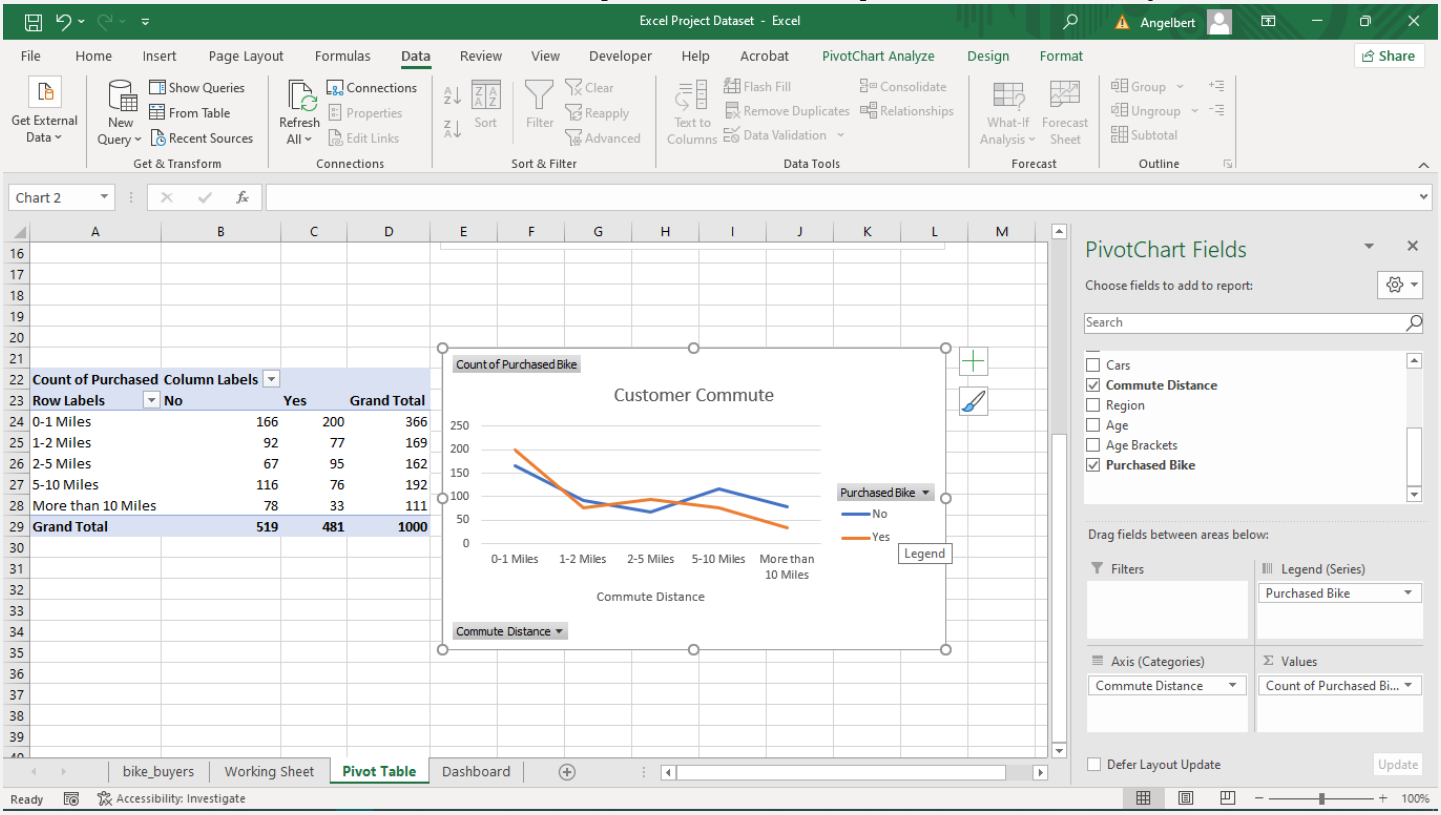


Average of Income	Column Labels		
Row Labels	No	Yes	Grand Total
Female	$ 53,440	$55,774	$ 54,581
Male	$ 56,208	$60,124	$ 58,063
Grand Total	$ 54,875	$57,963	$ 56,360

Key Insight: This analysis is valuable for understanding the economic factors influencing buying decisions among different genders, which can guide targeted marketing strategies and financial product offerings.

Pivot Table 02:

This visualization provides insights into the distance a person travels to work after purchasing a bike, whether it's just 1 mile or as far as 20 miles. Understanding these commuting patterns is particularly interesting and valuable to visualize, as it reveals the impact of bike purchases on daily travel distances.



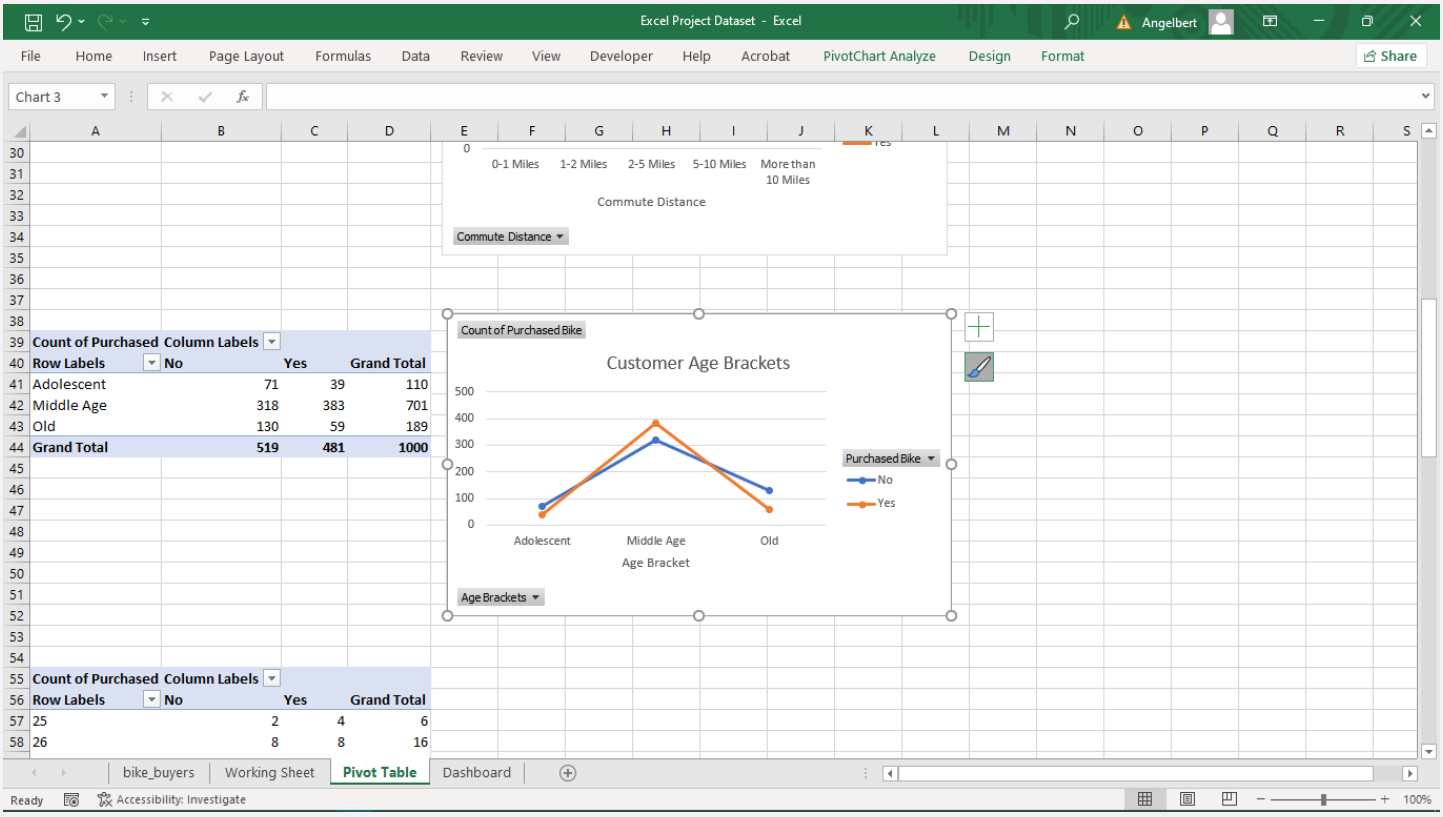
Count of Purchased	Column Labels		
Row Labels	No	Yes	Grand Total
0-1 Miles	166	200	366
1-2 Miles	92	77	169
2-5 Miles	67	95	162
5-10 Miles	116	76	192
More than 10 Miles	78	33	111
Grand Total	**519**	**481**	**1000**

Key Insight: This information can help in analyzing urban mobility trends, assessing the potential for bike infrastructure improvements, and identifying target markets for bike-related products and services.

Pivot Table 03:

This visualization reveals the age categories interested in purchasing bikes. It shows that the middle age category has the highest number of both 'yes' and 'no' responses regarding bike purchases and has a yes-to-no ratio that exceeds 1. This indicates that individuals in the middle age group are the most engaged, whether they decide to buy a bike or not.

Legends: Adolescent: 31 below Middle Age: 31 to 54 Old: 54 above



Key Insight: Understanding this trend is valuable for identifying the primary market segment, which can help in tailoring marketing strategies, designing age-specific bike features, and improving customer outreach efforts. By focusing on this demographic, businesses can better meet the needs and preferences of their most active consumers.

DASHBOARD CREATION

I created a dashboard to present important data metrics and performance indicators in a clear and visually appealing way. This dashboard gives readers a view of essential information, helping them monitor trends, track progress, and make informed decisions easily.

I copied the visualizations from the Pivot Tables to a different Excel sheet, where I arranged everything to ensure readability and simplicity for the audience. Additionally, I incorporated a slicer to provide a user-friendly and interactive method for filtering the data, enhancing the overall accessibility and usability of the presentation.