

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

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.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	ID	Marital Status	Gender	Income	Children	Education	Occupation	Home Owner	Cars	Commute Distance	Region	Age	Purchased Bike	
2	12496	M	F	\$40,000.00	1	Bachelors	Skilled Manual	Yes	0	0-1 Miles	Europe	42	No	
3	24107	M	M	\$30,000.00	3	Partial College	Clerical	Yes	1	0-1 Miles	Europe	43	No	
4	14177	M	M	\$80,000.00	5	Partial College	Professional	No	2	2-5 Miles	Europe	60	No	
5	24381	S	M	\$70,000.00	0	Bachelors	Professional	Yes	1	5-10 Miles	Pacific	41	Yes	
6	25597	S	M	\$30,000.00	0	Bachelors	Clerical	No	0	0-1 Miles	Europe	36	Yes	
7	13507	M	F	\$10,000.00	2	Partial College	Manual	Yes	0	1-2 Miles	Europe	50	No	
8	27974	S	M	\$160,000.00	2	High School	Management	Yes	4	0-1 Miles	Pacific	33	Yes	
9	19364	M	M	\$40,000.00	1	Bachelors	Skilled Manual	Yes	0	0-1 Miles	Europe	43	Yes	
10	22155	M	M	\$20,000.00	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	58	No	
11	19280	M	M	\$120,000.00	2	Partial College	Manual	Yes	1	0-1 Miles	Europe	40	Yes	
12	22173	M	F	\$30,000.00	3	High School	Skilled Manual	No	2	1-2 Miles	Pacific	54	Yes	
13	12697	S	F	\$90,000.00	0	Bachelors	Professional	No	4	10+ Miles	Pacific	36	No	
14	11434	M	M	\$170,000.00	5	Partial College	Professional	Yes	0	0-1 Miles	Europe	55	No	
15	25323	M	M	\$40,000.00	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Yes	
16	23542	S	M	\$60,000.00	1	Partial College	Skilled Manual	No	1	0-1 Miles	Pacific	45	Yes	
17	20870	S	F	\$10,000.00	2	High School	Manual	Yes	1	0-1 Miles	Europe	38	Yes	
18	23316	S	M	\$30,000.00	3	Partial College	Clerical	No	2	1-2 Miles	Pacific	59	Yes	
19	12610	M	F	\$30,000.00	1	Bachelors	Clerical	Yes	0	0-1 Miles	Europe	47	No	
20	27183	S	M	\$40,000.00	2	Partial College	Clerical	Yes	1	1-2 Miles	Europe	35	Yes	
21	25940	S	M	\$20,000.00	2	Partial High School	Clerical	Yes	2	5-10 Miles	Pacific	55	Yes	
22	25598	M	F	\$40,000.00	0	Graduate Degree	Clerical	Yes	0	0-1 Miles	Europe	36	Yes	
23	21564	S	F	\$80,000.00	0	Bachelors	Professional	Yes	4	10+ Miles	Pacific	35	No	
24	19193	S	M	\$40,000.00	2	Partial College	Clerical	Yes	0	1-2 Miles	Europe	35	Yes	
25	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.

Excel Project Dataset - Excel

FileHomeInsertPage LayoutFormulasDataReviewViewDeveloperHelpAcrobatShare

12496

ID	Marital Status	Gender	Income	Children	Education	Occupation	Home Ownership	Cars	Commute	Region	Age	Purchased Bike
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 De	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

Microsoft Excel
26 duplicate values found and removed; 1000 unique values remain.
OK

bike_buyersWorking SheetDashboardPivot Table

ReadyAccessibility: Good to goCount: 13100%

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.

Excel Project Dataset - Excel

File Home Insert Page Layout Formulas Data Review View Developer Help Acrobat

Share

B1

Marital Status

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	ID	Marital Status	Gender	Income	Children	Education	Occupation	Married	Single	Commute Distance	Region	Age	Purchased Bike	
2	12496	M	F	\$40,000.00		2 Partial High School	Clerical	Yes		2 5-10 Miles	Pacific	58	No	
3	24107	M	M	\$30,000.00		2 Partial College	Manual	Yes		1 0-1 Miles	Europe	40	Yes	
4	14177	M	M	\$80,000.00		3 High School	Skilled Manual	No		2 1-2 Miles	Pacific	54	Yes	
5	24381	S	M	\$70,000.00		0 Bachelors	Professional	No		4 10+ Miles	Pacific	36	No	
6	25597	S	M	\$30,000.00		5 Partial College	Professional	Yes		0 0-1 Miles	Europe	55	No	
7	13507	M	F	\$10,000.00		2 Partial College	Clerical	Yes		1 1-2 Miles	Europe	35	Yes	
8	27974	S	M	\$160,000.00		1 Partial College	Skilled Manual	No		1 0-1 Miles	Pacific	45	Yes	
9	19364	M	M	\$40,000.00		2 High School	Manual	Yes		1 0-1 Miles	Europe	38	Yes	
10	22155	M	M	\$20,000.00		3 Partial College	Clerical	No		2 1-2 Miles	Pacific	59	Yes	
11	19280	M	M	\$120,000.00		1 Bachelors	Clerical	Yes		0 0-1 Miles	Europe	47	No	
12	22173	M	F	\$30,000.00		2 Partial College	Clerical	Yes		1 1-2 Miles	Europe	35	Yes	
13	12697	S	F	\$90,000.00		0 Graduate Degree	Clerical	Yes		0 0-1 Miles	Europe	36	Yes	
14	11434	M	M	\$170,000.00		0 Bachelors	Professional	Yes		4 10+ Miles	Pacific	35	No	
15	25323	M	M	\$40,000.00		2 Partial College	Clerical	Yes		0 1-2 Miles	Europe	35	Yes	
16	23542	S	M	\$60,000.00		2 Partial College	Clerical	Yes		0 1-2 Miles	Europe	35	Yes	
17	20870	S	F	\$10,000.00		2 High School	Manual	Yes		1 0-1 Miles	Europe	38	Yes	
18	23316	S	M	\$30,000.00		3 Partial College	Clerical	No		2 1-2 Miles	Pacific	59	Yes	
19	12610	M	F	\$30,000.00		1 Bachelors	Clerical	Yes		0 0-1 Miles	Europe	47	No	
20	27183	S	M	\$40,000.00		2 Partial College	Clerical	Yes		1 1-2 Miles	Europe	35	Yes	
21	25940	S	M	\$20,000.00		2 Partial High School	Clerical	Yes		2 5-10 Miles	Pacific	55	Yes	
22	25598	M	F	\$40,000.00		0 Graduate Degree	Clerical	Yes		0 0-1 Miles	Europe	36	Yes	
23	21564	S	F	\$80,000.00		0 Bachelors	Professional	Yes		4 10+ Miles	Pacific	35	No	
24	19193	S	M	\$40,000.00		2 Partial College	Clerical	Yes		0 1-2 Miles	Europe	35	Yes	
25	26412	M	F	\$80,000.00		5 High School	Management	No		3 5-10 Miles	Europe	56	No	

Find and Replace

Find Replace

Find what: M

Replace with: Married

Within: Sheet

Search: By Rows

Look in: Formulas

Replace All

Replace

Find All

Find Next

Close

bike_buyers

Working Sheet

Dashboard

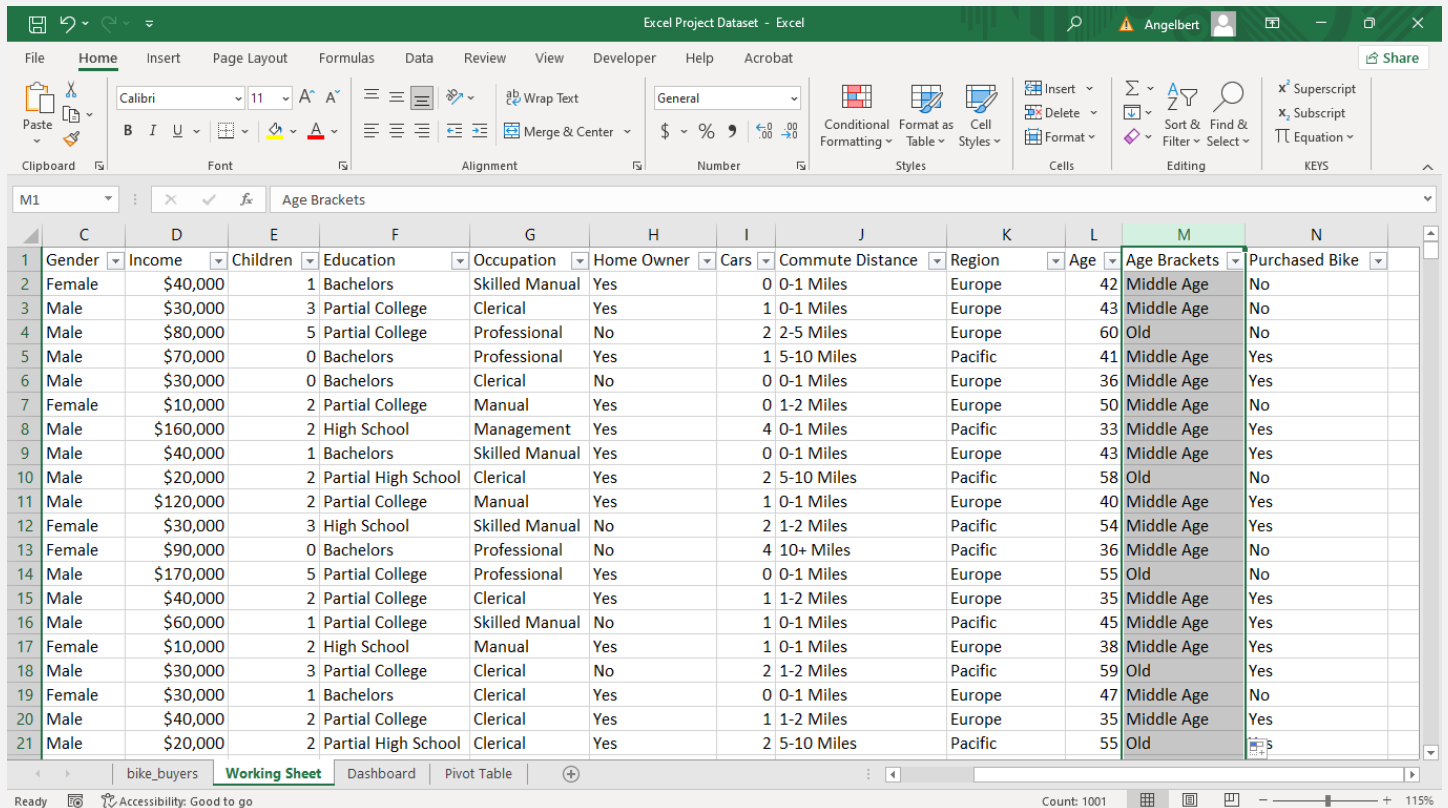
Pivot Table

Count: 1001

115%

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
	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	

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.

Excel Project Dataset - Excel

File Home Insert Page Layout Formulas Data Review View Developer Help Acrobat

PivotTable Recommended PivotTables Tables

Illustrations My Add-ins Add-ins

PivotTable from table or range

Select a table or range

Table/Range: Working Sheet!\$A\$1:\$N\$1001

Choose where you want the PivotTable to be placed

☐ New Worksheet

☒ Existing Worksheet

Location: Pivot Table!\$A\$3

Choose whether you want to analyze multiple tables

☐ Add this data to the Data Model

OK Cancel

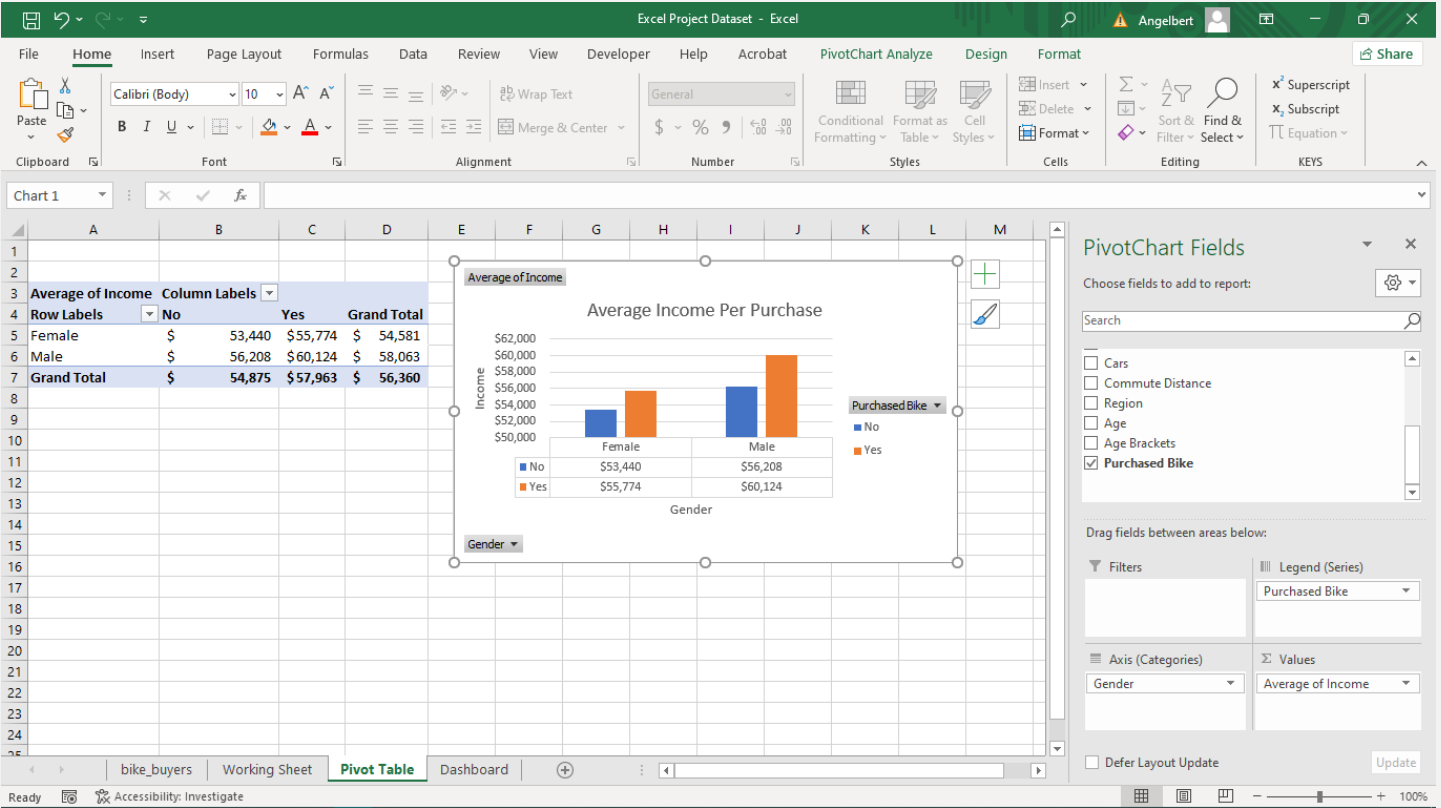
ID	Marital Status	Gender	Income	Ch	er	Cars	Commute Distance	Region	Age	Age Brackets
12496	Married	Female	\$40,000		0 Bachelors	0	0-1 Miles	Europe	42	Middle Age
24107	Married	Male	\$30,000		1 Partial College	0	0-1 Miles	Europe	50	Middle Age
14177	Married	Male	\$80,000		2 High School	4	0-1 Miles	Pacific	33	Middle Age
24381	Single	Male	\$70,000		0 Bachelors	0	0-1 Miles	Europe	43	Middle Age
25597	Single	Male	\$30,000		1 Bachelors	1	5-10 Miles	Pacific	41	Middle Age
13507	Married	Female	\$10,000		2 Partial High School	0	0-1 Miles	Europe	36	Middle Age
27974	Single	Male	\$160,000		2 Partial College	1	0-1 Miles	Europe	50	Middle Age
19364	Married	Male	\$40,000		2 High School	2	0-1 Miles	Pacific	33	Middle Age
22155	Married	Male	\$20,000		2 Partial College	0	0-1 Miles	Europe	43	Middle Age
19280	Married	Male	\$120,000		3 High School	2	5-10 Miles	Pacific	58	Old
22173	Married	Female	\$30,000		0 Bachelors	1	0-1 Miles	Europe	40	Middle Age
12697	Single	Female	\$90,000		1 Bachelors	2	1-2 Miles	Pacific	54	Middle Age
11434	Married	Male	\$170,000		2 Partial College	4	10+ Miles	Pacific	36	Middle Age
25323	Married	Male	\$40,000		5 Partial College	0	0-1 Miles	Europe	55	Old
23542	Single	Male	\$60,000		2 Partial College	1	1-2 Miles	Europe	35	Middle Age
20870	Single	Female	\$10,000		1 Partial College	1	0-1 Miles	Pacific	45	Middle Age
23316	Single	Male	\$30,000		2 High School	1	0-1 Miles	Europe	38	Middle Age
12610	Married	Female	\$30,000		3 Partial College	2	1-2 Miles	Pacific	59	Old
27183	Single	Male	\$40,000		1 Bachelors	0	0-1 Miles	Europe	47	Middle Age
25940	Single	Male	\$20,000		2 Partial College	1	1-2 Miles	Europe	35	Middle Age
					2 Partial High School	2	5-10 Miles	Pacific	55	Old

bike_buyers Working Sheet Pivot Table Dashboard

Point Accessibility: Good to go 100%

Pivot Table 01:

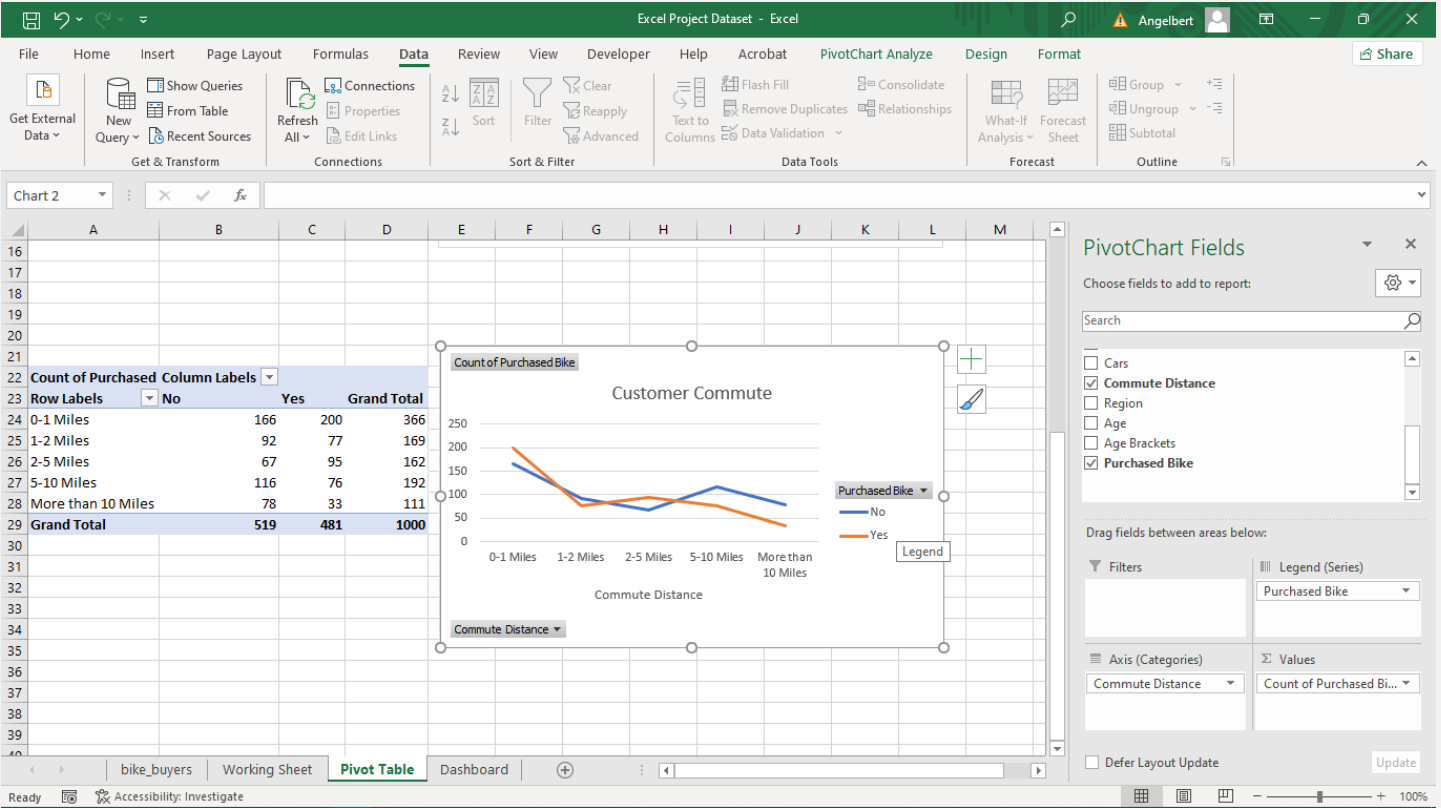
I have separated datasets for males and females. This visualization addresses whether higher earnings are a contributing factor to their purchasing behavior. By comparing income levels with purchasing patterns for each gender, we can gain insights into the correlation between earnings and the likelihood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



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.

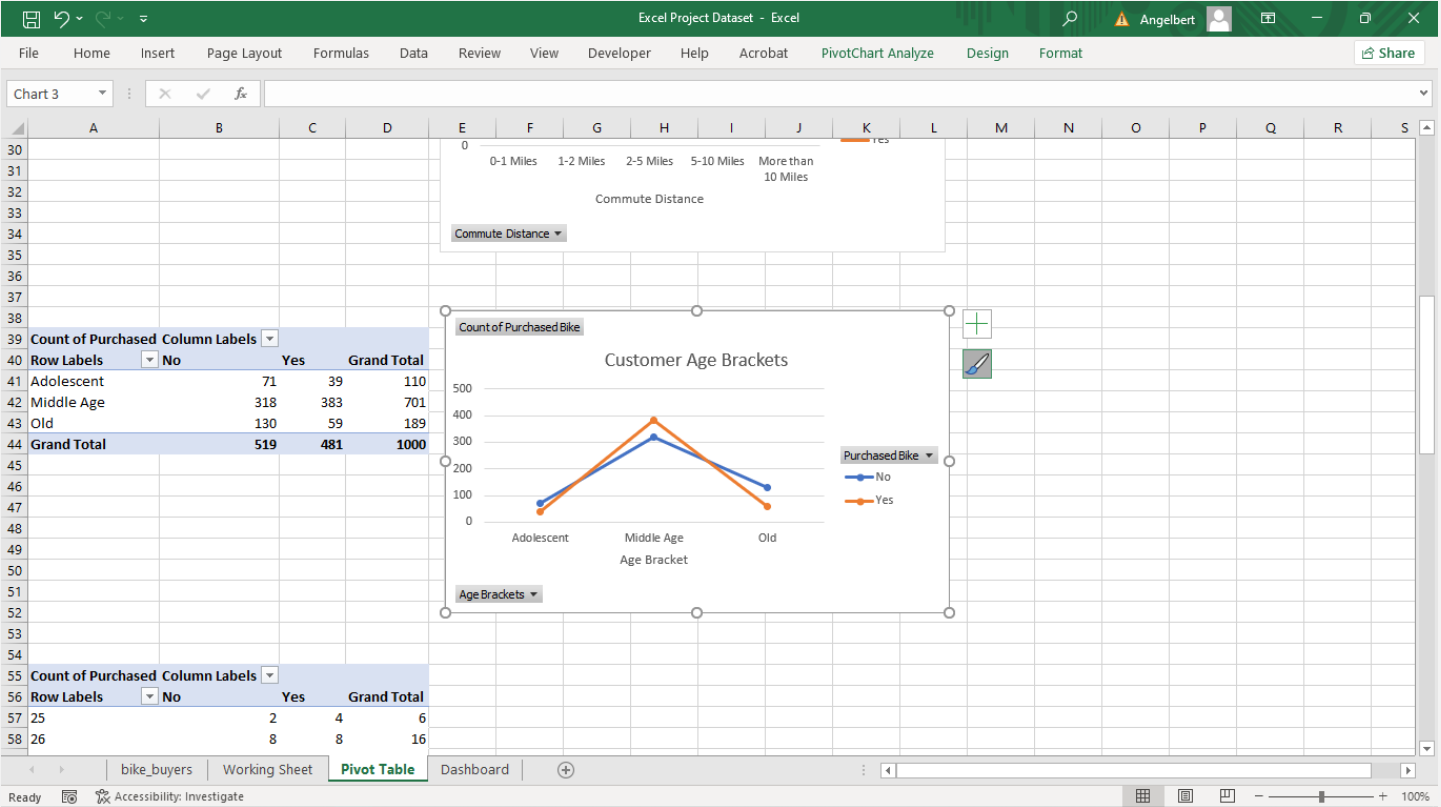


Key Insight: This information can help in analyzing urban mobility trends, assessing the potential for bike infrastructure improvements, and identifying target markets for bike-related products and services.

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.

