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# EMPLOYEE DATA ANALYSIS

Psyliq Internship Project

# Introduction

*This report presents a comprehensive analysis of employee data leveraging Excel tools. Through meticulous examination and visualization using pivot tables, charts, and formulas, key insights emerged. Employee turnover rates, performance metrics, and departmental analysis were scrutinized, revealing patterns and opportunities for improvement. The Excel functions streamlined data manipulation, enabling efficient calculations and trend identification. Notably, demographic breakdowns highlighted diversity metrics, aiding in fostering an inclusive workplace. Recommendations include targeted training programs and retention strategies. Excel's robust capabilities proved instrumental in extracting actionable insights, paving the way for informed HR decisions.*

# 1. Can you create a pivot table to summarize the total number of employees in each department?

The screenshot shows an Excel spreadsheet titled "employee\_data - Excel". The PivotTable is located in the range A3:C11. The Row Labels (A3:A11) list departments: Admin Offices, Executive Office, IT/IS, Production, Sales, Software Engineering, and Grand Total. The Count of Employee ID (B3:B11) shows the employee count for each department: 80, 24, 430, 2020, 331, 115, and 3000 respectively. The PivotTable Fields pane on the right indicates that "Employee ID" is selected under the "Values" category, and "DepartmentType" is selected under the "Rows" category.

	A	B	C
3	Row Labels	Count of Employee ID	
4	Admin Offices	80	
5	Executive Office	24	
6	IT/IS	430	
7	Production	2020	
8	Sales	331	
9	Software Engineering	115	
10	Grand Total	3000	
11			

## 2. APPLY CONDITIONAL FORMATTING TO HIGHLIGHT EMPLOYEES WITH A "PERFORMANCE SCORE" BELOW 3 IN RED.

The screenshot shows a Microsoft Excel spreadsheet titled "employee\_data - Excel". The data is organized into columns: R (DOB), S (State), T (JobFunctionDescription), U (Gender), V (CoLocationC), W (RaceDesc), X (MaritalDesc), Y (Performance Score), and Z (Current Employee Rating). The "Performance Score" column (Y) contains values such as "Fully Meets", "Exceeds", and "Divorced". The "Current Employee Rating" column (Z) contains numerical values ranging from 2 to 5. A conditional formatting rule has been applied to the "Performance Score" column, highlighting rows where the value is "Divorced" with a red background. The "Employee\_data" tab is selected at the bottom, and the formula bar shows "Divorced" under the Y column.

	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
1	DOB	State	JobFunctionDescription	Gender	CoLocationC	RaceDesc	MaritalDesc	Performance Score	Current Employee Rating						
2	10-07-1969	MA	Accounting	Female	34904	White	Widowed	Fully Meets	4						
3	30-08-1965	MA	Labor	Male	6593	Hispanic	Widowed	Fully Meets	3						
4	10-06-1991	MA	Assistant	Male	2330	Hispanic	Widowed	Fully Meets	4						
5	04-04-1998	ND	Clerk	Male	58782	Other	Single	Fully Meets	2						
6	29-08-1969	FL	Laborer	Female	33174	Other	Married	Fully Meets	3						
7	04-03-1949	CT	Driver	Male	6050	Black	Married	Fully Meets	3						
8	07-01-1942	CA	Technician	Female	90007	Hispanic	Divorced	Exceeds	4						
9	03-07-1957	OR	Engineer	Female	97756	White	Divorced	Fully Meets	2						
10	15-05-1974	TX	Executive Assistant	Male	78789	Black	Widowed	Exceeds	3						
11	11-11-1949	TX	Engineer	Male	78207	Asian	Widowed	Fully Meets	5						
12	26-01-1964	IN	Technician	Female	46204	Other	Single	Fully Meets	5						
13	04-06-1948	GA	Technician	Female	30428	Asian	Married	Fully Meets	3						
14	24-11-1981	CO	Splicer	Male	80820	Other	Single	Fully Meets	3						
15	11-06-1951	KY	Controller	Female	40220	White	Divorced	Fully Meets	3						
16	21-11-1989	NV	Lineman	Male	89139	Asian	Widowed	Exceeds	4						
17	24-11-1952	MA	Laborer	Male	2810	Black	Single	Exceeds	2						
18	04-08-1994	KY	Coordinator	Male	2621	Asian	Widowed	Fully Meets	3						
19	15-11-1983	KY	Director	Male	44553	Other	Widowed	Fully Meets	3						
20	12-07-1985	KY	Supervisor	Female	5360	Other	Married	Exceeds	4						
21	05-01-1996	TX	Driller	Female	16325	White	Divorced	Exceeds	2						
22	17-02-1964	TX	Technician	Female	43481	Asian	Widowed	Fully Meets	3						

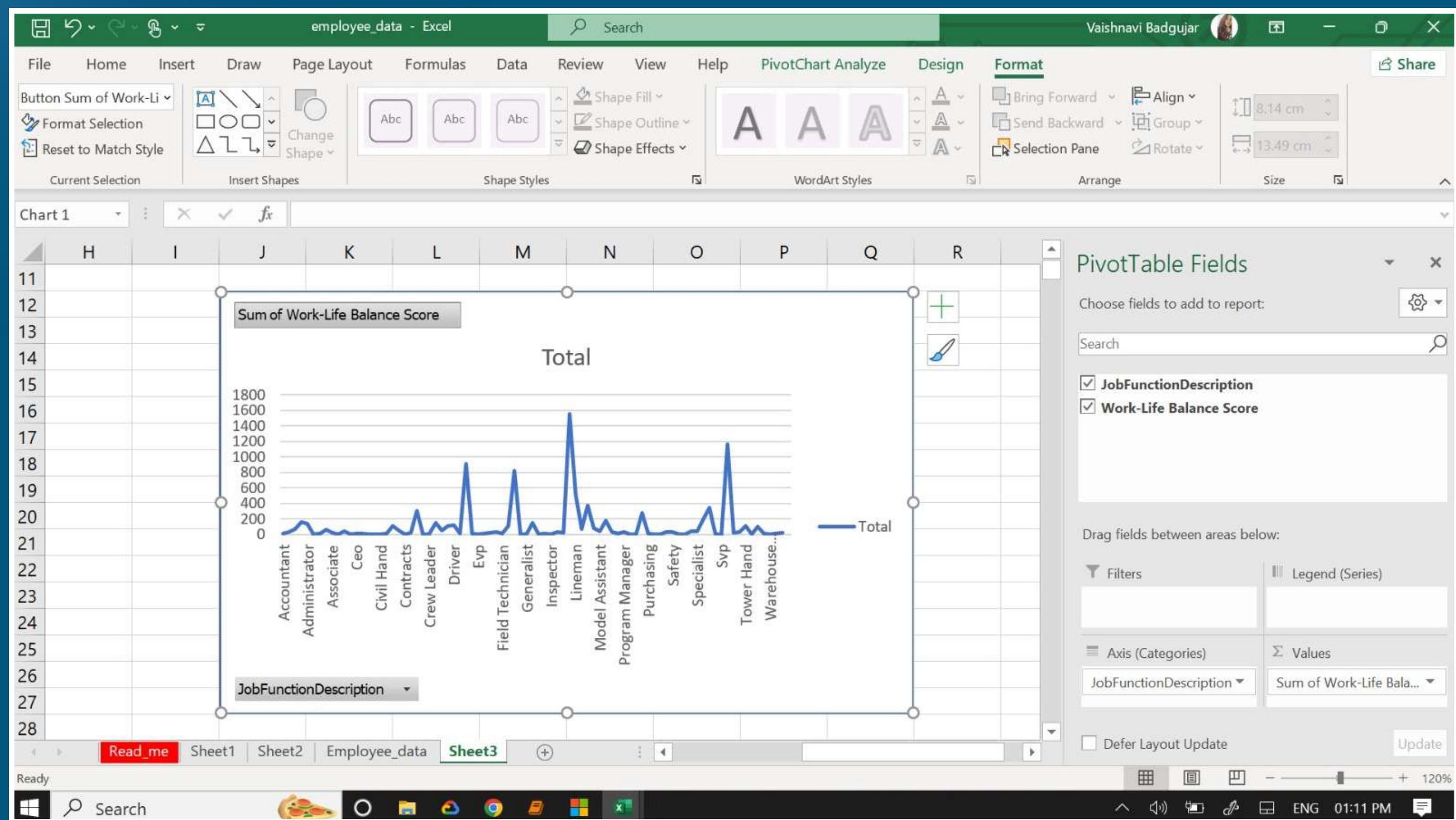
### 3. CALCULATE THE AVERAGE "SATISFACTION SCORE" FOR MALE AND FEMALE EMPLOYEES SEPARATELY USING A PIVOT TABLE.

The screenshot shows a Microsoft Excel window titled "employee\_engagement\_survey\_data - Excel". The ribbon is visible at the top with tabs like File, Home, Insert, Draw, Page Layout, Formulas, Review, View, Help, PivotTable Analyze, and Design. The "PivotTable Analyze" tab is selected. The main area displays a PivotTable with the following data:

	Row Labels	Sum of Satisfaction Score
2		
3	Female	5080
4	Male	3986
5	(blank)	
6	Grand Total	9066
7		
8		
9		
10		
11		
12		
13		

The "PivotTable Fields" pane on the right shows that "Satisfaction Score" and "GenderCode" are selected under the "Values" section, with "GenderCode" being a row filter. The "Columns" section shows "GenderCode" and "Sum of Satisfaction Sc...".

#### 4. CREATE A CHART TO VISUALIZE THE DISTRIBUTION OF "WORK-LIFE BALANCE SCORE" FOR DIFFERENT JOB FUNCTIONS.



## 5. FILTER THE DATA TO DISPLAY ONLY TERMINATED EMPLOYEES AND FIND OUT THE MOST COMMON "TERMINATION TYPE."

The screenshot shows a Microsoft Excel spreadsheet titled "employee\_data - Excel". The PivotTable is located in the range A3:D9. The columns are labeled A, B, C, D, and E. Column A contains row numbers from 2 to 10. Column B contains the category "Count of TerminationType". Column C contains the termination types: "Involuntary", "Resignation", "Retirement", "Unk", and "Voluntary". Column D contains the corresponding counts: 388, 380, 377, 1467, and 388. Row 9 is the "Grand Total" with a value of 3000. The PivotTable Fields pane on the right shows that "TerminationType" is selected under the "Values" section, and "TerminationType" is also listed under the "Rows" section.

	A	B	C	D
2				
3	Row Labels	Count of TerminationType		
4	Involuntary		388	
5	Resignation		380	
6	Retirement		377	
7	Unk		1467	
8	Voluntary		388	
9	Grand Total		3000	
10				
11				
12				

## 6. CALCULATE THE AVERAGE "ENGAGEMENT SCORE" FOR EACH DEPARTMENT USING A PIVOT TABLE.

The screenshot shows a Microsoft Excel spreadsheet titled "employee\_data - Excel". The PivotTable Fields pane on the right indicates that "DepartmentType" is in the Rows area and "Engagement Score" is in the Values area, with the calculation set to "Average of Engagement Score". The PivotTable itself displays data for five departments: Admin Offices, Executive Office, IT/IS, Production, and Sales, along with a Grand Total. The "PivotTable Analyze" tab is selected in the ribbon.

	A	B	C	D
2				
3	Row Labels	Average of Engagement Score		
4	Admin Offices		3	
5	Executive Office		2.875	
6	IT/IS		2.934883721	
7	Production		2.95049505	
8	Sales		2.876132931	
9	Software Engineering		2.92173913	
10	(blank)			
11	Grand Total	2.939666667		
12				
13				

## 7. USE VLOOKUP TO FIND THE SUPERVISOR'S EMAIL ADDRESS FOR A SPECIFIC EMPLOYEE.

=VLOOKUP(H15,EMPLOYEE\_DATA[[#ALL],[FIRSTNAME]:[CURRENT EMPLOYEE RATING]],7,TRUE)

VLOOKUP		
Employee Id	Supervisor name	supervisor email
2345	Cindy Schneider	Cindy Schneider@bilearner.com

## 8. CAN YOU IDENTIFY THE DEPARTMENT WITH THE HIGHEST AVERAGE "EMPLOYEE RATING?"

The screenshot shows a Microsoft Excel spreadsheet titled "employee\_data - Excel". The PivotTable Fields pane is open on the right side, showing the following configuration:

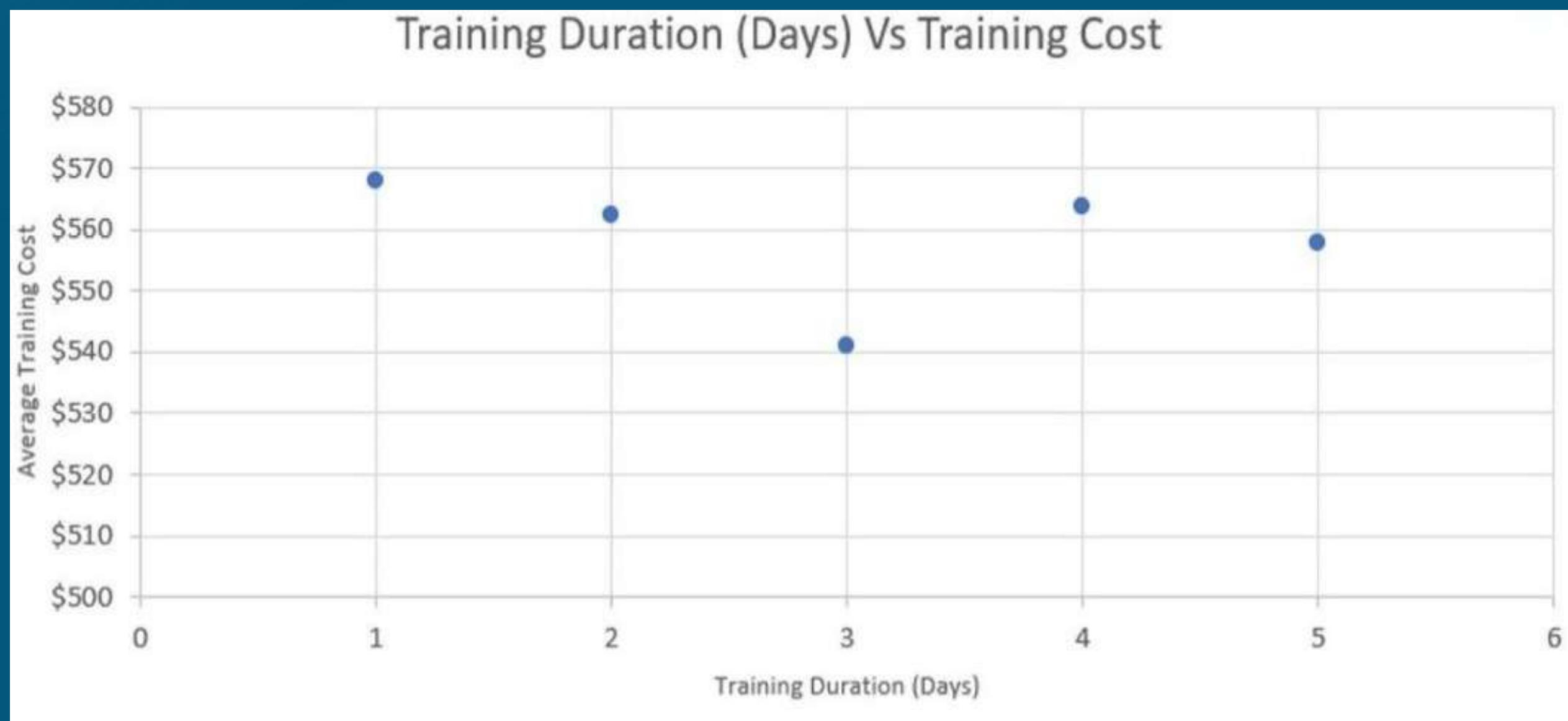
- Choose fields to add to report:
  - ra
  - RaceDesc
  - Current Employee Rating
- More Tables...
- Drag fields between areas below:
  - Filters
  - Columns
  - Rows
  - Values
    - DepartmentType
    - Average of Current Em...

The main table in the worksheet area contains the following data:

	A	B	C	D
2				
3	Row Labels	Average of Current Employee Rating		
4	Admin Offices	3.025		
5	Executive Office	2.791666667		
6	IT/IS	2.969767442		
7	ra	2.982178218		
8	Sales	2.909365559		
9	Software Engineering	2.904347826		
10	Grand Total	2.969		
11				
12				
13				
14				

At the bottom of the screen, the taskbar shows various open applications including Microsoft Word, Microsoft Edge, and Microsoft Excel.

9. CREATE A SCATTER PLOT TO EXPLORE THE RELATIONSHIP BETWEEN "TRAINING DURATION (DAYS)" AND "TRAINING COST."



10. BUILD A PIVOT TABLE THAT SHOWS THE COUNT OF EMPLOYEES BY "RACEDESC" AND "GENDERCODE."

Row Labels		Female	Male	Grand Total
White		347	252	599
Other		318	264	582
Hispanic		325	247	572
Black		346	272	618
Asian		346	283	629
<b>Grand Total</b>		<b>1682</b>	<b>1318</b>	<b>3000</b>

11. USE INDEX AND MATCH FUNCTIONS TO FIND THE "TRAINING PROGRAM NAME" FOR AN EMPLOYEE WITH A SPECIFIC ID.

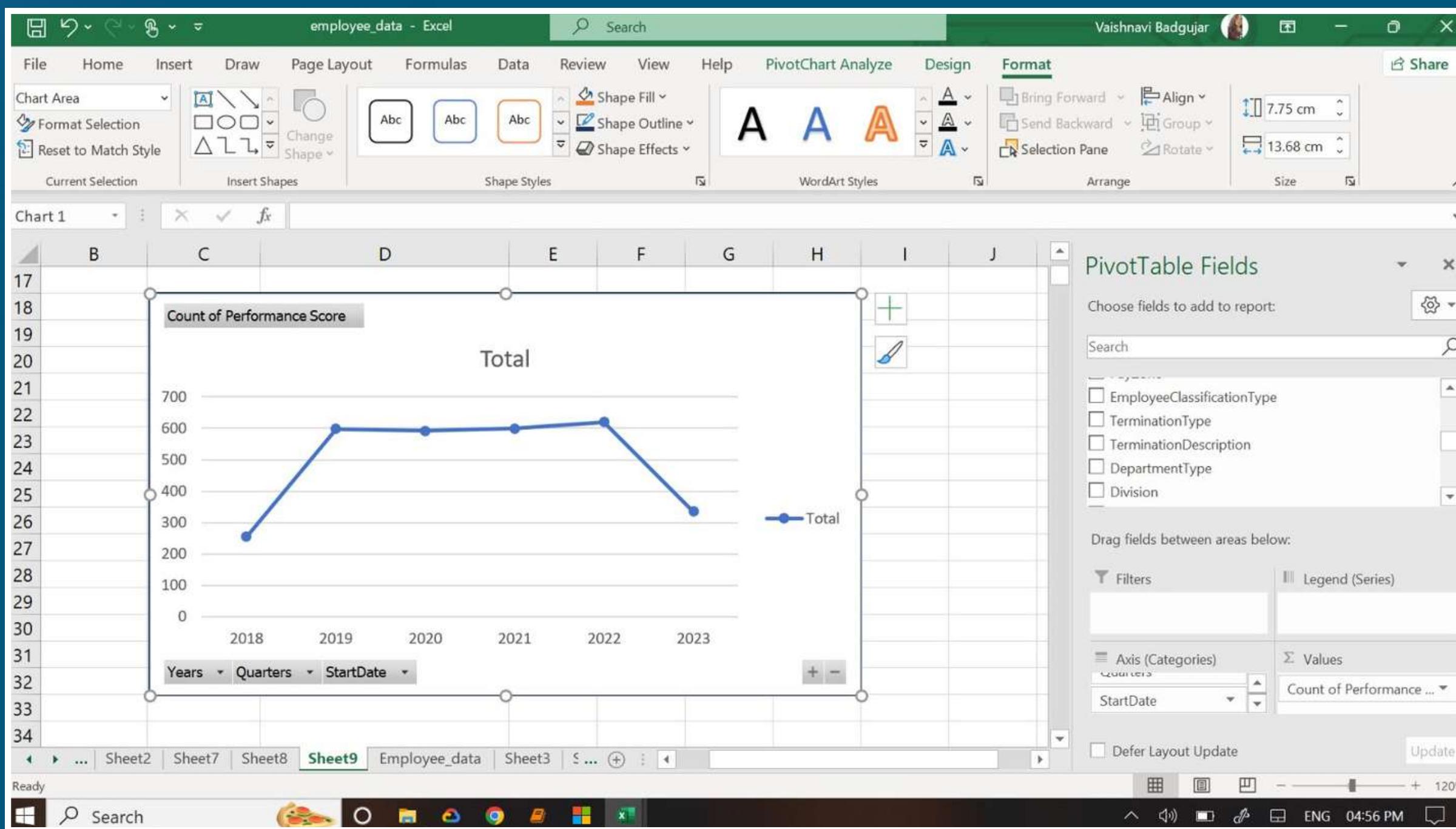
```
=INDEX(TRAINING_AND_DEVELOPMENT_DATA[#ALL],MATCH(OUTPUT!L15,  
TRAINING_AND_DEVELOPMENT_DATA!A:A,0),3)
```

B	C
<b>Employee id</b>	<b>Training program name</b>
1009	Customer Service

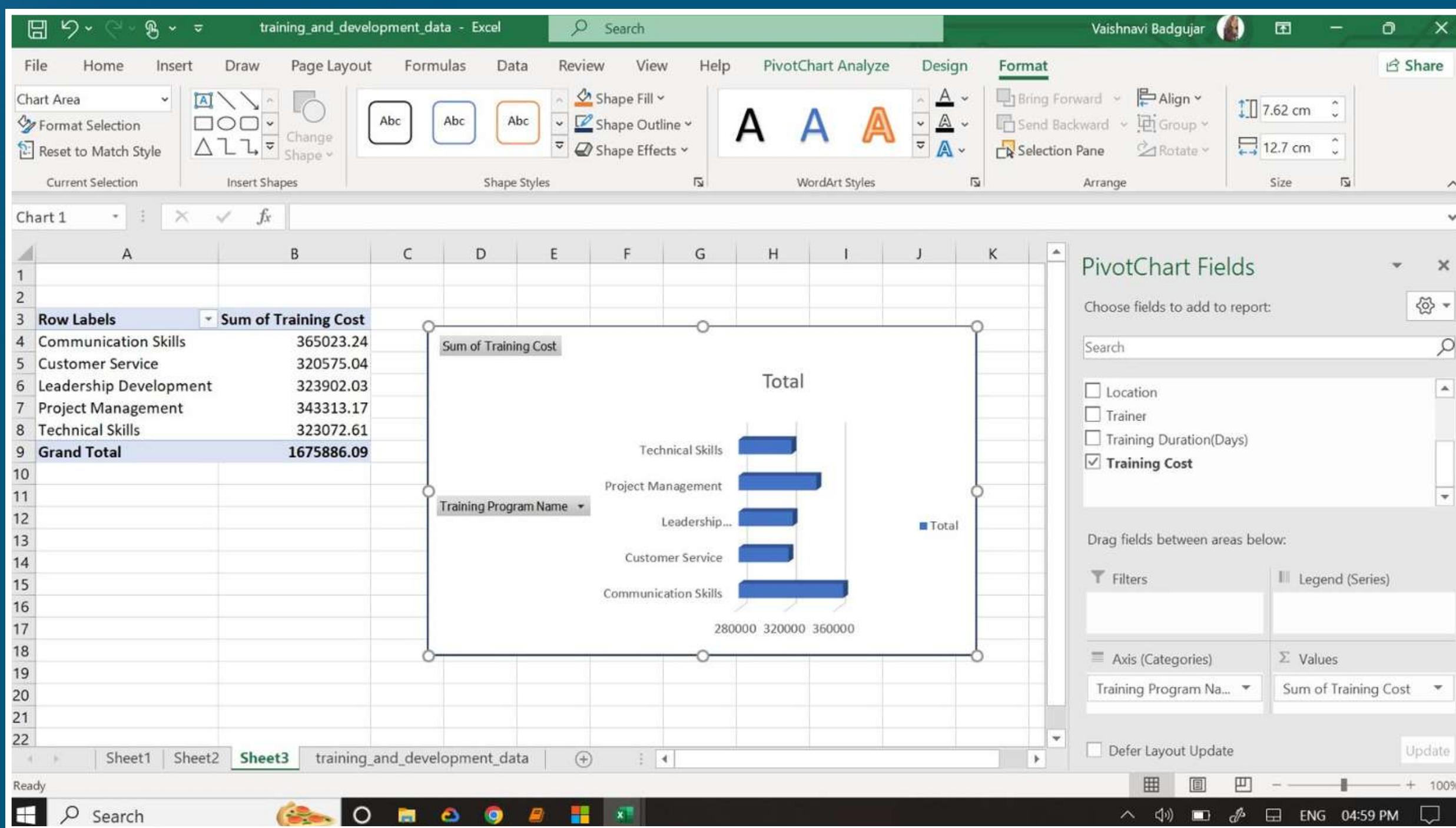
12. CREATE A MULTI-LEVEL PIVOT TABLE TO ANALYZE THE "PERFORMANCE SCORE" BY "BUSINESSUNIT" AND "JOBFUNCTIONDESCRIPTION."

Job Functions	Count of Performance Score
+ BPC	303
+ CCDR	300
+ EW	302
+ MSC	296
+ NEL	304
+ PL	301
+ PYZ	299
+ SVG	304
+ TNS	297
- WBL	294
Accountant	2
Administration	3
Administrative	7
Administrator	6
Apprentice	1
Billing	2
Civil Hand	1
Clerical	1
Clerk	4
Construction Manager	2
Controller	1
Coordinator	15
Director	4
Drafter	2
Driller	4
Driver	1
Electrician	1
Engineer	35

## 13. DESIGN A DYNAMIC CHART THAT ALLOWS USERS TO SELECT AND VISUALIZE THE PERFORMANCE OF ANY EMPLOYEE OVER TIME.



## 14. CALCULATE THE TOTAL TRAINING COST FOR EACH "TRAINING PROGRAM NAME" AND DISPLAY IT IN A BAR CHART.



## 15. APPLY ADVANCED CONDITIONAL FORMATTING TO HIGHLIGHT THE TOP 10% AND BOTTOM 10% OF EMPLOYEES BASED ON "CURRENT EMPLOYEE RATING."

## 16. USE A CALCULATED FIELD IN A PIVOT TABLE TO DETERMINE THE AVERAGE "ENGAGEMENT SCORE" PER YEAR.

The screenshot shows an Excel spreadsheet titled "employee\_engagement\_survey\_data". The PivotTable Fields pane is open, showing fields for Engagement Score, StartDate, Quarters, and Years. The Rows area is set to "Years" and the Values area is set to "Average of Engagement Score". The data in the PivotTable is as follows:

Row Labels	Average of Engagement Score
2018	2.988235294
2019	2.894648829
2020	2.964527027
2021	2.951666667
2022	2.908064516
2023	2.976119403
<b>Grand Total</b>	<b>2.939666667</b>

17. CAN YOU BUILD A MACRO THAT AUTOMATES THE PROCESS OF UPDATING AND REFRESHING ALL PIVOT TABLES IN THE WORKBOOK?

- GO TO DEVELOPER TAB
- CLICK ON “VISUALBASIC”
- CLICK ON NEW MODULE
- TYPE IN MACRO CODE
- CLOSE VBA EDITOR
- EXECUTE MACRO BY ALT+F8  
AND SELECT REFRESH PIVOT  
TABLE

18. CREATE A HISTOGRAM TO UNDERSTAND THE DISTRIBUTION OF "EXITDATE" FOR TERMINATED EMPLOYEES.



19. UTILIZE THE SUMPRODUCT FUNCTION TO CALCULATE THE TOTAL TRAINING COST FOR EMPLOYEES IN A SPECIFIC LOCATION.

Row Labels	Sum of Training Cost
Aaronburgh	633.96
Belltown	555.6
Carlland	104.66
Danielfort	570.13
East Amy	718.16
Fordside	638.69
Griffintown	853.77
<b>Grand Total</b>	<b>4074.97</b>
<b>SUM PRODUCT=</b>	<b>4074.97</b>

# Dashboard



*Thank You!*