



# DATA ANALYST INTERNSHIP

## EMPLOYEE DATA ANALYSIS

PREPARED BY – REHMAN KHAN



# INTRODUCTION

HELLO AND WELCOME! TO MY EXCEL PROJECT REPORT ON EMPLOYEES DATA. IN THIS PROJECT, WE'VE UTILIZED VARIOUS TOOLS SUCH AS EXCEL, PIVOT TABLE AND POWER BI. THE PROJECT AIMED TO ANALYZE AND INTERPRET THE COMPANY'S EMPLOYEE DATA TO GAIN VALUABLE INSIGHTS.

USING EXCEL AND POWER BI, THE PROJECT INVOLVES MANIPULATING AND ANALYZING AN EMPLOYEE DATASET. FILTERING EMPLOYEES OVER THE AGE OF 30, USING CONDITIONAL FORMATTING, USING ADVANCED EXCEL TOOLS- DAX QUERY, PIVOT TABLES AND CHARTS. THE GOAL IS TO GAIN INSIGHTS INTO EMPLOYEE STATISTICS SUCH AS INCOME, SATISFACTION AND ATTRITION.

# POWER BI DASHBOARD



## Employee Data Analytics Dashboard



3000

Count of Employee ID

2458

Count of EmployeeStatus

1.68M

Sum of Training Cost

999.97

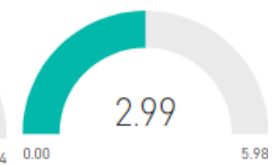
Max of Training Cost

100.04

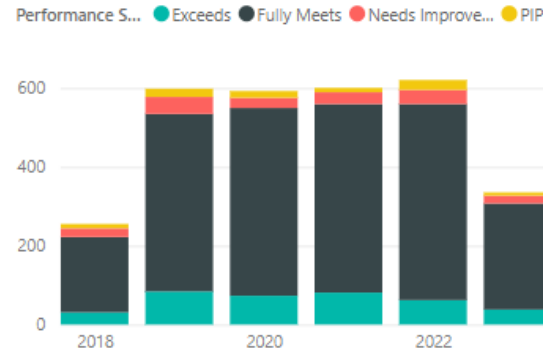
Min of Training Cost

Average of Satisfaction Score

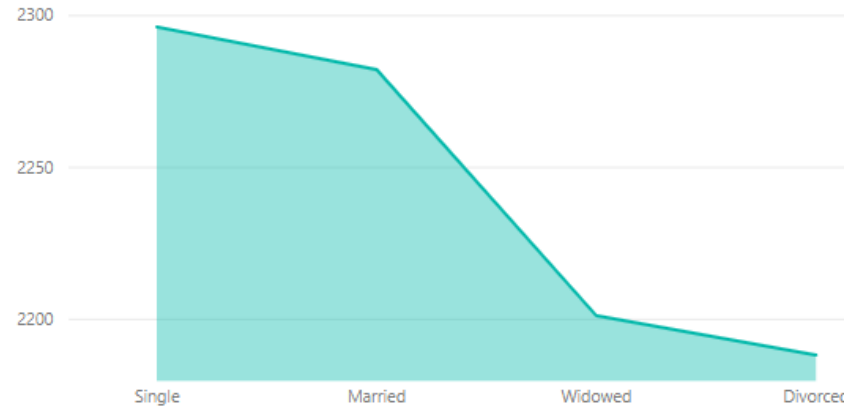
Average of Work-Life Balan...



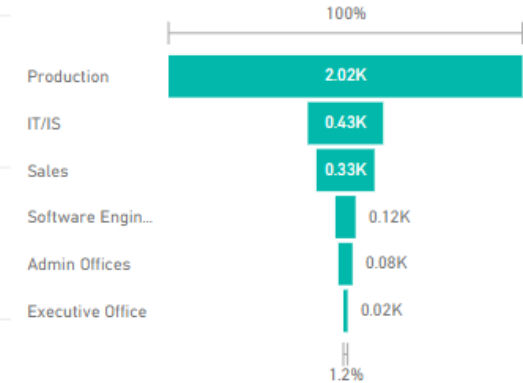
Count of Performance Score by Year and Performance Score



Sum of Work-Life Balance Score by MaritalDesc



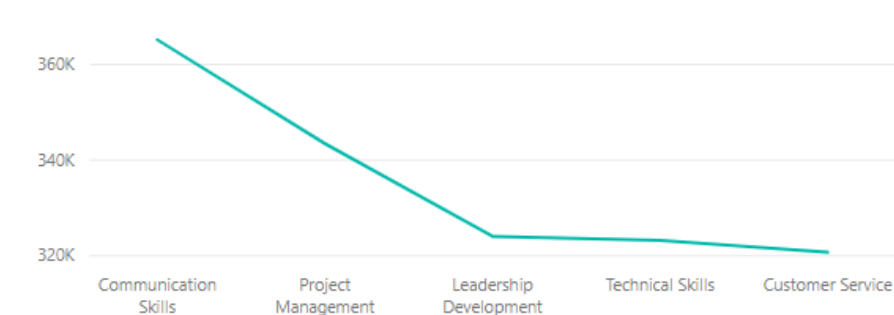
Count of Employee ID by DepartmentType



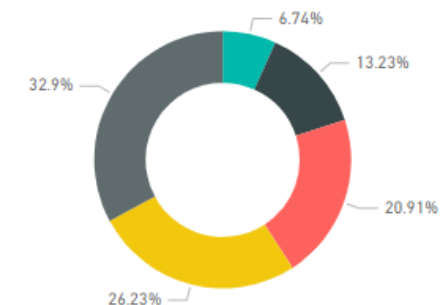
Sum of Training Cost by Training Program Name Using Index ...



Sum of Training Cost by Training Program Name Using Index and Match function



Sum of Work-Life Balance Score by Work-Life Balance Score





# TASK

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

Row Labels	Count of Employee ID
+ Admin Offices	80
+ Executive Office	24
+ IT/IS	430
+ Production	2020
+ Sales	331
+ Software Engineering	115
Grand Total	3000

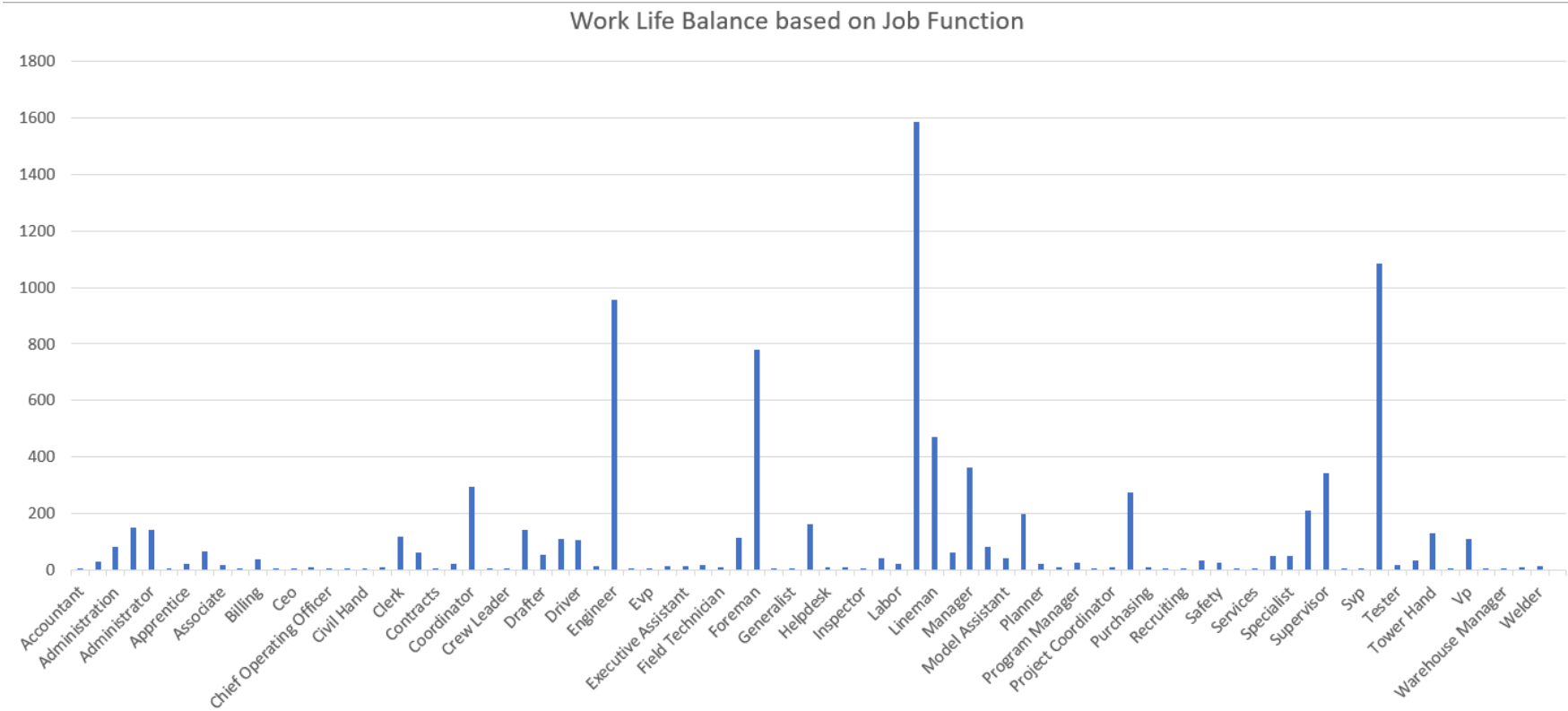
## 2. Apply conditional formatting to highlight employees with a "Performance Score" below 3 in red.

	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1	DepartmentType	Division	DOB	State	JobFunctionDescription	GenderCode	LocationCode	RaceDesc	MaritalDesc	Performance Score	P_Score	Current Employee Rating	
2	Production	Finance & Accounting	10-07-1969	MA	Accounting	Female	34904	White	Widowed	Fully Meets	3	4	
3	Production	Aerial	30-08-1965	MA	Labor	Male	6593	Hispanic	Widowed	Fully Meets	3	3	
4	Sales	General - Sga	10-06-1991	MA	Assistant	Male	2330	Hispanic	Widowed	Fully Meets	3	4	
5	Sales	Finance & Accounting	04-04-1998	ND	Clerk	Male	58782	Other	Single	Fully Meets	3	2	
6	Sales	General - Con	29-08-1969	FL	Laborer	Female	33174	Other	Married	Fully Meets	3	3	
7	Sales	Field Operations	04-03-1949	CT	Driver	Male	6050	Black	Married	Fully Meets	3	3	
8	Sales	General - Eng	07-01-1942	CA	Technician	Female	90007	Hispanic	Divorced	Exceeds	1	4	
9	Sales	Engineers	03-07-1957	OR	Engineer	Female	97756	White	Divorced	Fully Meets	3	2	
10	Sales	Executive	15-05-1974	TX	Executive Assistant	Male	78789	Black	Widowed	Exceeds	1	3	
11	Sales	Engineers	11-11-1949	TX	Engineer	Male	78207	Asian	Widowed	Fully Meets	3	5	
12	Sales	Field Operations	26-01-1964	IN	Technician	Female	46204	Other	Single	Fully Meets	3	5	
13	Sales	General - Con	04-06-1948	GA	Technician	Female	30428	Asian	Married	Fully Meets	3	3	
14	Sales	Splicing	24-11-1981	CO	Splicer	Male	80820	Other	Single	Fully Meets	3	3	
15	Sales	Finance & Accounting	11-06-1951	KY	Controller	Female	40220	White	Divorced	Fully Meets	3	3	
16	Sales	General - Con	21-11-1989	NV	Lineman	Male	89139	Asian	Widowed	Exceeds	1	4	
17	IT/IS	Field Operations	24-11-1952	MA	Laborer	Male	2810	Black	Single	Exceeds	1	2	
18	IT/IS	Project Management - Con	04-08-1994	KY	Coordinator	Male	2621	Asian	Widowed	Fully Meets	3	3	
19	Sales	Engineers	15-11-1983	KY	Director	Male	44553	Other	Widowed	Fully Meets	3	3	
20	Sales	Project Management - Con	12-07-1985	KY	Supervisor	Female	5360	Other	Married	Exceeds	1	4	
21	Sales	Field Operations	05-01-1996	TX	Driller	Female	16325	White	Divorced	Exceeds	1	2	
22	Sales	General - Con	17-02-1964	TX	Technician	Female	43481	Asian	Widowed	Fully Meets	3	3	
23	Sales	Engineers	05-12-1958	TX	Specialist	Male	50705	Asian	Widowed	Fully Meets	3	3	
24	Sales	General - Eng	18-09-1992	CO	Technician	Male	5168	Black	Single	Fully Meets	3	5	
25	Sales	Field Operations	08-11-1994	CO	Operator	Male	11765	Other	Single	Exceeds	1	2	
26	Sales	General - Con	15-01-1968	CO	Technician	Male	71071	Other	Divorced	Exceeds	1	3	

3. Calculate the average "Satisfaction Score" for male and female employees separately using a pivot table.

Row Labels	Average of Satisfaction Score
Female	3.005945303
Male	3.042488619
Grand Total	3.022

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."

	I	J	K	L	M	N	O	P	Q	
1	BusinessUnit	EmployeeStatus	EmployeeType	PayZone	EmployeeClassificationType	TerminationType	TerminationDescription	DepartmentType	Division	DOB
8	WBL	Active	Full-Time	Zone B	Temporary	Involuntary	Me see picture nature degree benefit.	Sales	General - Eng	07-01
9	CCDR	Active	Contract	Zone C	Full-Time	Involuntary	Blue community type skill story.	Sales	Engineers	03-07
11	BPC	Active	Part-Time	Zone B	Temporary	Resignation	Summer personal bag.	Sales	Engineers	11-11
13	MSC	Active	Full-Time	Zone C	Temporary	Retirement	Alone once than. More condition pay far.	Sales	General - Con	04-06
14	EW	Active	Full-Time	Zone A	Temporary	Involuntary	Foot in theory minute recognize test.	Sales	Splicing	24-11
15	CCDR	Active	Contract	Zone A	Full-Time	Resignation	Degree wish science when thing week old.	Sales	Finance & Accounting	11-06
17	PYZ	Active	Full-Time	Zone A	Full-Time	Retirement	Fear particular method stage.	IT/IS	Field Operations	24-11
18	WBL	Active	Full-Time	Zone C	Part-Time	Voluntary	Wall body wonder successful.	IT/IS	Project Management - Con	04-08
19	NEL	Active	Contract	Zone A	Part-Time	Voluntary	Visit foot nearly radio treatment.	Sales	Engineers	15-11
22	CCDR	Future Start	Part-Time	Zone C	Part-Time	Involuntary	Unit pass office southern break one.	Sales	General - Con	17-02
23	SVG	Future Start	Full-Time	Zone A	Temporary	Retirement	List class mind.	Sales	Engineers	05-12
24	EW	Future Start	Contract	Zone B	Temporary	Involuntary	Price third parent evening.	Sales	General - Eng	18-09
25	MSC	Active	Contract	Zone C	Temporary	Resignation	Cause military a sense. Doctor property may.	Sales	Field Operations	08-11
26	TNS	Active	Contract	Zone C	Full-Time	Voluntary	Station another son positive.	Sales	General - Con	15-01
30	WBL	Active	Full-Time	Zone C	Temporary	Resignation	Pm local take example fund. Small heavy listen.	Sales	Project Management - Eng	18-01
33	BPC	Future Start	Contract	Zone A	Full-Time	Voluntary	Several young whether that expert.	Sales	Field Operations	08-12
34	CCDR	Future Start	Part-Time	Zone A	Full-Time	Retirement	Science end approach democratic treatment.	Sales	General - Con	02-09
36	EW	Future Start	Full-Time	Zone C	Part-Time	Resignation	Base scene central unit per argue. Might last of.	Sales	General - Con	29-12
37	MSC	Active	Contract	Zone A	Full-Time	Involuntary	Yourself book budget product.	Sales	Field Operations	08-09
38	TNS	Active	Part-Time	Zone A	Temporary	Retirement	Paper can score else investment.	Sales	Field Operations	21-06
39	PYZ	Active	Contract	Zone B	Full-Time	Involuntary	Stuff different color how.	Sales	Shop (Fleet)	17-06
41	PYZ	Active	Part-Time	Zone C	Full-Time	Retirement	Sign figure employee card education.	IT/IS	Aerial	26-01
44	PL	Future Start	Contract	Zone B	Full-Time	Resignation	Right cut matter arrive difference.	Sales	Field Operations	21-02
45	BPC	Future Start	Contract	Zone C	Part-Time	Retirement	Speak professor statement result.	Sales	Field Operations	31-05
50	TNS	Active	Full-Time	Zone C	Temporary	Resignation	Expert challenge education air none money wide	Sales	General - Con	25-12

Row Labels	Count of TerminationDescription
Involuntary	388
Voluntary	388
Resignation	380
Retirement	377
<b>Grand Total</b>	<b>1533</b>

6. Calculate the average "Engagement Score" for each department using a pivot table.

Row Labels	Average of Engagement Score
Admin Offices	2.925
Executive Office	3.375
IT/IS	3.025581395
Production	2.906435644
Sales	2.990936556
Software Engineering	2.973913043
<b>Grand Total</b>	<b>2.939666667</b>

7. Use VLOOKUP to find the supervisor's email address for a specific employee.

D2

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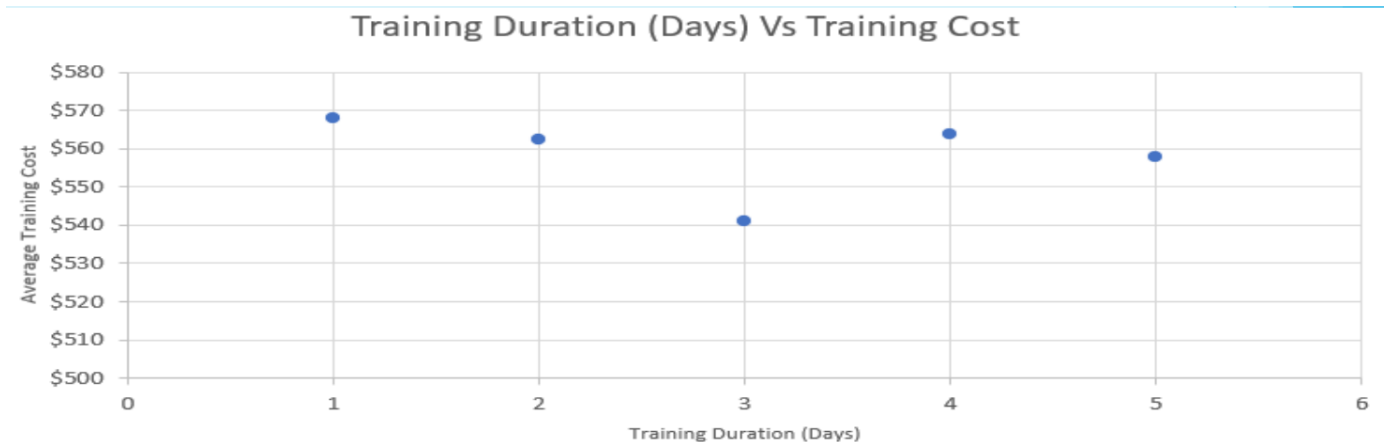


8. Can you identify the department with the highest average "Employee Rating?"

Row Labels	Average of Current Employee Rating
Admin Offices	3.025
Production	2.982178218
IT/IS	2.969767442
Sales	2.909365559
Software Engineering	2.904347826
Executive Office	2.791666667
<b>Grand Total</b>	<b>2.969</b>

9. Create a scatter plot to explore the relationship between "Training Duration (Days)" and "Training Cost."

Training Duration (Days)	Sum of Training Cost
1	351564.82
2	337447.16
3	330620.33
4	324230.66
5	332023.12
<b>Grand Total</b>	<b>1675886.09</b>



10. Build a pivot table that shows the count of employees by "RaceDesc" and "GenderCode."

Count of GenderCode		Column Labels ▼		
Row Labels	▼	Female	Male	Grand Total
Asian		346	283	629
Black		346	272	618
White		347	252	599
Other		318	264	582
Hispanic		325	247	572
Grand Total		1682	1318	3000

11. Use INDEX and MATCH functions to find the "Training Program Name" for an employee with a specific ID.

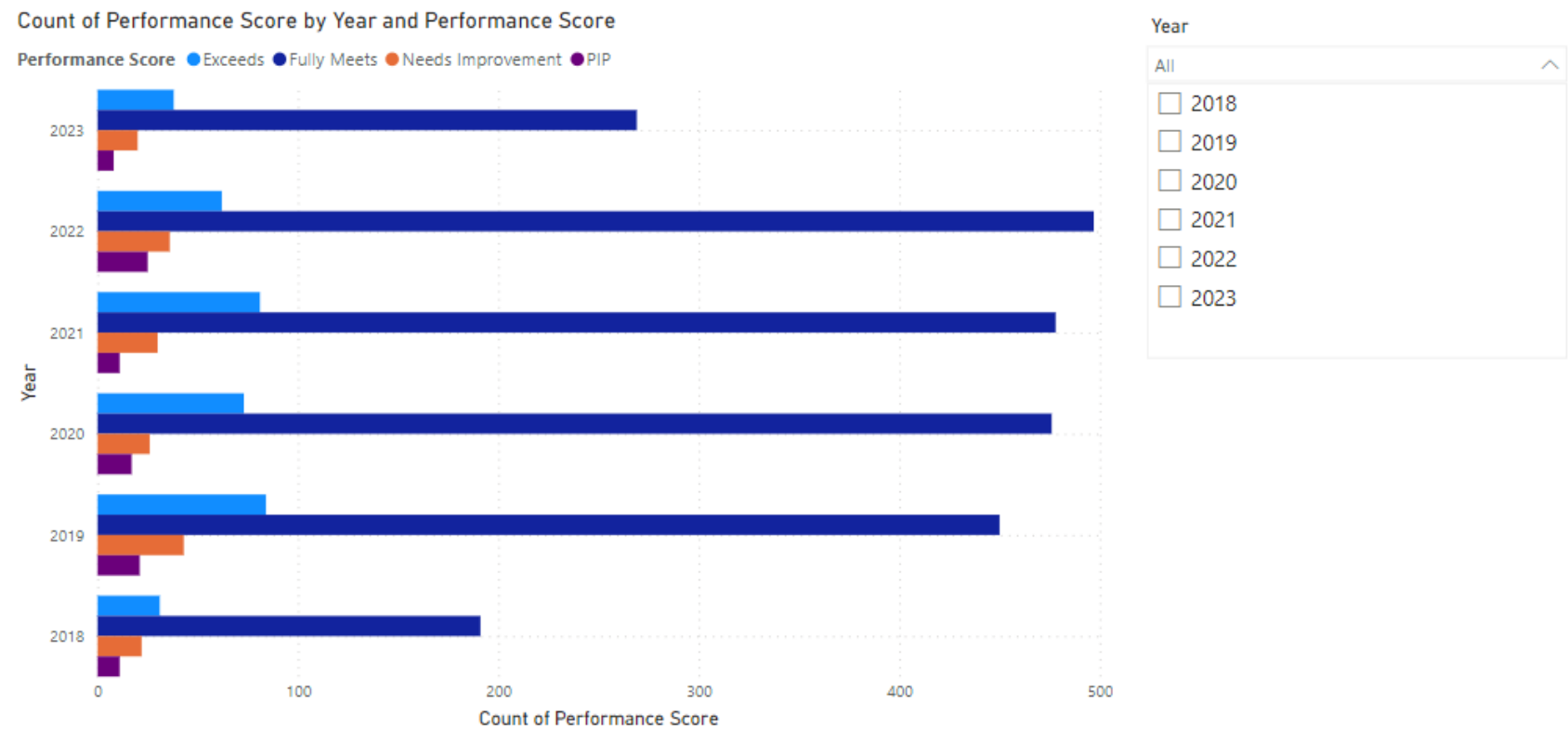
	A	Z	AA	AB	AC	AD	AE	AF	AG	AH
1	Employee ID	P_Score	Current Employee Rating	Satisfaction Score	Work-Life Balance Sco	Engagement Sco	Training Duration(Days)	Training Cost	Training Program Name Using Index and Match function	
2	1001	3	3	5	5	2	4	510.83	Customer Service	
3	1002	3	3	5	3	4	2	582.37	Leadership Development	
4	1003	3	3	5	2	2	4	777.06	Technical Skills	
5	1004	3	3	5	3	3	2	824.3	Customer Service	
6	1005	3	3	4	5	2	4	145.99	Communication Skills	
7	1006	3	3	2	1	5	2	838.07	Project Management	
8	1007	3	3	1	5	2	2	667.32	Leadership Development	
9	1008	3	3	2	2	5	2	758.18	Technical Skills	
10	1009	3	3	5	1	2	2	101.21	Customer Service	
11	1010	3	3	4	2	2	5	332.25	Communication Skills	
12	1011	3	3	2	3	1	1	803.98	Communication Skills	
13	1012	3	3	5	4	3	3	887.08	Technical Skills	
14	1013	3	3	4	3	5	2	657.85	Project Management	
15	1014	3	3	4	1	4	2	895.49	Customer Service	
16	1015	3	3	1	3	1	1	539	Leadership Development	
17	1016	3	3	3	2	2	2	606.68	Communication Skills	
18	1017	3	3	1	3	4	3	265.73	Technical Skills	
19	1018	3	3	1	4	4	2	673.29	Project Management	
20	1019	3	3	3	5	1	5	436.98	Project Management	
21	1020	3	3	1	2	2	4	578.58	Technical Skills	
22	1021	3	3	1	4	5	1	647.16	Technical Skills	
23	1022	3	3	4	4	1	1	664.23	Project Management	
24	1023	3	3	4	3	4	4	893.07	Project Management	
25	1024	3	3	3	1	5	5	868.98	Project Management	
26	1025	3	3	1	4	4	5	761.95	Project Management	

12. Create a multi-level pivot table to analyze the "Performance Score" by "BusinessUnit" and "JobFunctionDescription."

Row Labels ▼	Count of Performance Score
+ BPC	303
+ CCDR	300
+ EW	302
+ MSC	296
+ NEL	304
+ PL	301
+ PYZ	299
+ SVG	304
+ TNS	297
+ WBL	294
+ (blank)	
<b>Grand Total</b>	<b>3000</b>

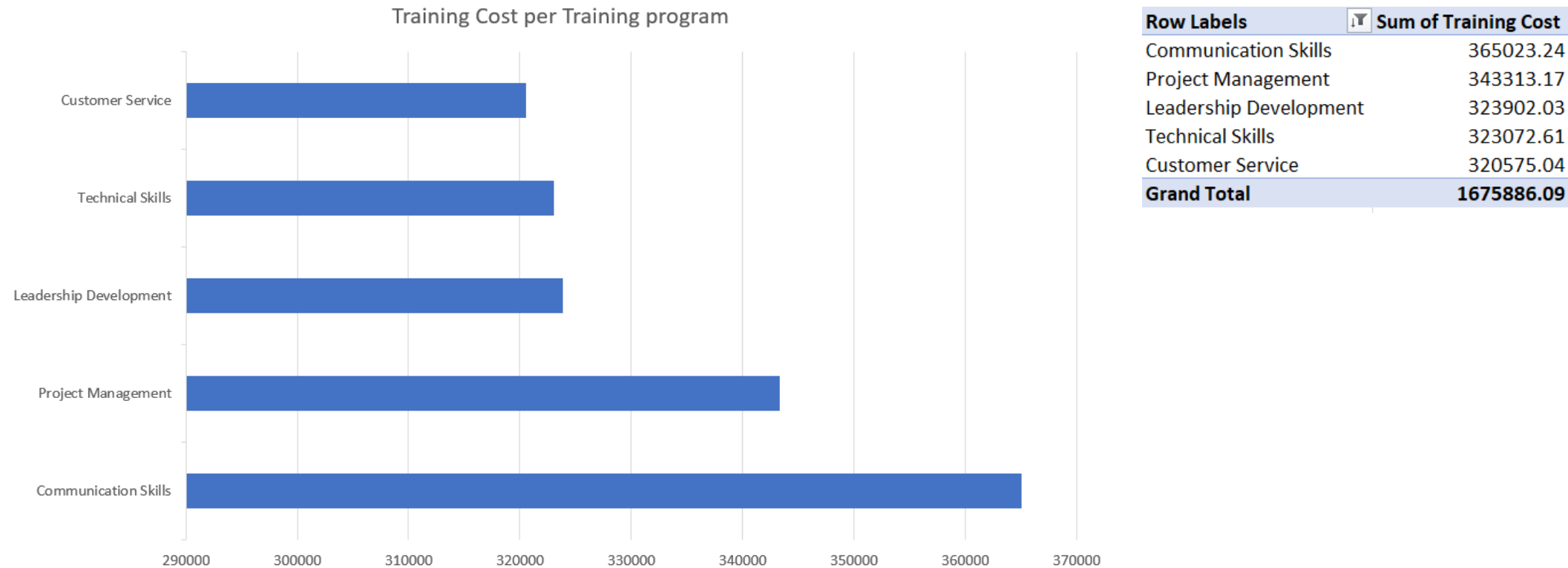
Row Labels ▼	Count of Performance Score
- BPC	303
Administration	3
Administrative	7
Administrator	9
Assistant	1
Associate	3
Billing	2
Ceo	1
Cio	1
Clerk	1
Construction Manager	1
Controller	1
Coordinator	5
Director	6
Driller	3
Driver	4
Electrician	1
Engineer	41
Executive Assistant	1
Field Project Manager	3
Flagger	2
Foreman	24
Groundman	4
Helper	1

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."

	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1111	Contract	Zone C	Temporary	Unk		Production	General - Sga	13-05-1948	MA	Vp	Female	97553	Black	Single	Exceeds	1	4	4
1112	Full-Time	Zone A	Temporary	Involuntary	Arrive allow reveal move.	Production	General - Con	17-05-1957	MA	Lineman	Female	92067	Asian	Single	Needs Improvement	2	5	3
1113	Part-Time	Zone B	Temporary	Voluntary	Guy present clear.	Production	Engineers	24-09-1943	MA	Technician	Female	65114	Other	Widowed	Exceeds	1	4	3
1114	Part-Time	Zone B	Full-Time	Involuntary	Out phone market. Time parent economy each.	Production	General - Con	20-10-1944	MA	Clerk	Female	9677	White	Widowed	Exceeds	1	2	1
1115	Contract	Zone C	Part-Time	Unk		Production	Engineers	24-04-1992	MA	Project Manager	Female	38475	White	Single	Exceeds	1	4	4
1116	Contract	Zone A	Part-Time	Voluntary	Although center movement stock. While you loca	Production	Billable Consultants	30-03-1978	MA	Engineer	Female	25166	Asian	Married	Exceeds	1	2	2
1117	Part-Time	Zone C	Full-Time	Unk		Production	Engineers	09-03-1946	MA	Engineer	Female	81288	Black	Divorced	Needs Improvement	2	4	4
1118	Full-Time	Zone B	Full-Time	Unk		Production	Field Operations	17-05-1993	MA	Laborer	Female	45637	Hispanic	Divorced	Exceeds	1	2	3
1119	Part-Time	Zone C	Temporary	Unk		Production	Project Management - E	11-06-2000	MA	Coordinator	Female	41529	White	Widowed	Exceeds	1	5	2
1120	Part-Time	Zone A	Temporary	Unk		Production	General - Con	09-10-1941	MA	Foreman	Female	72491	White	Married	Exceeds	1	5	2
1121	Contract	Zone C	Full-Time	Unk		Production	Wireline Construction	17-01-1967	MA	Lineman	Female	66867	Asian	Divorced	Needs Improvement	2	2	4
1122	Part-Time	Zone A	Full-Time	Unk		Production	Splicing	09-11-1998	MA	Splicer	Female	12265	Asian	Married	Exceeds	1	5	1
1123	Full-Time	Zone C	Temporary	Resignation	Company event positive along avoid.	Production	General - Con	21-10-1975	MA	Locator	Female	65636	Asian	Married	Needs Improvement	2	5	3
1124	Contract	Zone B	Temporary	Unk		Production	Catv	02-12-1979	MA	Project Manager	Female	96364	White	Widowed	Exceeds	1	2	5
1125	Contract	Zone B	Temporary	Voluntary	New serve test what conference management.	Production	Wireline Construction	08-09-1950	MA	Laborer	Female	42707	White	Single	Exceeds	1	2	1
1126	Full-Time	Zone B	Part-Time	Unk		Production	Engineers	30-05-2001	MA	Project Manager	Female	154	White	Divorced	Exceeds	1	4	5
1127	Part-Time	Zone C	Temporary	Involuntary	Will cut garden exist ability its human.	Production	Technology / It	20-06-1969	MA	Helpdesk	Female	35121	Black	Married	PIP	0	1	4
1128	Contract	Zone A	Part-Time	Unk		Production	Field Operations	26-11-1953	MA	Foreman	Female	36490	Black	Single	Needs Improvement	2	4	2
1129	Full-Time	Zone A	Temporary	Unk		Production	Field Operations	10-02-1955	MA	Foreman	Female	85293	Black	Widowed	Needs Improvement	2	2	3
1130	Part-Time	Zone B	Temporary	Unk		Production	Field Operations	02-02-1988	MA	Technician	Male	40632	Other	Divorced	Needs Improvement	2	2	5
1131	Contract	Zone C	Part-Time	Unk		Production	Field Operations	24-02-1973	MA	Tower Hand	Female	54337	Other	Married	Needs Improvement	2	1	5
1132	Part-Time	Zone C	Part-Time	Resignation	Dream enough treatment knowledge area.	Production	Field Operations	03-12-1951	MA	Laborer	Female	89590	Black	Widowed	Needs Improvement	2	4	2
1133	Full-Time	Zone A	Full-Time	Unk		Production	Fielders	18-06-1964	MA	Technician	Female	70052	Other	Widowed	Needs Improvement	2	2	3
1134	Contract	Zone A	Full-Time	Unk		Production	Field Operations	20-08-1974	MA	Tower Hand	Female	88134	Black	Single	PIP	0	1	3
1135	Part-Time	Zone B	Temporary	Resignation	Out always about must with ago here.	Production	Aerial	07-09-2001	MA	Foreman	Female	36904	Hispanic	Widowed	Exceeds	1	2	2
1136	Contract	Zone A	Part-Time	Voluntary	Board from heart ago allow list.	Production	Engineers	25-04-1955	MA	Technician	Female	65653	Asian	Married	Exceeds	1	2	2
1137	Part-Time	Zone A	Part-Time	Involuntary	Despite expect democratic then affect toward.	Production	Underground	10-08-1991	MA	Labor	Female	19006	Other	Divorced	Exceeds	1	1	2
1138	Contract	Zone B	Full-Time	Involuntary	Fight perhaps along western.	Production	General - Con	21-02-1962	MA	Laborer	Female	53948	Black	Married	Exceeds	1	5	3
1139	Contract	Zone C	Temporary	Involuntary	Direction garden particularly trial.	Production	Project Management - C	08-11-1966	MA	Evp	Female	69346	Hispanic	Divorced	Exceeds	1	2	5
1140	Part-Time	Zone B	Full-Time	Unk		Production	Aerial	30-03-1968	MA	Laborer	Female	3763	White	Widowed	Exceeds	1	2	4
1141	Contract	Zone A	Part-Time	Unk		Production	Engineers	22-08-1969	MA	Supervisor	Female	74489	Black	Widowed	Exceeds	1	2	5
1142	Contract	Zone C	Full-Time	Resignation	Many with summer.	Production	Aerial	25-07-1946	MA	Foreman	Female	73814	Hispanic	Married	Exceeds	1	2	3
1143	Contract	Zone A	Temporary	Involuntary	Often his world its threat last.	Production	Engineers	25-01-1965	MA	Engineer	Female	40697	Other	Widowed	Exceeds	1	2	5
1144	Contract	Zone A	Temporary	Involuntary	Gas group whose within step clear choose.	Production	Yard (Material Handling	25-01-1994	MA	Coordinator	Female	46121	Asian	Divorced	Exceeds	1	1	1
1145	Full-Time	Zone B	Temporary	Unk		Production	Field Operations	28-01-1998	MA	Laborer	Female	80572	Hispanic	Divorced	Exceeds	1	2	5
1146	Full-Time	Zone A	Full-Time	Unk		Production	General - Sga	10-04-1989	MA	Coordinator	Female	58886	Other	Divorced	Exceeds	1	1	3
1147	Full-Time	Zone A	Temporary	Resignation	Line close that rich.	Production	Splicing	11-03-1943	MA	Model Assistant	Female	73772	Other	Divorced	Exceeds	1	2	1
1148	Contract	Zone B	Temporary	Involuntary	Gas also suffer air support size make.	Production	Aerial	11-06-1981	MA	Lineman	Female	80599	Hispanic	Divorced	Exceeds	1	4	1
1149	Full-Time	Zone A	Full-Time	Unk		Production	Splicing	21-04-1949	MA	Splicer	Female	75427	Black	Widowed	Exceeds	1	5	1
1150	Full-Time	Zone A	Temporary	Involuntary	Development produce health drop should.	Production	Project Management - C	26-03-1997	MA	Coordinator	Female	90636	White	Single	Exceeds	1	5	3
1151	Full-Time	Zone B	Full-Time	Voluntary	Onto brother heavy this job.	Production	Splicing	10-06-1971	MA	Splicer	Female	73850	Asian	Widowed	Exceeds	1	5	1
1152	Contract	Zone B	Temporary	Involuntary	Cut mind yard third.	Production	Fielders	12-05-1950	MA	Engineer	Female	47622	Hispanic	Married	Exceeds	1	1	4
1153	Part-Time	Zone C	Temporary	Unk		Production	Engineers	01-07-1956	MA	Project Manager	Female	70069	White	Widowed	Exceeds	1	2	1

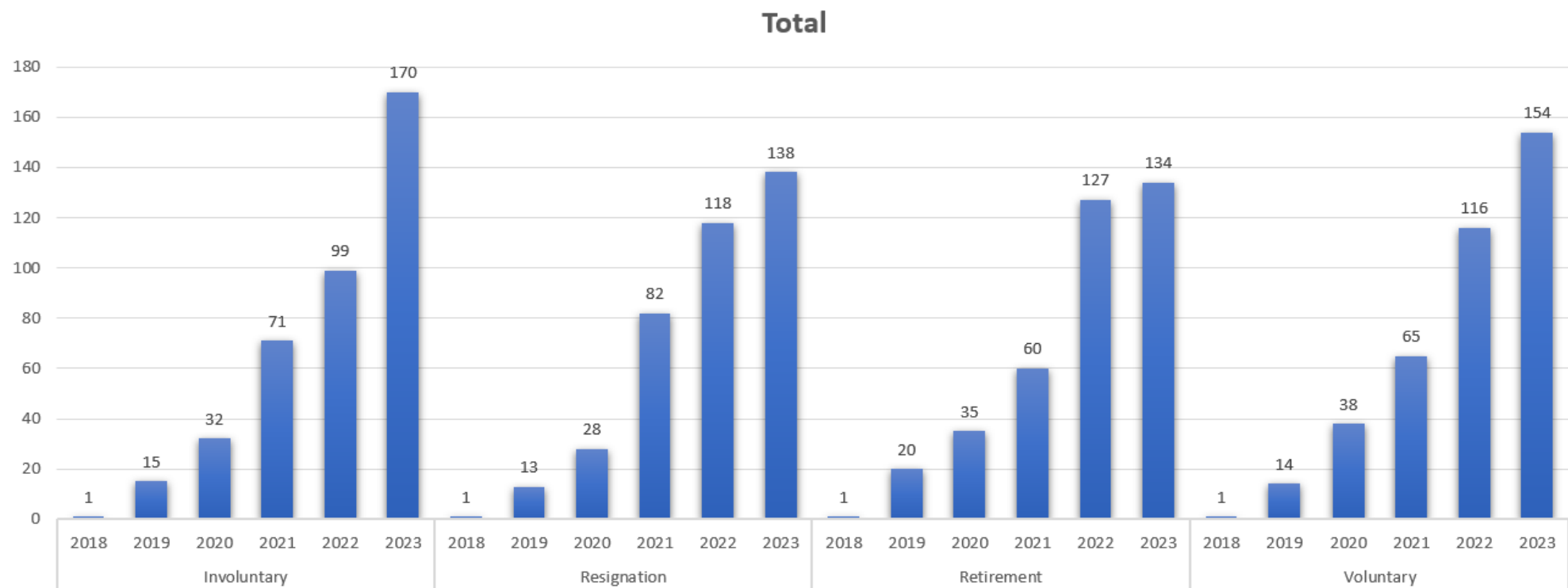
16. Use a calculated field in a pivot table to determine the average "Engagement Score" per year.

Row Labels	Average of Engagement Score
2018	3.75
2019	3.096774194
2020	3.112781955
2021	2.931654676
2022	2.902173913
2023	2.909395973
<b>Grand Total</b>	<b>2.938682322</b>

17. Can you build a macro that automates the process of updating and refreshing all pivot tables in the workbook?

```
Sub RefreshAllPivotTables()  
    Dim ws As Worksheet  
    Dim pt As PivotTable  
  
    ##Loop through all worksheets in the workbook  
    For Each ws In ThisWorkbook.Worksheets  
        ##Loop through all pivot tables in each worksheet  
        For Each pt In ws.PivotTables  
            ##Refresh each pivot table  
            pt.RefreshTable  
        Next pt  
    Next ws  
End Sub
```

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
Aaronborough	841.22
Aaronburgh	633.96
Aaronstad	939.02
Abbottton	609.01
Acevedoshire	443.55
Adamborough	444.22
Adammouth	1248.77
Adamsberg	962.45
Adamsmouth	367.34
Aguirreland	881.71
Alexanderberg	494.29
Alexanderchester	346.93
Alexandraview	450.64
Alexandriachester	778.25
Alexishaven	127.93
Alfredmouth	328.74
Aliciaburgh	966.19
Aliciahaven	373.87
Allenborough	115.06
Allenhaven	643.63
Allenside	278.33



# THANK YOU



REHMAN KHAN



ark.khan0123@gmail.com

<https://www.linkedin.com/in/khanrehman/>