Data Analyst Internship

TASK 2: EMPLOYEE DATA ANALYSIS

BY

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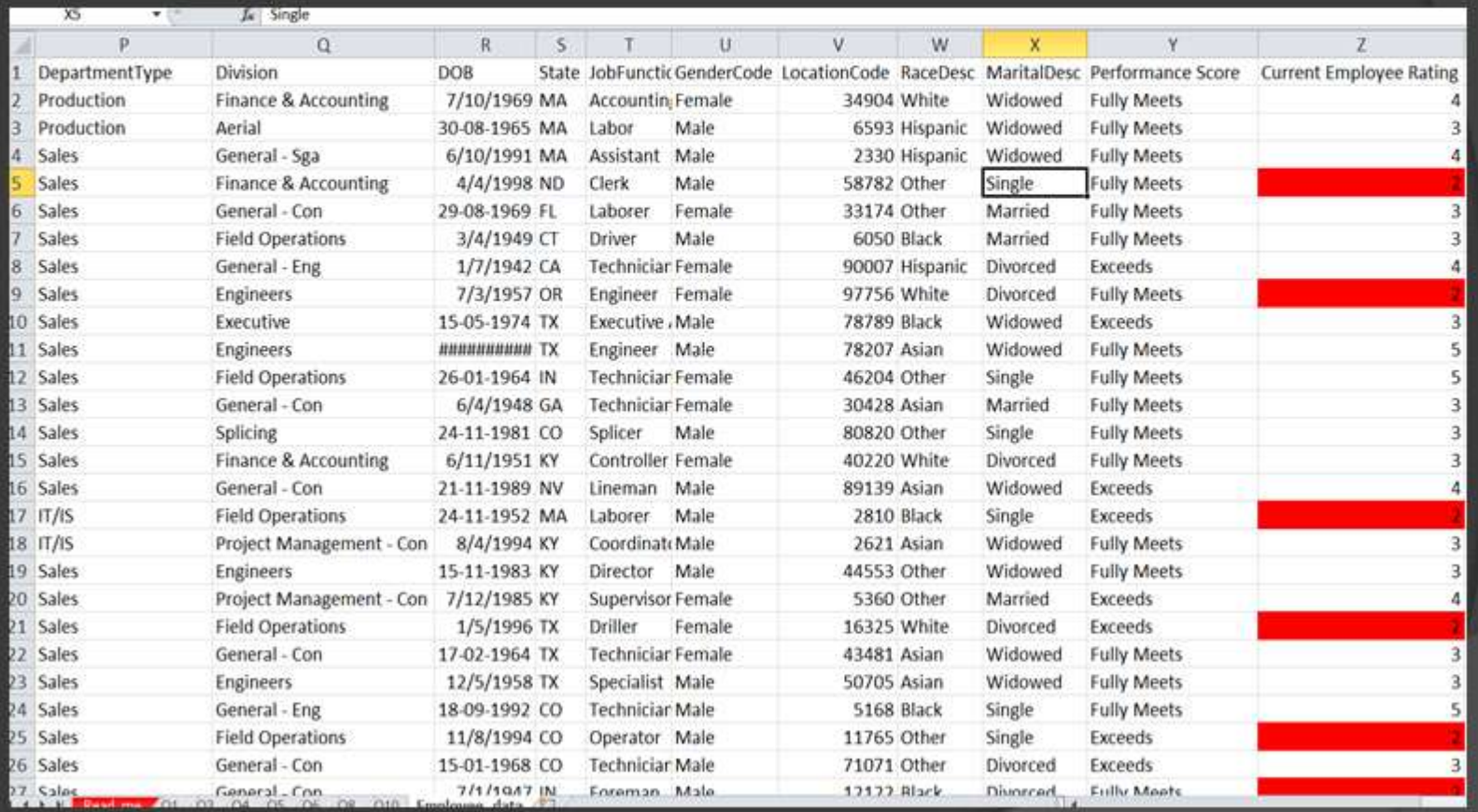
Q1. Can you create a pivot table to summarize the total number of employees in each department?

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

Q2. Apply conditional formatting to highlight employees with a "Performance Score" below 3 in red.



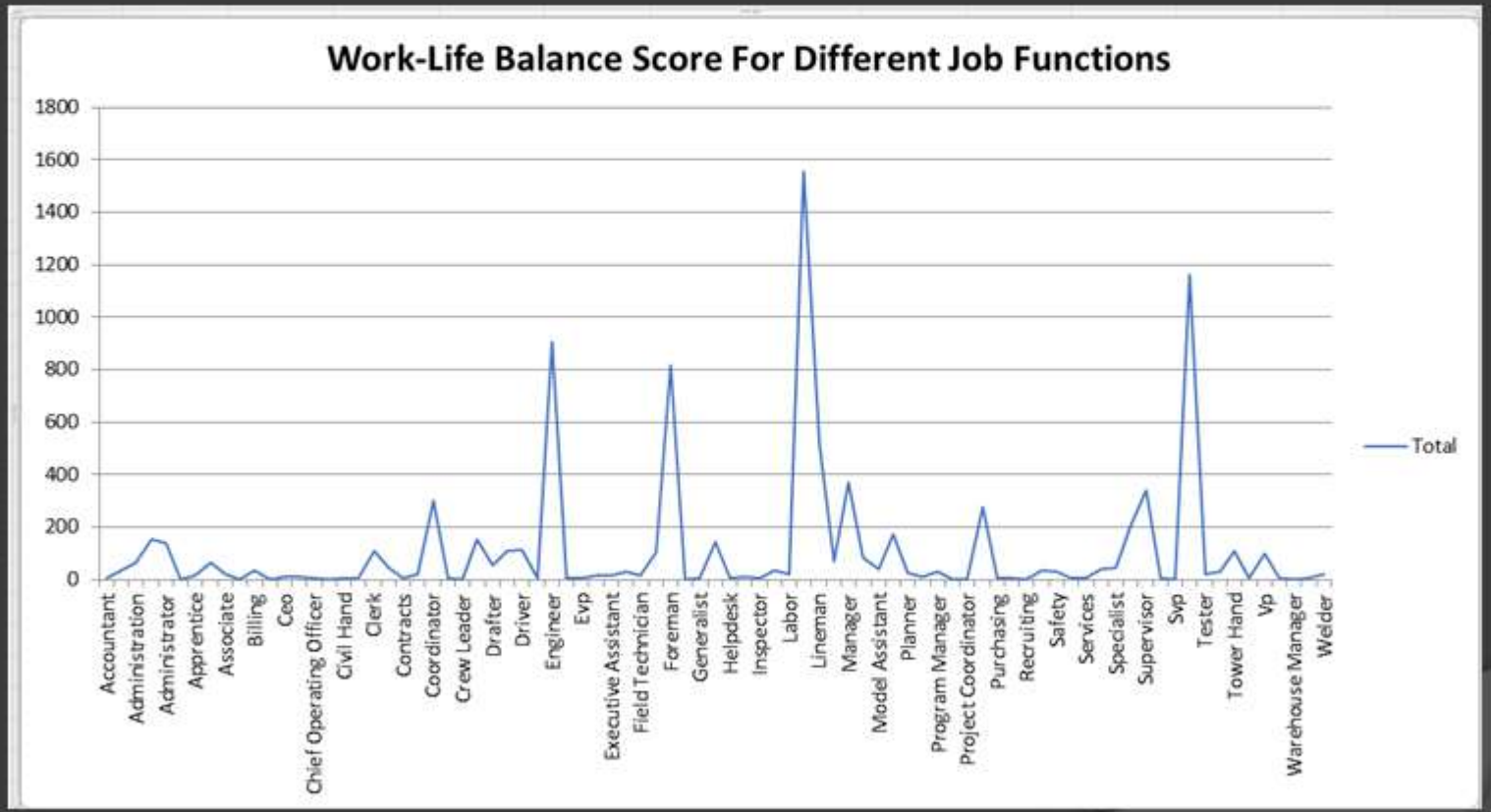
X5 | Single

	P	Q	R	S	T	U	V	W	X	Y	Z
1	DepartmentType	Division	DOB	State	JobFunctic	GenderCode	LocationCode	RaceDesc	MaritalDesc	Performance Score	Current Employee Rating
2	Production	Finance & Accounting	7/10/1969	MA	Accountin	Female	34904	White	Widowed	Fully Meets	4
3	Production	Aerial	30-08-1965	MA	Labor	Male	6593	Hispanic	Widowed	Fully Meets	3
4	Sales	General - Sga	6/10/1991	MA	Assistant	Male	2330	Hispanic	Widowed	Fully Meets	4
5	Sales	Finance & Accounting	4/4/1998	ND	Clerk	Male	58782	Other	Single	Fully Meets	2
6	Sales	General - Con	29-08-1969	FL	Laborer	Female	33174	Other	Married	Fully Meets	3
7	Sales	Field Operations	3/4/1949	CT	Driver	Male	6050	Black	Married	Fully Meets	3
8	Sales	General - Eng	1/7/1942	CA	Technician	Female	90007	Hispanic	Divorced	Exceeds	4
9	Sales	Engineers	7/3/1957	OR	Engineer	Female	97756	White	Divorced	Fully Meets	2
10	Sales	Executive	15-05-1974	TX	Executive	Male	78789	Black	Widowed	Exceeds	3
11	Sales	Engineers	##########	TX	Engineer	Male	78207	Asian	Widowed	Fully Meets	5
12	Sales	Field Operations	26-01-1964	IN	Technician	Female	46204	Other	Single	Fully Meets	5
13	Sales	General - Con	6/4/1948	GA	Technician	Female	30428	Asian	Married	Fully Meets	3
14	Sales	Splicing	24-11-1981	CO	Splicer	Male	80820	Other	Single	Fully Meets	3
15	Sales	Finance & Accounting	6/11/1951	KY	Controller	Female	40220	White	Divorced	Fully Meets	3
16	Sales	General - Con	21-11-1989	NV	Lineman	Male	89139	Asian	Widowed	Exceeds	4
17	IT/IS	Field Operations	24-11-1952	MA	Laborer	Male	2810	Black	Single	Exceeds	2
18	IT/IS	Project Management - Con	8/4/1994	KY	Coordinat	Male	2621	Asian	Widowed	Fully Meets	3
19	Sales	Engineers	15-11-1983	KY	Director	Male	44553	Other	Widowed	Fully Meets	3
20	Sales	Project Management - Con	7/12/1985	KY	Supervisor	Female	5360	Other	Married	Exceeds	4
21	Sales	Field Operations	1/5/1996	TX	Driller	Female	16325	White	Divorced	Exceeds	2
22	Sales	General - Con	17-02-1964	TX	Technician	Female	43481	Asian	Widowed	Fully Meets	3
23	Sales	Engineers	12/5/1958	TX	Specialist	Male	50705	Asian	Widowed	Fully Meets	3
24	Sales	General - Eng	18-09-1992	CO	Technician	Male	5168	Black	Single	Fully Meets	5
25	Sales	Field Operations	11/8/1994	CO	Operator	Male	11765	Other	Single	Exceeds	2
26	Sales	General - Con	15-01-1968	CO	Technician	Male	71071	Other	Divorced	Exceeds	3
27	Sales	General - Con	7/1/1947	IN	Foreman	Male	12122	Black	Divorced	Fully Meets	2

Q3. Calculate the average "Satisfaction Score" for male and female employees separately using a pivot table.

GenderCode	Average of Satisfaction Score
Female	3.020214031
Male	3.024279211
Grand Total	**3.022**

Q4. Create a chart to visualize the distribution of "Work-Life Balance Score" for different job functions.



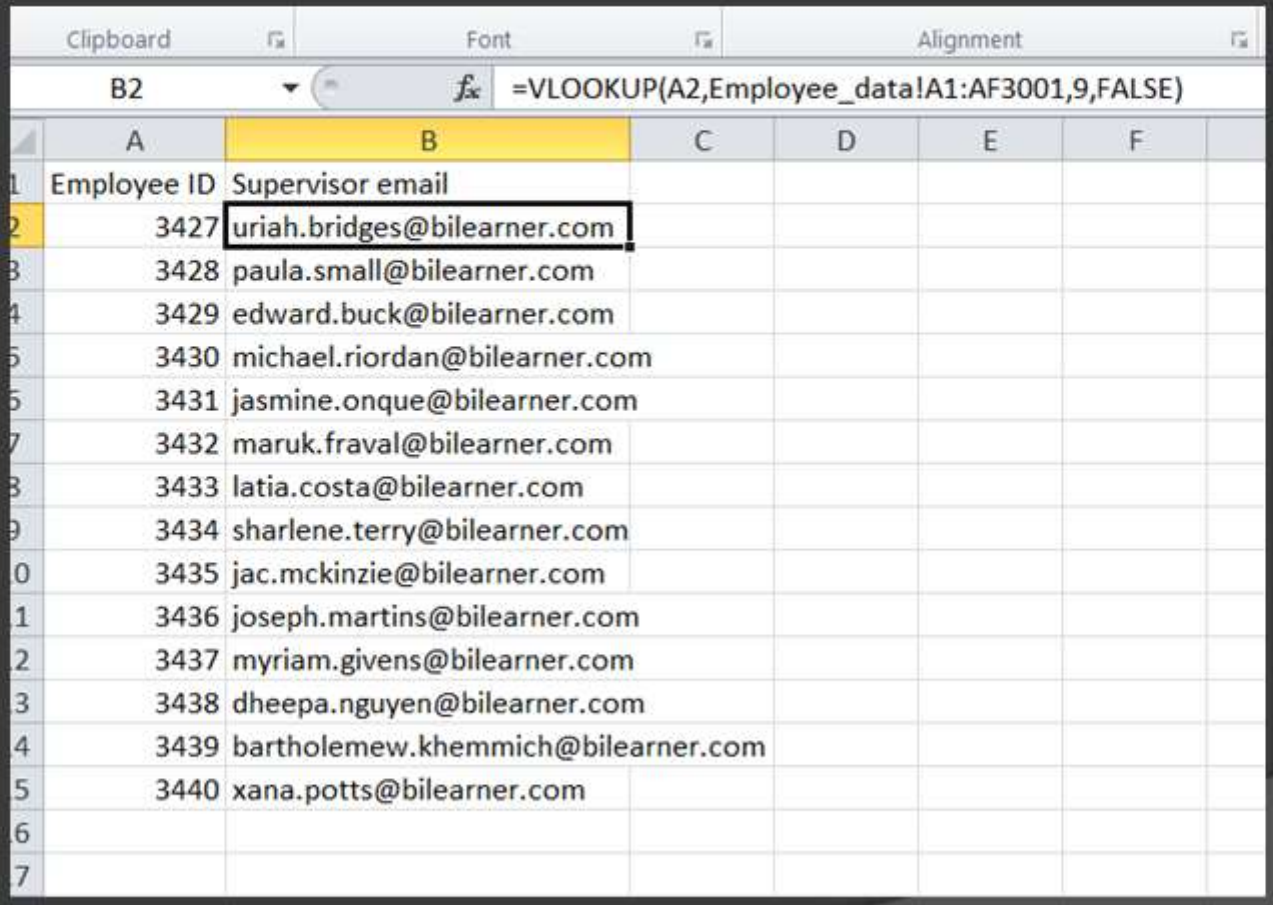
Q5. Filter the data to display only terminated employees and find out the most common "Termination Type."

TerminationType	Count of TerminationType
Involuntary	388
Resignation	380
Retirement	377
Unk	1467
Voluntary	388
Grand Total	**3000**

Q6. Calculate the average "Engagement Score" for each department using a pivot table.

DepartmentType	Average of Engagement Score
Admin Offices	3.00000
Executive Office	2.87500
IT/IS	2.93488
Production	2.95050
Sales	2.87613
Software Engineering	2.92174
Grand Total	**2.93967**

Q7. Use VLOOKUP to find the supervisor's email address for a specific employee.



	A	B	C	D	E	F
1	Employee ID	Supervisor email				
2	3427	uriah.bridges@bilearner.com				
3	3428	paula.small@bilearner.com				
4	3429	edward.buck@bilearner.com				
5	3430	michael.riordan@bilearner.com				
6	3431	jasmine.onque@bilearner.com				
7	3432	maruk.fraval@bilearner.com				
8	3433	latia.costa@bilearner.com				
9	3434	sharlene.terry@bilearner.com				
10	3435	jac.mckinzie@bilearner.com				
11	3436	joseph.martins@bilearner.com				
12	3437	myriam.givens@bilearner.com				
13	3438	dheepa.nguyen@bilearner.com				
14	3439	bartholemew.khemmich@bilearner.com				
15	3440	xana.potts@bilearner.com				
16						
17						

Q8. Can you identify the department with the highest average "Employee Rating?"

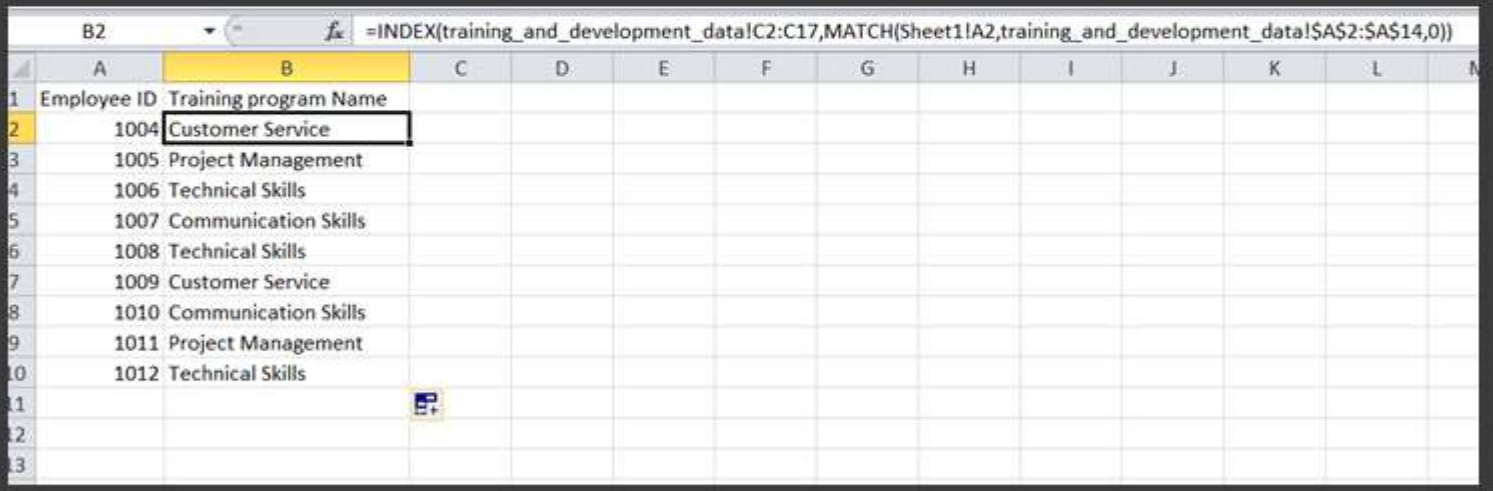
	A	B	C
1			
2			
3	**DepartmentType**	**Average of Current Employee Rating**	
4	Admin Offices	3.025	
5	Executive Office	2.791666667	
6	IT/IS	2.969767442	
7	Production	2.982178218	
8	Sales	2.909365559	
9	Software Engineering	2.904347826	
10	**Grand Total**	**2.969**	
11			
12			
13			
14			

Q9. Create a scatter plot to explore the relationship between "Training Duration (Days)" and "Training Cost."

Q10. Build a pivot table that shows the count of employees by "RaceDesc" and "GenderCode."

Count of Employee ID	GenderCode		
RaceDesc	Female	Male	Grand Total
Asian	346	283	629
Black	346	272	618
Hispanic	325	247	572
Other	318	264	582
White	347	252	599
Grand Total	**1682**	**1318**	**3000**

Q11. Use INDEX and MATCH functions to find the "Training Program Name" for an employee with a specific ID.



B2 =INDEX(training_and_development_data!C2:C17,MATCH(Sheet1!A2,training_and_development_data!$A$2:$A$14,0))

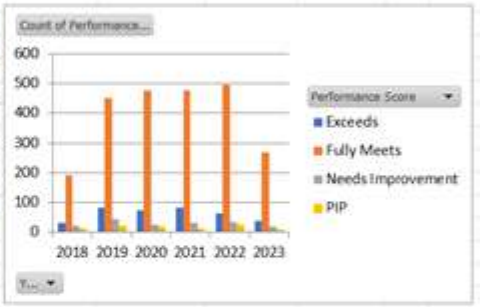
	A	B	C	D	E	F	G	H	I	J	K	L
1	Employee ID	Training program Name										
2	1004	Customer Service										
3	1005	Project Management										
4	1006	Technical Skills										
5	1007	Communication Skills										
6	1008	Technical Skills										
7	1009	Customer Service										
8	1010	Communication Skills										
9	1011	Project Management										
10	1012	Technical Skills										
11												
12												
13												

Q12. Create a multi-level pivot table to analyze the "Performance Score" by "BusinessUnit" and "JobFunctionDescription."

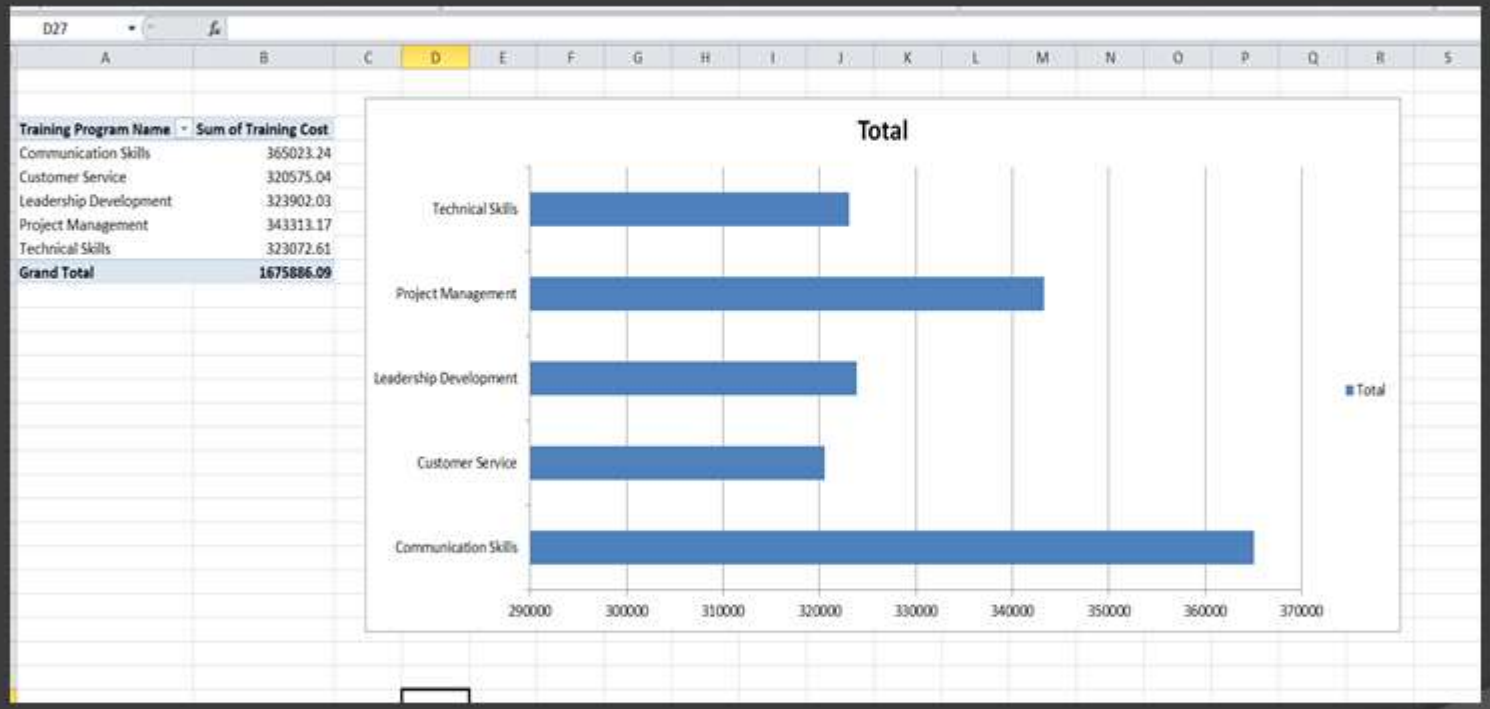
Row Labels	Count of Performance Score
Accountant	**2**
WBL	2
Accounting	**9**
CCDR	1
MSC	1
NEL	1
PYZ	2
SVG	1
TNS	3
Administration	**23**
BPC	3
CCDR	1
EW	1
MSC	6
NEL	1
PL	1
PYZ	2
SVG	3
TNS	2
WBL	3
Administrative	**56**
BPC	7
CCDR	4
EW	7
MSC	10
NEL	5
PL	4
PYZ	2

Q13. Design a dynamic chart that allows users to select and visualize the performance of any employee over time.

Count of Performance Score	Performance Score				
Year	Exceeds	Fully Meets	Needs Improvement	PIP	Grand Total
2018	31	191	22	11	255
2019	84	450	43	21	598
2020	73	476	26	17	592
2021	81	478	30	11	600
2022	62	497	36	25	620
2023	38	269	20	8	335
Grand Total	**369**	**2361**	**177**	**93**	**3000**



Q14. Calculate the total training cost for each "Training Program Name" and display it in a bar chart.



Training Program Name	Sum of Training Cost
Communication Skills	365023.24
Customer Service	320575.04
Leadership Development	323902.03
Project Management	343313.17
Technical Skills	323072.61
Grand Total	**1675886.09**

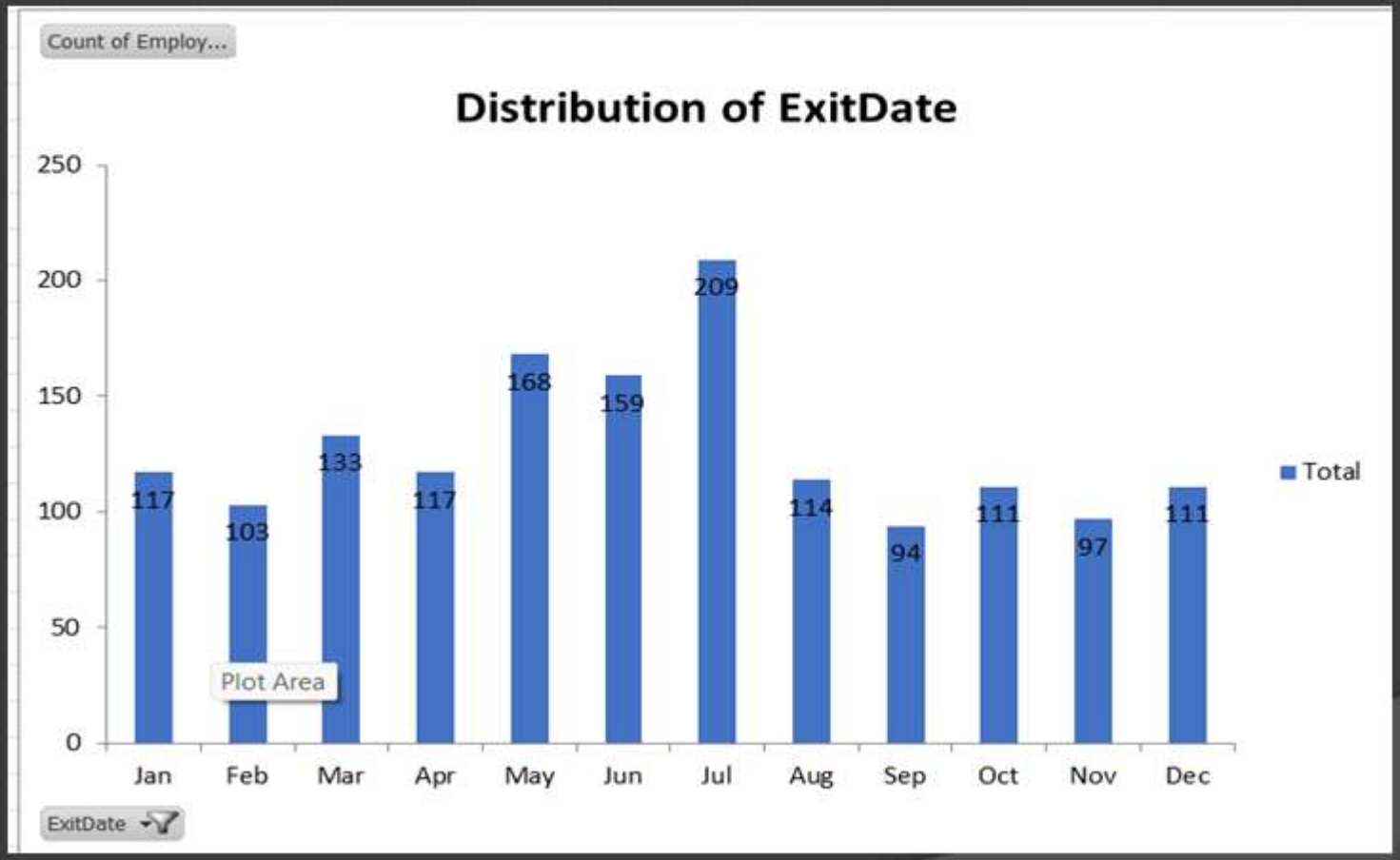
Q15. Apply advanced conditional formatting to highlight the top 10% and bottom 10% of employees based on "Current Employee Rating."

A	B	C	D	E	F	G	H
mployee	Survey Date	Engagement Score	Satisfaction Score	Work-Life Balance Score	Current Employee Rating		
1001	10/10/2022	2	5	5	4		top 10%
1002	3/8/2023	4	5	3	3		bottom 10%
1003	3/1/2023	2	5	2	4		
1004	30-07-2023	3	5	3	2		
1005	19-06-2023	2	4	5	3		
1006	3/5/2023	5	2	1	3		
1007	18-07-2023	2	1	5	4		
1008	21-06-2023	5	2	2	2		
1009	6/6/2023	2	5	1	3		
1010	15-09-2022	2	4	2	5		
1011	8/12/2022	1	2	3	5		
1012	13-01-2023	3	5	4	3		
1013	13-12-2022	5	4	3	3		
1014	28-06-2023	4	4	1	3		
1015	11/7/2023	1	1	3	4		
1016	9/12/2022	2	3	2	2		
1017	16-07-2023	4	1	3	3		
1018	21-06-2023	4	1	4	3		
1019	21-06-2023	1	3	5	4		
1020	1/8/2023	2	1	2	2		
1021	9/3/2023	5	1	4	3		
1022	12/2/2023	1	4	4	3		
1023	17-01-2023	4	4	3	5		
1024	12/10/2022	5	3	1	2		
1025	24-01-2023	4	1	4	3		
1026	9/10/2022	5	2	5	2		
1027	5/4/2023	2	3	5	4		
1028	26-03-2023	5	5	4	4		
1029	7/11/2022	3	5	4	4		
1030	3/1/2023	4	4	1	3		

Q16. Use a calculated field in a pivot table to determine the average "Engagement Score" per year.

Average of Engagement Score	Year						
DepartmentType	2018	2019	2020	2021	2022	2023	Grand Total
Admin Offices	3.25	2.736842105	2.9375	3.375	2.818181818	3	3
Executive Office	3	2.857142857	4	1.5	3.666666667	1.5	2.875
IT/IS	2.825	2.715909091	3.2	3.163265306	2.784090909	2.804878049	2.934883721
Production	3.012195122	2.960493827	2.957178841	2.924433249	2.8735363	3.065217391	2.95049505
Sales	3.266666667	2.875	2.7375	2.823529412	3.032258065	2.685714286	2.876132931
Software Engineering	2.2	2.608695652	2.894736842	2.823529412	3.482758621	2.941176471	2.92173913
Grand Total	**2.988235294**	**2.894648829**	**2.964527027**	**2.951666667**	**2.908064516**	**2.976119403**	**2.939666667**

Q18. Create a histogram to understand the distribution of "ExitDate" for terminated employees.



Q19. Utilize the SUMPRODUCT function to calculate the total training cost for employees in a specific location.

Location	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
Allentown	444.4
Allisonfort	840.46
Allisonport	252.53
Allisonton	331.66
Alvaradomouth	978.55
Alvarezland	839.12
Alvarezshire	876.73

Q20. Develop a dashboard that provides an overview of key HR metrics, including headcount, performance, and training costs, using charts and pivot tables.