TASK 2 :- EMPLOYEE DATA ANALYSIS USING MS EXCEL

NAME : SUPRIYA BHAT V
Data Analysis Project using MS EXCEL
Email ID: supriyabhatv@gmail.com

As part of my data analyst internship, I had the opportunity to analyze four key datasets related to employee data, employee engagement data, recruitment data, and training and development data. This comprehensive analysis aimed to uncover insights that could contribute to a deeper understanding of the organization's workforce dynamics and inform strategic decision-making.

About Datasets :

1. **Employee Data:** Explore the distribution of employees based on factors like age, gender,department etc.

2. **Employee Engagement Survey Data:** Analyze overall engagement scores to assess the workforce's satisfaction.

3. **Recruitment Data:** Analyze the time taken to fill open positions.

4. **Training and Development Data:** Evaluate the effectiveness of training programs through performance improvements or skill assessments.

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**

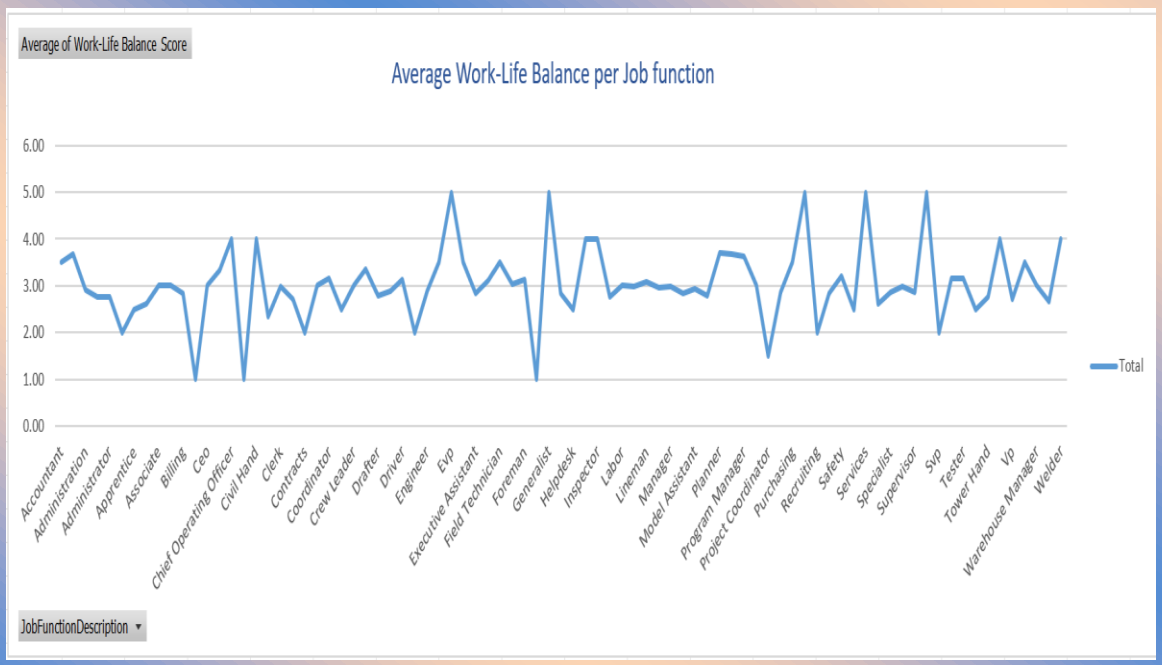
2. Apply conditional formatting to highlight employees with a "Performance Score" below 3 in red.

	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	EmployeeI	Employee	PayZone	EmployeeClassificationType	TerminationType	TerminationDescription	DepartmentType	Division	DOB	State	JobFunctionDescription	GenderCode	LocationCode	RaceDesc	MaritalDesc	Performance Score	Current Employee Rating
2	Active	Contract	Zone C	Temporary	Unk		Production	Finance & Accounting	10-07-1969	MA	Accounting	Female	34904	White	Widowed	Fully Meets	4
3	Active	Contract	Zone A	Part-Time	Unk		Production	Aerial	30-08-1965	MA	Labor	Male	6593	Hispanic	Widowed	Fully Meets	3
4	Active	Full-Time	Zone B	Part-Time	Unk		Sales	General - Sga	10-06-1991	MA	Assistant	Male	2330	Hispanic	Widowed	Fully Meets	4
5	Active	Contract	Zone A	Full-Time	Unk		Sales	Finance & Accounting	04-04-1998	ND	Clerk	Male	58782	Other	Single	Fully Meets	2
6	Active	Contract	Zone A	Temporary	Unk		Sales	General - Con	29-08-1969	FL	Laborer	Female	33174	Other	Married	Fully Meets	3
7	Active	Contract	Zone B	Full-Time	Unk		Sales	Field Operations	04-03-1949	CT	Driver	Male	6050	Black	Married	Fully Meets	3
8	Active	Full-Time	Zone B	Temporary	Involuntary	Me see picture nature degree benefit.	Sales	General - Eng	07-01-1942	CA	Technician	Female	90007	Hispanic	Divorced	Exceeds	4
9	Active	Contract	Zone C	Full-Time	Involuntary	Blue community type skill story.	Sales	Engineers	03-07-1957	OR	Engineer	Female	97756	White	Divorced	Fully Meets	2
10	Active	Contract	Zone B	Part-Time	Unk		Sales	Executive	15-05-1974	TX	Executive Assistant	Male	78789	Black	Widowed	Exceeds	3
11	Active	Part-Time	Zone B	Temporary	Resignation	Summer personal bag.	Sales	Engineers	11-11-1949	TX	Engineer	Male	78207	Asian	Widowed	Fully Meets	5
12	Active	Contract	Zone B	Temporary	Unk		Sales	Field Operations	26-01-1964	IN	Technician	Female	46204	Other	Single	Fully Meets	5
13	Active	Full-Time	Zone C	Temporary	Retirement	Alone once than. More condition pay far.	Sales	General - Con	04-06-1948	GA	Technician	Female	30428	Asian	Married	Fully Meets	3
14	Active	Full-Time	Zone A	Temporary	Involuntary	Foot in theory minute recognize test.	Sales	Splicing	24-11-1981	CO	Splicer	Male	80820	Other	Single	Fully Meets	3
15	Active	Contract	Zone A	Full-Time	Resignation	Degree wish science when thing week old.	Sales	Finance & Accounting	11-06-1951	KY	Controller	Female	40220	White	Divorced	Fully Meets	3
16	Active	Part-Time	Zone A	Part-Time	Unk		Sales	General - Con	21-11-1989	NV	Lineman	Male	89139	Asian	Widowed	Exceeds	4
17	Active	Full-Time	Zone A	Full-Time	Retirement	Fear particular method stage.	IT/IS	Field Operations	24-11-1952	MA	Laborer	Male	2810	Black	Single	Exceeds	2
18	Active	Full-Time	Zone C	Part-Time	Voluntary	Wall body wonder successful.	IT/IS	Project Management - Con	04-08-1994	KY	Coordinator	Male	2621	Asian	Widowed	Fully Meets	3
19	Active	Contract	Zone A	Part-Time	Voluntary	Visit foot nearly radio treatment.	Sales	Engineers	15-11-1983	KY	Director	Male	44553	Other	Widowed	Fully Meets	3
20	Active	Contract	Zone C	Full-Time	Unk		Sales	Project Management - Con	12-07-1985	KY	Supervisor	Female	5360	Other	Married	Exceeds	4
21	Active	Part-Time	Zone A	Part-Time	Unk		Sales	Field Operations	05-01-1996	TX	Driller	Female	16325	White	Divorced	Exceeds	2
22	Future Sta	Part-Time	Zone C	Part-Time	Involuntary	Unit pass office southern break one.	Sales	General - Con	17-02-1964	TX	Technician	Female	43481	Asian	Widowed	Fully Meets	3
23	Future Sta	Full-Time	Zone A	Temporary	Retirement	List class mind.	Sales	Engineers	05-12-1958	TX	Specialist	Male	50705	Asian	Widowed	Fully Meets	3
24	Future Sta	Contract	Zone B	Temporary	Involuntary	Price third parent evening.	Sales	General - Eng	18-09-1992	CO	Technician	Male	5168	Black	Single	Fully Meets	5
25	Active	Contract	Zone C	Temporary	Resignation	Cause military a sense. Doctor property m	Sales	Field Operations	08-11-1994	CO	Operator	Male	11765	Other	Single	Exceeds	2
26	Active	Contract	Zone C	Full-Time	Voluntary	Station another son positive.	Sales	General - Con	15-01-1968	CO	Technician	Male	71071	Other	Divorced	Exceeds	3
27	Active	Part-Time	Zone A	Part-Time	Unk		Sales	General - Con	01-07-1947	IN	Foreman	Male	12122	Black	Divorced	Fully Meets	2
28	Active	Contract	Zone C	Part-Time	Unk		Sales	Fielders	04-07-1982	MA	Engineer	Male	87065	White	Widowed	Fully Meets	4
29	Active	Full-Time	Zone C	Full-Time	Unk		IT/IS	General - Con	29-01-1970	KY	Foreman	Male	10415	Hispanic	Married	Needs Improvement	4
30	Active	Full-Time	Zone C	Temporary	Resignation	Pm local take example fund. Small heavy l	Sales	Project Management - Eng	18-01-1999	KY	Manager	Male	3763	Other	Widowed	Exceeds	4
31	Active	Full-Time	Zone A	Temporary	Unk		Sales	Field Operations	25-09-1946	KY	Technician	Female	79623	Black	Divorced	Fully Meets	3
32	Active	Full-Time	Zone B	Temporary	Unk		Sales	Engineers	23-08-1947	KY	Technician	Female	69189	White	Divorced	Needs Improvement	3
33	Future Sta	Contract	Zone A	Full-Time	Voluntary	Several young whether that expert.	Sales	Field Operations	08-12-1996	TX	Laborer	Female	5194	Hispanic	Single	Needs Improvement	3
34	Future Sta	Part-Time	Zone A	Full-Time	Retirement	Science end approach democratic treatme	Sales	General - Con	02-09-1944	TX	Splicer	Male	8779	Black	Widowed	Exceeds	2

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

Row Labels	Average of Satisfaction Score
Female	3.02
Male	3.08
Grand Total	**3.02**

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."

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Employ	FirstNa	LastNar	StartDate	ExitDate	Title	Supervi	ADEma	Busines	EmployeeStatus	EmployeeType	PayZon	EmployeeClassificationT
8	1007	Edward	TRUE	25-10-2020	26-09-2021	Software I	Raymond	edward.tr	SVG	Voluntarily Terminated	Part-Time	Zone A	Part-Time
11	1010	Kamari	Hunter	12-01-2021	18-03-2022	Software I	Kristen Co	kamari.hu	EW	Voluntarily Terminated	Part-Time	Zone C	Temporary
12	1011	Sarah	Malone	07-02-2022	12-02-2023	Software I	David Lop	sarah.mal	MSC	Voluntarily Terminated	Contract	Zone A	Temporary
13	1012	Skyler	Blackwell	09-11-2020	06-06-2021	Software I	Candice S	skyler.bla	TNS	Voluntarily Terminated	Contract	Zone A	Temporary
20	1019	Kamryn	Herrera	14-10-2022	28-07-2023	Software I	Sara Holla	kamryn.h	EW	Voluntarily Terminated	Full-Time	Zone A	Temporary
21	1020	Kelvin	Foster	20-06-2023	18-07-2023	Software I	Shelia Gra	kelvin.fost	MSC	Voluntarily Terminated	Contract	Zone C	Full-Time
22	1021	Joe	Fletcher	09-11-2020	17-07-2023	Software I	Amanda H	joe.fletch	TNS	Voluntarily Terminated	Full-Time	Zone C	Full-Time
29	1028	Joseph	Schmidt	15-10-2019	01-01-2023	Software I	Donna Bo	joseph.sch	PYZ	Voluntarily Terminated	Full-Time	Zone C	Part-Time
38	1037	Zoe	Colon	24-09-2020	02-11-2020	Software I	Stacey Va	zoe.colon	CCDR	Voluntarily Terminated	Part-Time	Zone C	Full-Time
40	1039	Nolan	Perez	22-08-2019	25-03-2022	Software I	Joshua Da	nolan.per	EW	Voluntarily Terminated	Part-Time	Zone B	Part-Time
41	1040	Katrina	Farrell	25-07-2019	17-12-2022	Software I	Mark May	katrina.fa	MSC	Voluntarily Terminated	Contract	Zone A	Part-Time
42	1041	Camden	Kelly	11-11-2019	10-01-2020	Software I	Brandon C	camden.k	TNS	Voluntarily Terminated	Full-Time	Zone A	Full-Time
47	1046	Genesis	Todd	23-04-2022	03-08-2022	Software I	Jose Dani	genesis.to	CCDR	Voluntarily Terminated	Full-Time	Zone A	Temporary
50	1049	Demarion	Morrow	30-05-2019	19-12-2020	Software I	Patricia Br	demarion.	MSC	Voluntarily Terminated	Part-Time	Zone B	Part-Time
63	1062	Travis	Vasquez	18-05-2019	14-01-2020	Software I	Amanda H	travis.vas	BPC	Voluntarily Terminated	Part-Time	Zone A	Part-Time
65	1064	Wyatt	Donovan	30-03-2022	13-04-2022	Software I	Terry Durl	wyatt.don	SVG	Voluntarily Terminated	Part-Time	Zone A	Part-Time
72	1071	Yadira	Mcmillan	28-03-2019	17-10-2020	Software I	Amy Bell	yadira.mc	PL	Voluntarily Terminated	Contract	Zone A	Part-Time
75	1074	Lilianna	Mccall	19-02-2021	24-02-2023	Software I	Robert Ga	lilianna.m	SVG	Voluntarily Terminated	Full-Time	Zone A	Temporary

Termination Type	Count of Termination Type
Involuntary	386
Voluntary	387
Resignation	379
Retirement	377

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

Row Labels	Average of Engagement Score
Admin Offices	3.00
Executive Office	2.88
IT/IS	2.93
Production	2.95
Sales	2.88
Software Engineering	2.92
Grand Total	**2.94**

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

Employee ID	FirstName	LastName	Supervisor	Email
1001	Susan	Exantus	Angela Carlson	christina04@example.net
1003	Keyla	Del Bosque	Christina Copeland	qfry@example.net
1007	Edward	TRUE	Raymond Adams	juareznicholas@example.org
1008	Judith	Carabbio	Jessica Rhodes	reedhannah@example.org
1009	Adell	Saada	Steven Tran	juareznicholas@example.org
1010	Kamari	Hunter	Kristen Collier	reedhannah@example.org
1011	Sarah	Malone	David Lopez	maciasnicholas@example.org

Formula Used:

=VLOOKUP(D2,recruitment_data.csv!$D$1:$R$3001,5)

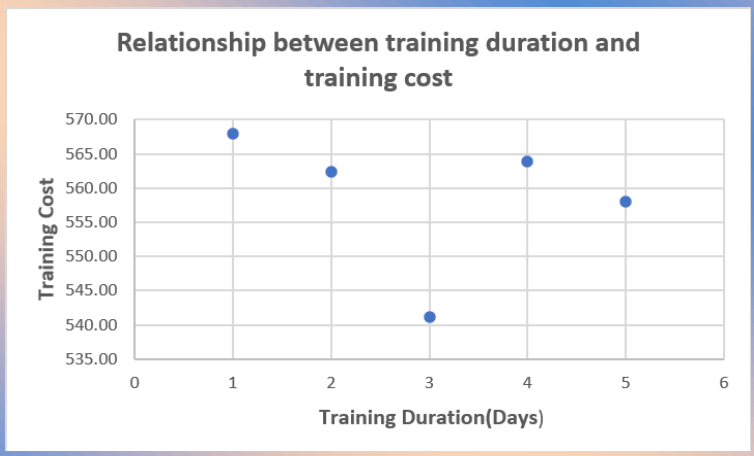
8. Can you identify the department with the highest average "Employee Rating?"

Row Labels	Average of Current Employee Rating
Admin Offices	3.03
Executive Office	2.79
IT/IS	2.97
Production	2.98
Sales	2.91
Software Engineering	2.90
Grand Total	**2.97**

The Department Admin Offices has the highest average Employee Rating.

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

Row Labels	Average of Training Cost
1	567.96
2	562.41
3	541.11
4	563.88
5	558.02
Grand Total	**558.63**



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

Count of Employee ID	Column Labels		
Row Labels	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**

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

Employee ID	Training program name
4000	Leadership Development
1002	Leadership Development
1188	Technical Skills
2783	Technical Skills
3471	Customer Service
3480	Leadership Development

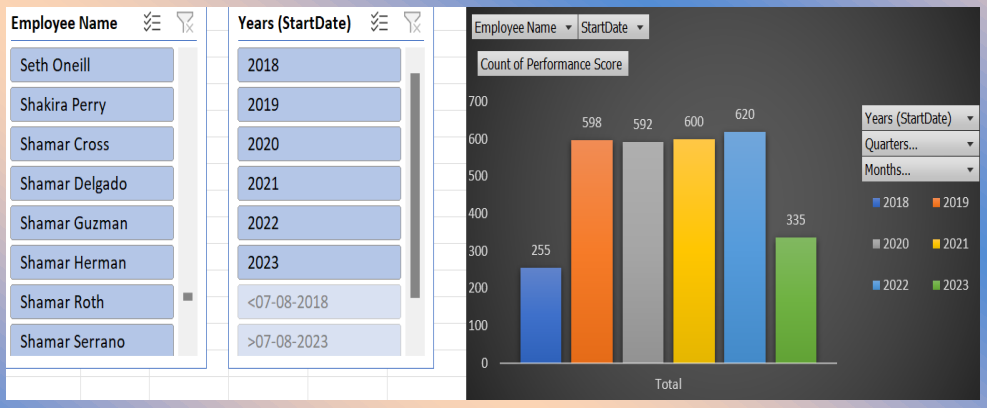
Formula Used :

```
=INDEX(Training_and_Development_Data!C:C,MATCH(A2,Training_and_Development_Data!A:A,0))
```

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

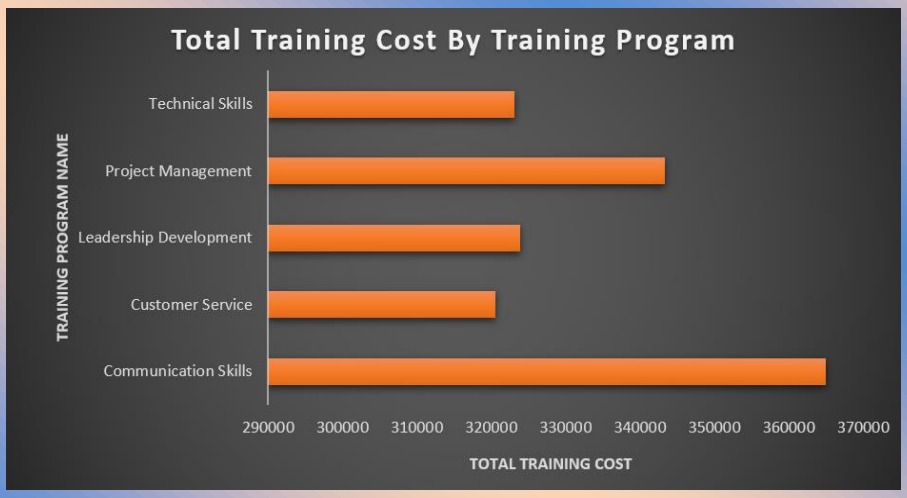
Row Labels	Count of Performance Score
BPC	**303**
CCDR	**300**
EW	**302**
MSC	**296**
NEL	**304**
PL	**301**
PYZ	**299**
SVG	**304**
TNS	**297**
WBL	**294**
Accountant	2
Administration	3
Administrative	7
Administrator	6
Apprentice	1
Billing	2
Civil Hand	1
Clerical	1
Clerk	4
Construction Manager	2
Controller	1
Coordinator	15
Director	4
Drafter	2
Driller	4
Driver	1
Electrician	1
Engineer	35
Estimator	1
Flagger	7
Foreman	27
Groundman	5
Intern	1
Laborer	46
Lineman	12
Locator	4
Manager	9
Mechanic	1
Operator	5
Planner	2
Program Manager	1
Project Manager	10
Runner	1
Safety	2
Safety Manager	2
Shop	1
Splicer	6
Supervisor	14
Technician	36
Top Hand	4
Tower Hand	1
Vp	3
Welder	1
(blank)	
Grand Total	**3000**

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.

Row Labels	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**



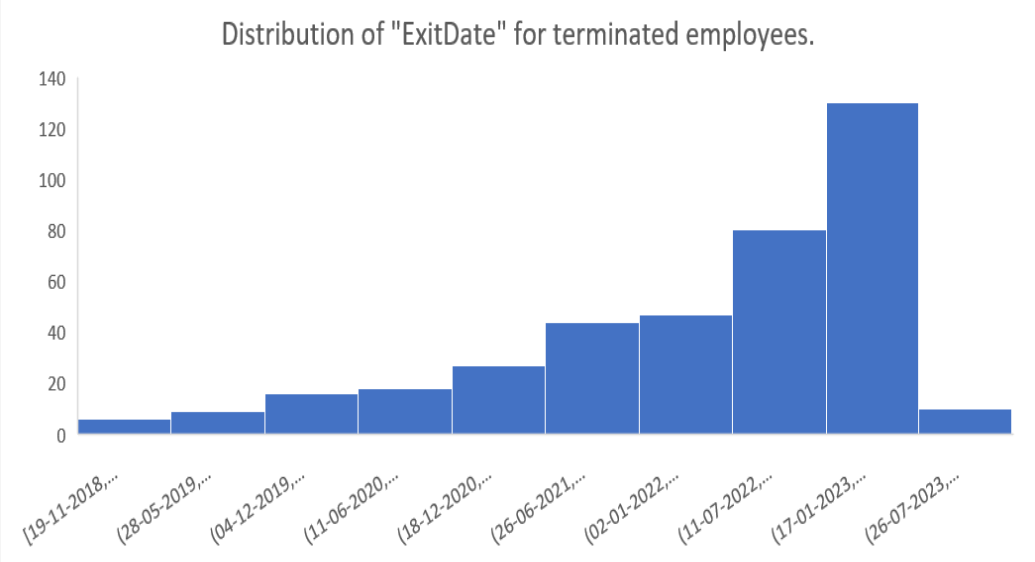
15. Apply advanced conditional formatting to highlight the top 10% and bottom 10% of employees based on "Current Employee Rating.

Employee ID	Current Employee Rating				
3427	4			TOP 10%	
3428	3			BOTTOM 10%	
3429	4				
3430	2				
3431	3				
3432	3				
3433	4				
3434	2				
3435	3				
3436	5				
3437	5				
3438	3				
3439	3				
3440	3				
3441	4				
3442	2				
3443	3				
3444	3				
3445	4				

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

Row Labels	Average of Engagement Score	Sum of Field5
2018	2.99	762.00
2019	2.89	1731.00
2020	2.96	1755.00
2021	2.95	1771.00
2022	2.91	1803.00
2023	2.98	997.00
Grand Total	**2.94**	**8819.00**

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.

Formula Used:

```
=SUMPRODUCT((A2:A3001="Port Greg")*(B2:B3001))
```

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