KRYSTAL CEBOLLERO: HR INDEPENDENT PROJECT

This is an independent project that I have been working on.

If interested in more of my work, please check out my portfolio at https://www.datacamp.com/portfolio/kwheeler5250 ⧉.

HR Independent Project contains 2 datasets: employees and performance_schema. Since we are looking more within the realm of HR, we will be reviewing the employees dataset.

The data will be reviewed to see if there is a discrpency in gender bias within the company. This will included determining if there is gender bias within the number of employees within the company and each department. Also, we will be determining if there are pay discrepencies amongst the different genders and departments. (The data will only be containing current employees at this time.)

The employees dataset contains 6 tables.

1. departments
2. dept_emp
3. dept_manager
4. employees
5. salaries
6. titles

To begin let's take a look at the different types of departments that are within the company.

index	dept_no	dept_name
0	d001	Marketing
1	d002	Finance
2	d003	Human Resources
3	d004	Production
4	d005	Development
5	d006	Quality Management
6	d007	Sales
7	d008	Research
8	d009	Customer Service

Rows: 9   ⤢ Expand

As shown, there are 9 departments within the company.

Now let's take a look at the employees within each department.

First we will want ot know how many employees are currently working for the company. Then we will want to now how many employees work for each department. We will be wanting to see current employees which have been labeled in the to_date column as '9999-01-01T00:00:00.000Z'.

index	employee count
0	

Rows: 1   ⤢ Expand

index	department name	employee count
0	Development	
1	Production	
2	Sales	
3	Customer Service	
4	Research	
5	Marketing	
6	Quality Management	
7	Human Resources	
8	Finance	

Rows: 9   ⤢ Expand

Number of Employees per Department
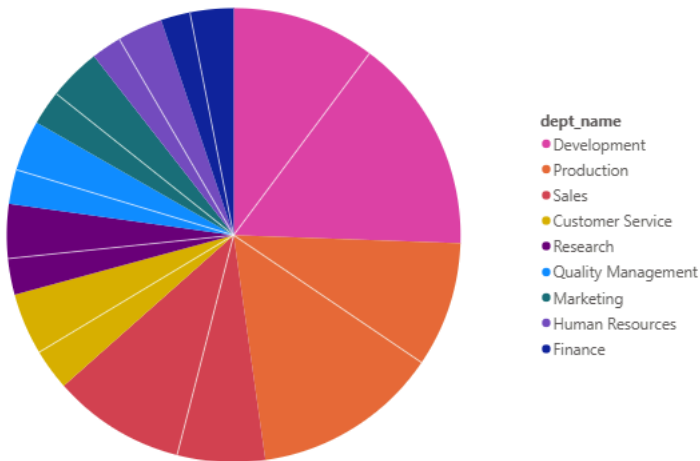
240,124
Total Employee Count

As you can see, the top three employed departments are: Development, Production, and Sales.

Let's take a closer look at how many males and females are within each department. This is important to see the gender culture within the company.

i...	department_name	Male employees	Female employeest	Total employees in department
0	Development	36853	24533	
1	Production	31911	21393	
2	Sales	22702	14999	
3	Customer Service	10562	7007	
4	Research	9260	6181	
5	Marketing	8978	5864	
6	Quality Management	8674	5872	
7	Human Resources	7751	5147	
8	Finance	7423	5014	

Rows: 9   ⤢ Expand

Total Female Employees and Total Male Employees by dept_name

240,124
Total Employee Count

144,114
Male Employees

96,010
Female Employees

dept_name
- Development
- Production
- Sales
- Customer Service
- Research
- Quality Management
- Marketing
- Human Resources
- Finance

The data indicates that there are more males working within each department. However, let's see how the numbers compare to percentages.

	department_na...	Percent Male Employe...	Percent Female Employees	Difference in Percentages	Total employe
0	Development	60.0349	39.9651	20.0697	
1	Production	59.8661	40.1339	19.7321	
2	Sales	60.2159	39.7841	20.4318	
3	Customer Service	60.1173	39.8827	20.2345	
4	Research	59.9702	40.0298	19.9404	
5	Marketing	60.4905	39.5095	20.981	
6	Quality Management	59.6315	40.3685	19.263	
7	Human Resources	60.0946	39.9054	20.1892	
8	Finance	59.6848	40.3152	19.3696	

Rows: 9   ⤢ Expand
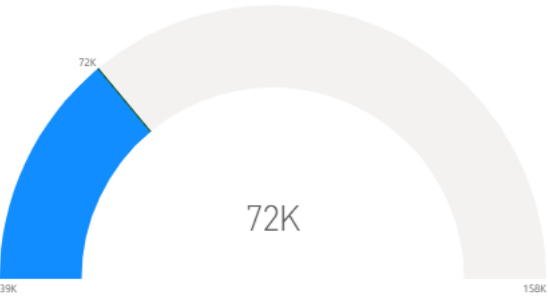
The data shows that each department has about 20% difference between male versus female employees with each department being male dominant. The percentage of males versus females for each departmert can be rounded to 60% males and 40% females. Due to this, a visual of the percentage of male versus female employees per department is not warranted.

Based on these findings, let's start by determining what id the highest and lowest salaries offered within the company and what the average salary is.

	MA...	MI...	a...
0	158220	38623	72012

Rows: 1   ⤢ Expand

Salary Differences: Minimum, Maximum, and Average Salary

Now that we can see what the maximum, minimum, and average salaries are. Let's see how the salaries differ by gender.

Due to there being a difference in the number of employees based on gender, it is important to see if there is a difference in pay for each gender as this could e considered gender discrimination with pay gaps.

...	...	m...	m...	a...
0	M	158220	38623	72045
1	F	152710	38936	71964

Rows: 2   ⤢ Expand

Based on the data, males and females are given similar salaries.

Now that we see that gender discrimination is not an issue within the company. Let's take a look to see how the departments range between maximum, minimum, and average salaries. This can determine a general guideline for companies to provide potential new employees and job websites.
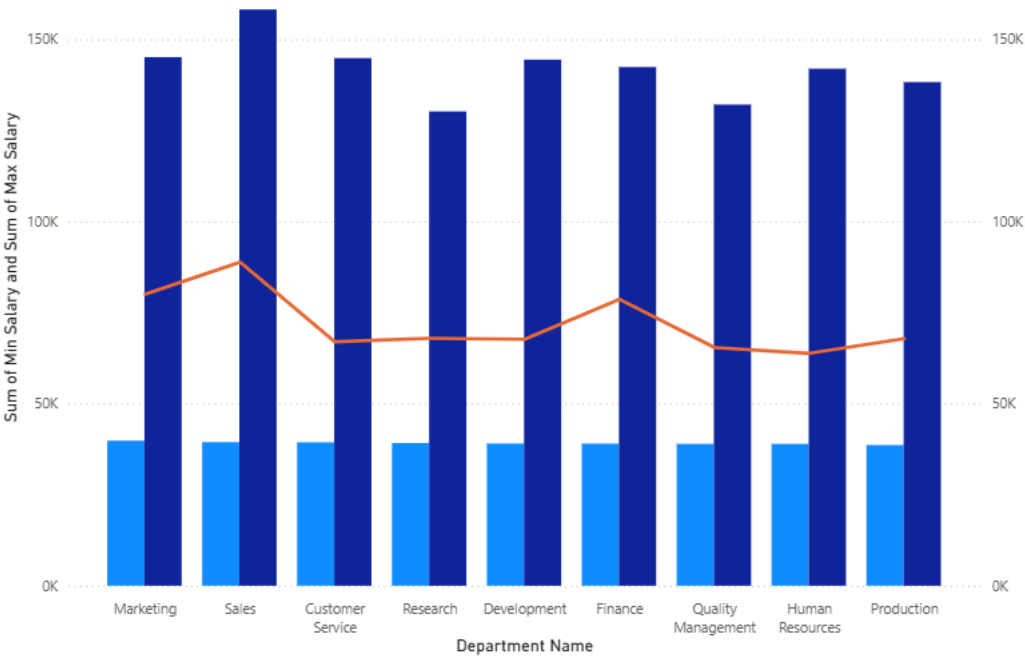
...	dept_name	m...	m...	a...
0	Development	144434	39036	67666
1	Sales	158220	39426	88842
2	Production	138273	38623	67842
3	Human Resources	141953	38936	63795
4	Research	130211	39186	67933
5	Quality Management	132103	38942	65382
6	Marketing	145128	39821	80015
7	Customer Service	144866	39373	66971
8	Finance	142395	39012	78645

Rows: 9   ⤢ Expand

Minimum, Maximum, and Average Department Salaries

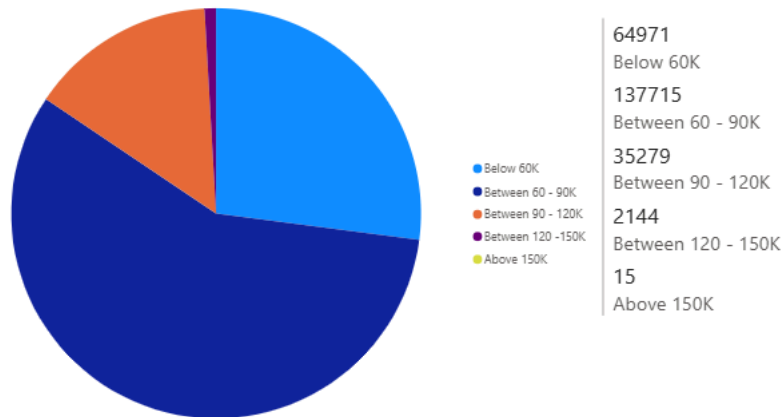● Sum of Min Salary ● Sum of Max Salary ● Sum of Avg Salary

The data indicates that all departments contain employees that have salaries over 120K and and minimum salaries around 38-39K. The minimum salary for each department is similar. This could represent a base salary for either the company or for each department to be similar. However, the average salary is where the company can see how pay differs. It appears that sales has the highest average salary near 90K whereas Human Resources has the lowest average salary near 64K.

Now that we know the highest salary given is above 150K and the lowest salary is below 40K, we can take a look at the different types of salaries that are given. The data indicates that the average salary for employees is about 72K. Based on this, it is assumed that most employees would be within a pay bracket containig 72K. Let's determine if that assumption is correct by breaking the data into salary subcategories.

For this inquiry, we will be breaking the salaries down into 5 groups: -Above 150K -Between 120K and 150K -Between 90K and 120K -Between 60K and 90K -Below 60K

··· ↑↓	Ab... ··· ↑↓	Between $120K - $15... ··· ↑↓	Between $90K - $1... ··· ↑↓	Between $60K - ... ··· ↑↓	B ··· ↑↓	
0	15	2144	35279	137715	64971	

Rows: 1   ⤢ Expand

Total Current Employee Salary Groups

64971
Below 60K

137715
Between 60 - 90K

35279
Between 90 - 120K

2144
Between 120 - 150K

15
Above 150K

The majority of salaries are between 60K and 90K. This means that the assumption of the most employees being within the bracket containing 72K was correct.

Since we looked at gender and department statistics previously, let's take a deeper look into how salaries differ between the different types of genders and departments.

	dept_name	A...	Between 120K and 1...	Between 90K and 1...	Between 60 K and ...	B
0	Customer Service	M	0	63	912	5735
1	Customer Service	F	0	42	615	3829
2	Development	M	0	40	2706	22062
3	Development	F	0	18	1716	14769
4	Finance	M	0	83	1766	4436
5	Finance	F	0	55	1190	3061
6	Human Resources	M	0	6	261	4223
7	Human Resources	F	0	1	204	2802
8	Marketing	M	0	121	2527	5165
9	Marketing	F	0	77	1547	3474
10	Production	M	0	25	2405	19250
11	Production	F	0	14	1510	12991
12	Quality Management	M	0	4	432	4955
13	Quality Management	F	0	1	273	3420
14	Research	M	0	12	691	5599
15	Research	F	0	7	474	3766

Rows: 18   ⤢ Expand

A dashboard can be created for the above data to show either/ both the differences in salary based on each department and/or gender based on the company's preference.

Based on the data, sales is the only department where an employees earns more than 150K.

Women have a higher average salary within Finanace, Marketing, Production, Quality Management, and Research. Whereas men have a higher average salary within Customer Service, Development, Human Resources, and Sales. However, both men and women have similar average salaries within the Sales department.

This information is important for determining pay equivolency for new hire and current employees when pay raises are issued. Looking at salary data is important for determining salaries for current employees and new hires. This information is also beneficial for the company is a law suit or a grievance was ever filed within a workers union or against the company for fair pay.