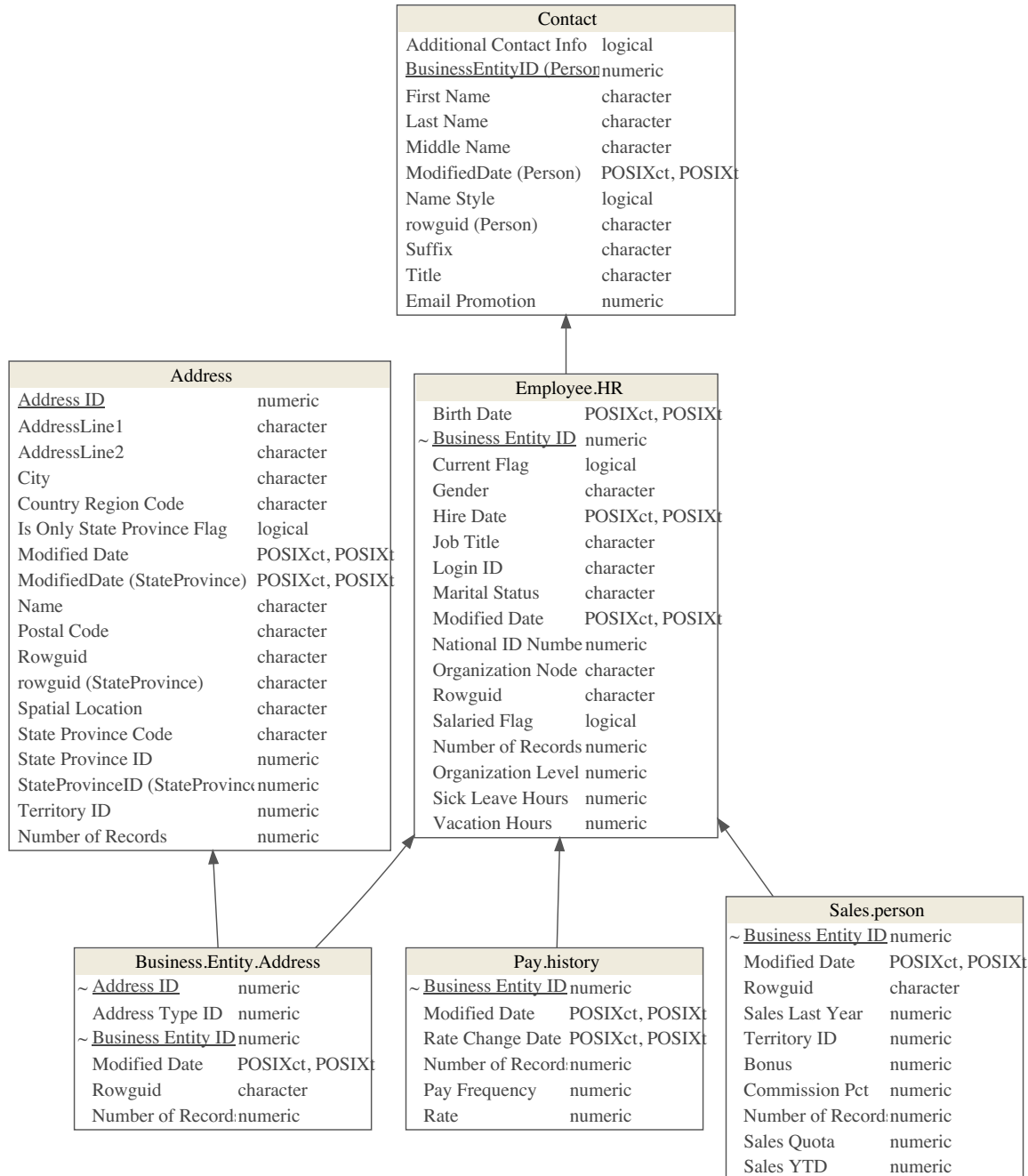# Reporting Analyst Evaluation

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Part 1: Entity Relationship Diagram

ERD could be shown as below:

Contact

Field	Type
Additional Contact Info	logical
BusinessEntityID (Person)	numeric
First Name	character
Last Name	character
Middle Name	character
ModifiedDate (Person)	POSIXct, POSIXt
Name Style	logical
rowguid (Person)	character
Suffix	character
Title	character
Email Promotion	numeric

Address

Field	Type
Address ID	numeric
AddressLine1	character
AddressLine2	character
City	character
Country Region Code	character
Is Only State Province Flag	logical
Modified Date	POSIXct, POSIXt
ModifiedDate (StateProvince)	POSIXct, POSIXt
Name	character
Postal Code	character
Rowguid	character
rowguid (StateProvince)	character
Spatial Location	character
State Province Code	character
State Province ID	numeric
StateProvinceID (StateProvince)	numeric
Territory ID	numeric
Number of Records	numeric

Employee.HR

Field	Type
Birth Date	POSIXct, POSIXt
~ Business Entity ID	numeric
Current Flag	logical
Gender	character
Hire Date	POSIXct, POSIXt
Job Title	character
Login ID	character
Marital Status	character
Modified Date	POSIXct, POSIXt
National ID Number	numeric
Organization Node	character
Rowguid	character
Salaried Flag	logical
Number of Records	numeric
Organization Level	numeric
Sick Leave Hours	numeric
Vacation Hours	numeric

Business.Entity.Address

Field	Type
~ Address ID	numeric
Address Type ID	numeric
~ Business Entity ID	numeric
Modified Date	POSIXct, POSIXt
Rowguid	character
Number of Records	numeric

Pay.history

Field	Type
~ Business Entity ID	numeric
Modified Date	POSIXct, POSIXt
Rate Change Date	POSIXct, POSIXt
Number of Records	numeric
Pay Frequency	numeric
Rate	numeric

Sales.person

Field	Type
~ Business Entity ID	numeric
Modified Date	POSIXct, POSIXt
Rowguid	character
Sales Last Year	numeric
Territory ID	numeric
Bonus	numeric
Commission Pct	numeric
Number of Records	numeric
Sales Quota	numeric
Sales YTD	numeric

Part 2: Connecting to Data

Now connect the Adventure Works data file. As I also want to include those employees who are not sales persons, I use **Left Join** for different sheets.

Part 3: Data Tables (Cross Tabs)

I created a list of the employees with their *Business Id, Last Name, First Name, Job Title, Rate, Bonus, Sales Quota and Sales Last Year.* Format this sheet to include the following:

1. Sort by Salary Rate

Business Id	Last Name	First Name	Job Title	Gender	Hire Date	Rate	Bonus	Sales Quota	Sales Last Year	Sales Year to Date
1	Sánchez	Ken	Chief Executive Officer	M	2003-02-15	125.5000	NA	NA	NA	NA
25	Hamilton	James	Vice President of Production	M	2003-03-07	84.1346	NA	NA	NA	NA
273	Welcker	Brian	Vice President of Sales	M	2005-03-18	72.1154	NA	NA	NA	NA
2	Duffy	Terri	Vice President of Engineering	F	2002-03-03	63.4615	NA	NA	NA	NA
234	Norman	Laura	Chief Financial Officer	F	2003-03-04	60.0962	NA	NA	NA	NA
7	Miller	Dylan	Research and Development Manager	M	2003-03-12	50.4808	NA	NA	NA	NA
263	Trenary	Jean	Information Services Manager	F	2003-01-12	50.4808	NA	NA	NA	NA
274	Jiang	Stephen	North American Sales Manager	M	2005-02-04	48.1010	0	NA	0	559697.6
285	Abbas	Syed	Pacific Sales Manager	M	2007-04-15	48.1010	0	NA	0	172524.5
287	Alberts	Amy	European Sales Manager	F	2006-05-18	48.1010	0	NA	0	519905.9
3	Tamburello	Roberto	Engineering Manager	M	2001-12-12	43.2692	NA	NA	NA	NA
249	Kahn	Wendy	Finance Manager	F	2003-01-26	43.2692	NA	NA	NA	NA
10	Raheem	Michael	Research and Development Manager	M	2003-06-04	42.4808	NA	NA	NA	NA
8	Margheim	Diane	Research and Development Engineer	F	2003-01-30	40.8654	NA	NA	NA	NA
9	Matthew	Gigi	Research and Development Engineer	F	2003-02-17	40.8654	NA	NA	NA	NA

2. Total the Columns:

	Rate	Bonus	Sales Quota	Sales Last Year
Totals	5274.594	48610	3650000	23685964

3. What else can you do to make this table more readable? Please implement your ideas

- Change Gender from **"F & M"** to **"Female & Male"**
- **Round** the Rate
- The last 4 columns *Bonus, Sales Quota, Sales Last Year* are actually **ONLY** for **Sales Department**, so we need to make a comment under the table for better interpretation

Then we can have a more readable table:

Business Id	Last Name	First Name	Job Title	Gender	Hire Date	Rate	Bonus	Sales Quota	Sales Last Year	Sales Year to Date
1	Sánchez	Ken	Chief Executive Officer	Male	2003-02-15	125.5	NA	NA	NA	NA
25	Hamilton	James	Vice President of Production	Male	2003-03-07	84.1	NA	NA	NA	NA
273	Welcker	Brian	Vice President of Sales	Male	2005-03-18	72.1	NA	NA	NA	NA
2	Duffy	Terri	Vice President of Engineering	Female	2002-03-03	63.5	NA	NA	NA	NA
234	Norman	Laura	Chief Financial Officer	Female	2003-03-04	60.1	NA	NA	NA	NA
7	Miller	Dylan	Research and Development Manager	Male	2003-03-12	50.5	NA	NA	NA	NA
263	Trenary	Jean	Information Services Manager	Female	2003-01-12	50.5	NA	NA	NA	NA
274	Jiang	Stephen	North American Sales Manager	Male	2005-02-04	48.1	0	NA	0	559697.6
285	Abbas	Syed	Pacific Sales Manager	Male	2007-04-15	48.1	0	NA	0	172524.5
287	Alberts	Amy	European Sales Manager	Female	2006-05-18	48.1	0	NA	0	519905.9
3	Tamburello	Roberto	Engineering Manager	Male	2001-12-12	43.3	NA	NA	NA	NA
249	Kahn	Wendy	Finance Manager	Female	2003-01-26	43.3	NA	NA	NA	NA
10	Raheem	Michael	Research and Development Manager	Male	2003-06-04	42.5	NA	NA	NA	NA
8	Margheim	Diane	Research and Development Engineer	Female	2003-01-30	40.9	NA	NA	NA	NA
9	Matthew	Gigi	Research and Development Engineer	Female	2003-02-17	40.9	NA	NA	NA	NA

Comments:

- *Bonus, Sales Quota, Sales Last Year* are only for *Sales Department*
- **"NA"** stands for **"Unknown / Not Applicable / Missing Values"**

4. Questions:

- Q1. **Ken Sánchez** has the higest salary rate in the firm and she is **Chief Executive Officer**.
- Q2. **Tsvi Reiter** has the higest salary Bonus last year and it is **$6,700**.
- Q3. **Ranjit Varkey Chudukatil** has the higest sales last year and it is **$2,396,540**.
- Q4. **Tete Mensa-Annan Tete** does not meet her quota.
- Q5.

Summary	Rate
Mean	18.18
Median	14
Mode	9.5

5: Q6. What other interesting insights can be derived?

Insight 1: Gender vs. Average Rate ==> More Male while Female tends to earn more
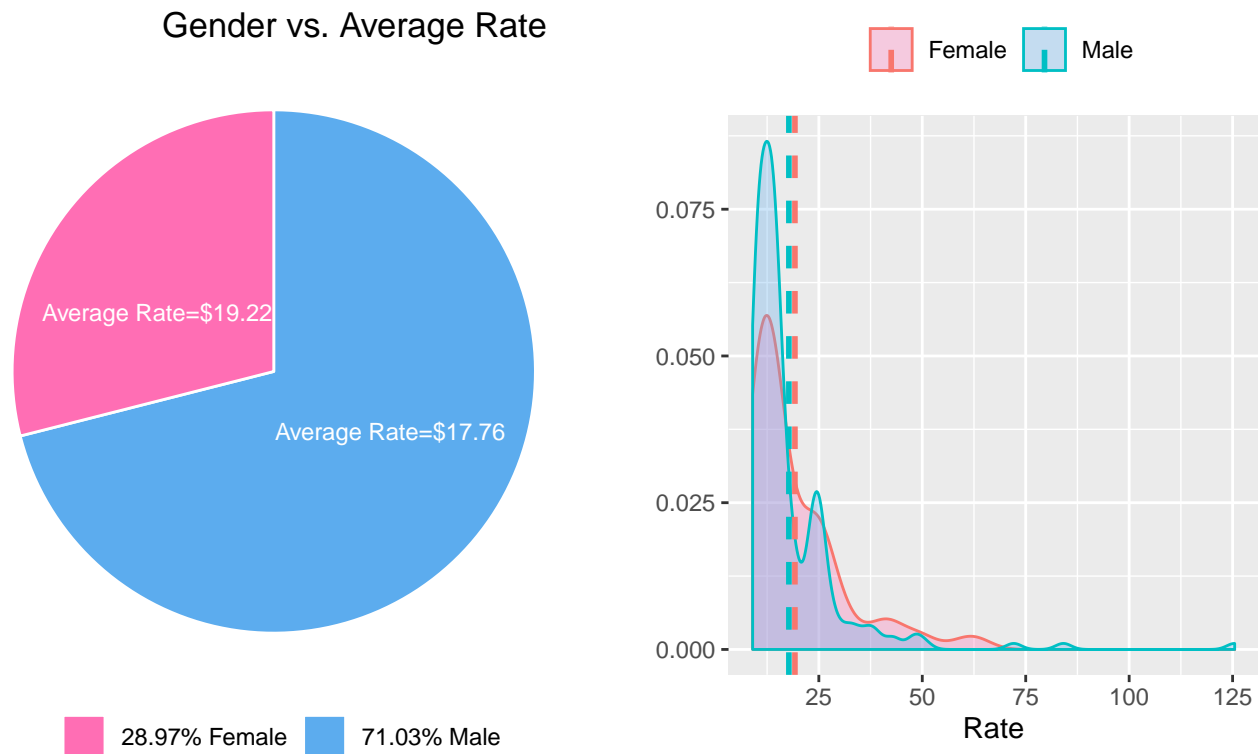
- The employees are composed of **28.97%** Females and **71.03%** Males
- The average rate of Females(**$19.22**) is larger than the average rate of Males(**$17.76**)
- Females seem to earn more than Males, while the largest rate(**$125**) is from a Male

Insight 2: Peak Period vs. Hire Date ==> Time of a year influences the hiring of the firm

Peak Period of Hirng season

Seasonal Change of Peak Period
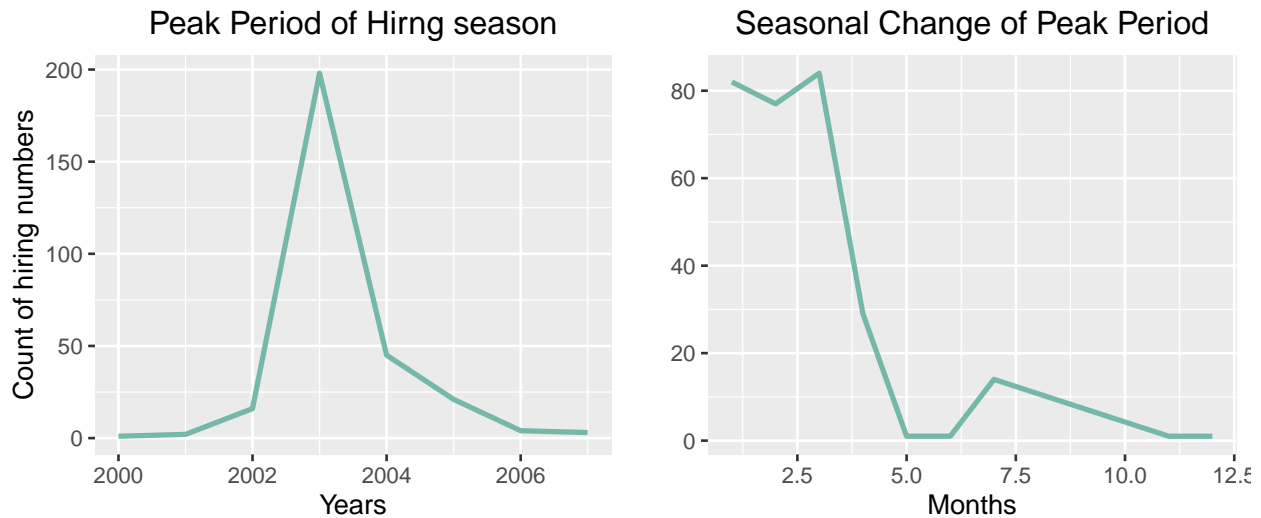
- From the left graph, the firm hired a lot of people (around **200**) in **Year=2003** , and there is a peak for the hiring process based on different years
- The Right graph displays the seasonal change of the hiring process. There was a peak(**March**) of the hiring and then it dropped dramatically, and the other small peak occurred right after around **June/July**, which means that different times of a year will influence in the hiring situations

Part 4: Bar Chart and Targets

Sales Representatives & their Sales Year to Date
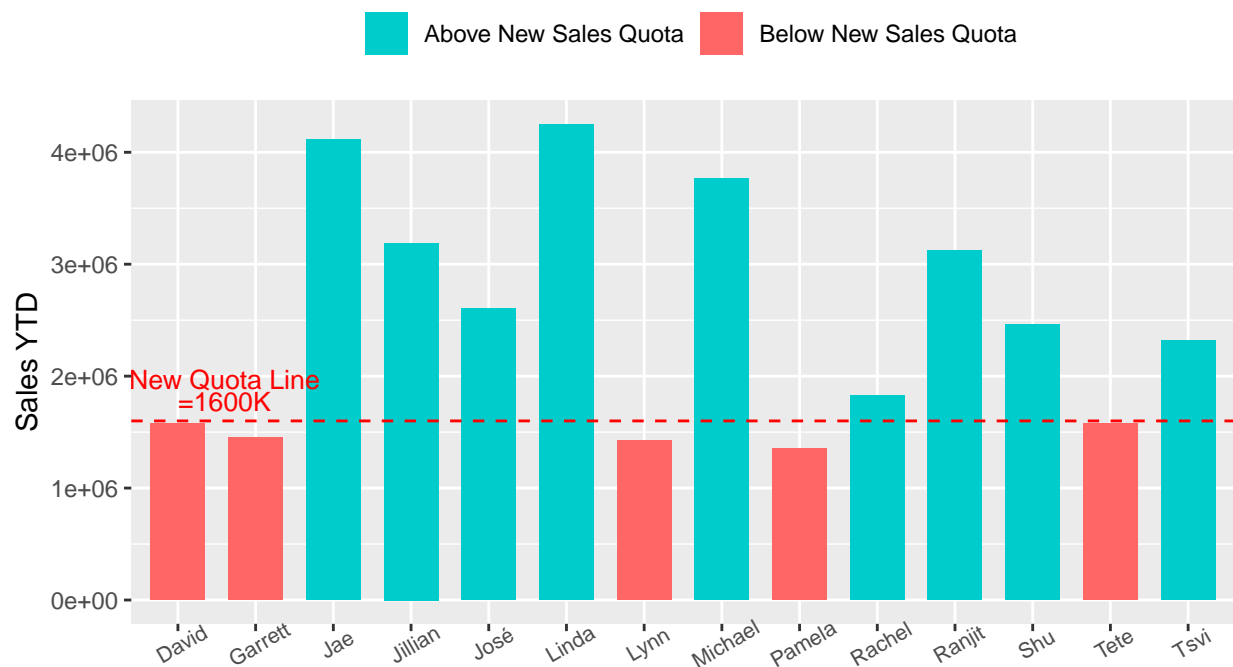
The above shows the bar chart of the Sales Representatives and their SALES YEAR TO DATE as well as the New Sales Quota for them.

Part 5: Points

The chart shows Salary Rate over time (Day) based on Hire Date and show the points by Gender (Male or Female) color the Point Pink for Girls and Blue for Boys.
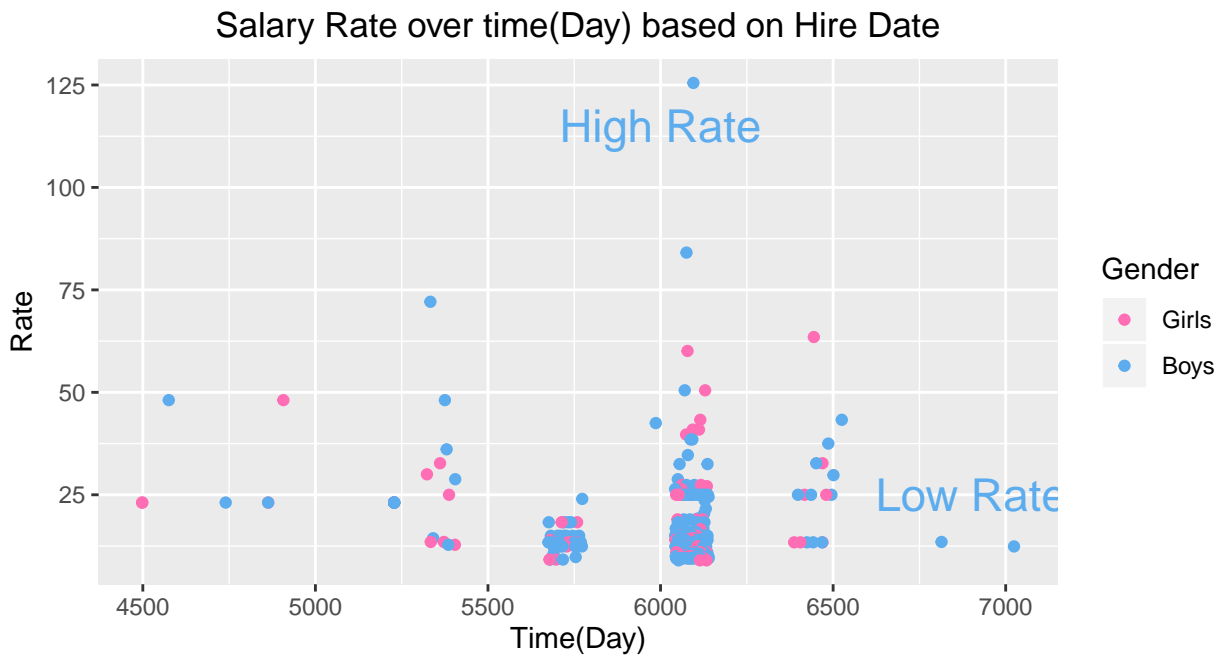

- Generally speaking, the longer an employee was hired, the higher the rate will be
- However, there are some **Low Rate** for the employees who were hired for a long time

Part 6 Other Insights

In order to investigate the composition of the firm, I mutually divided the employees into 5 departments:**Chief, Research, Finance, Human Resources and Product**.
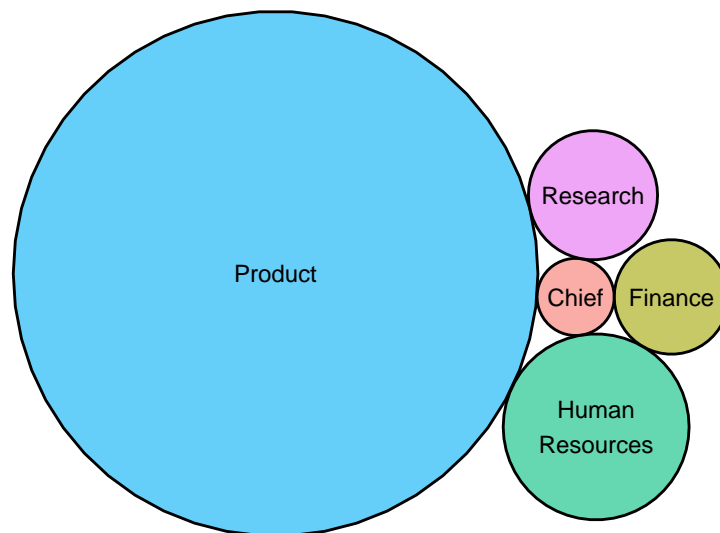
The above graph shows that **Product** Department has the largest number of employees, while the **Chief** Office has the smallest number of employees.

Average Rate for Female/Male in different departments
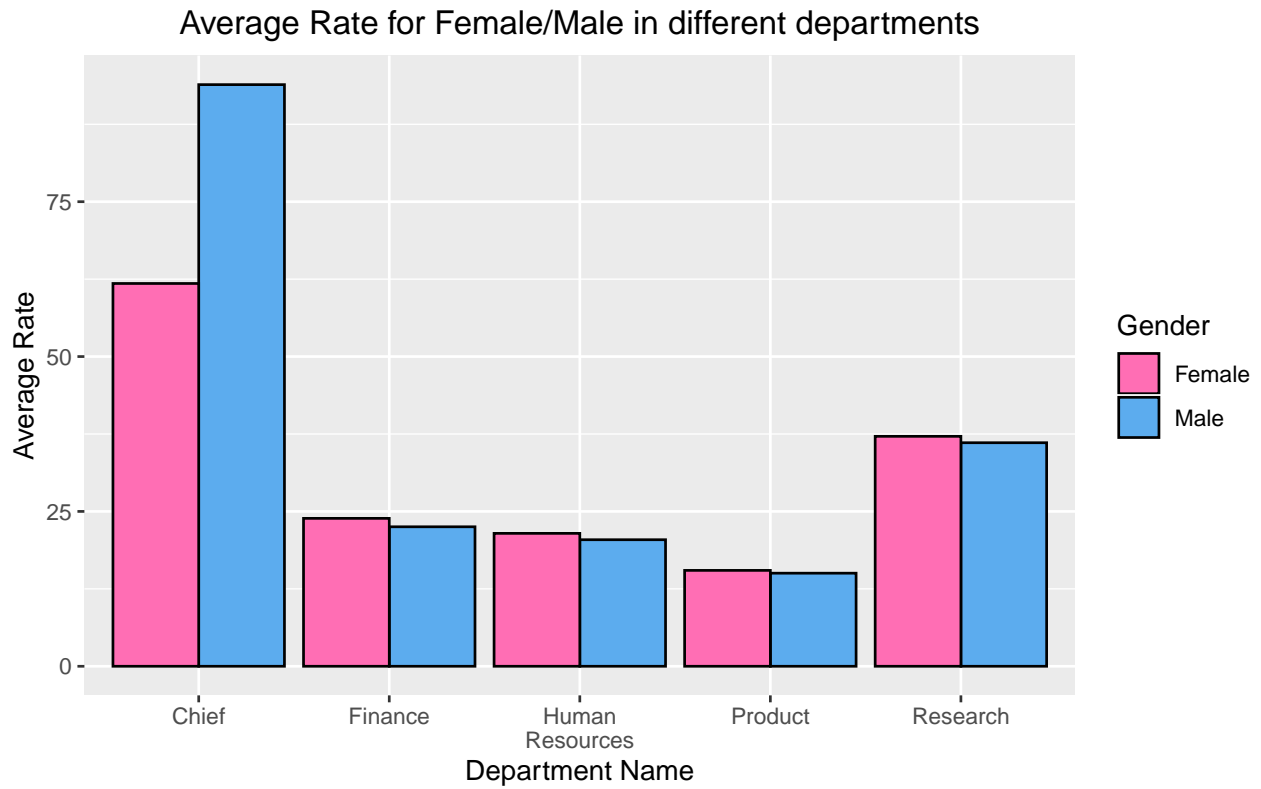
This graph shows the average rate for Female and Male from different departments. It shows that:

- The **Chief** Office and **Research** department earn more than the other departments based on the average rate

- **Product** department earns the least in average rate while having the largest number of employees in the firm

- This graph also verified the result I showed before: Women earn more generally and men earn more when he is in a high-level position