

## Data Aggreation-IBM HR Analysis

**Frederick Zoreta** 

## IBM Human Resources Analysis



**Brief Statistics and Data Visualizations** 



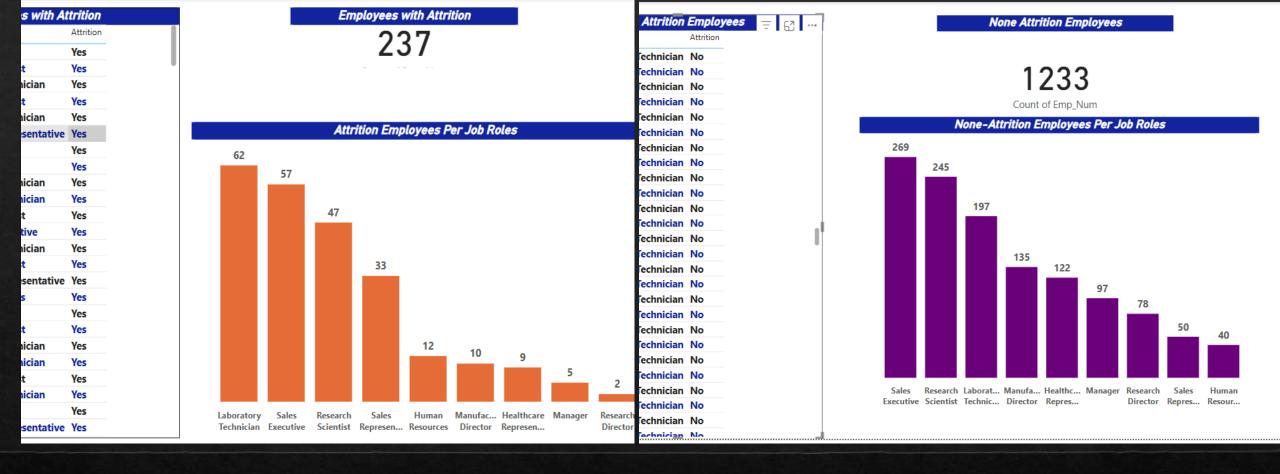
**Averages, Minimum and Maximum** 

**Initial Statistical Summary** 



**Monthly Income Data** 

**Brief Overview of Income Comparison** 



## 2 Tables: Attrition & None Attrition

# Creating Attrition\_Sales & None\_Attrition\_Sales Via SQL Server

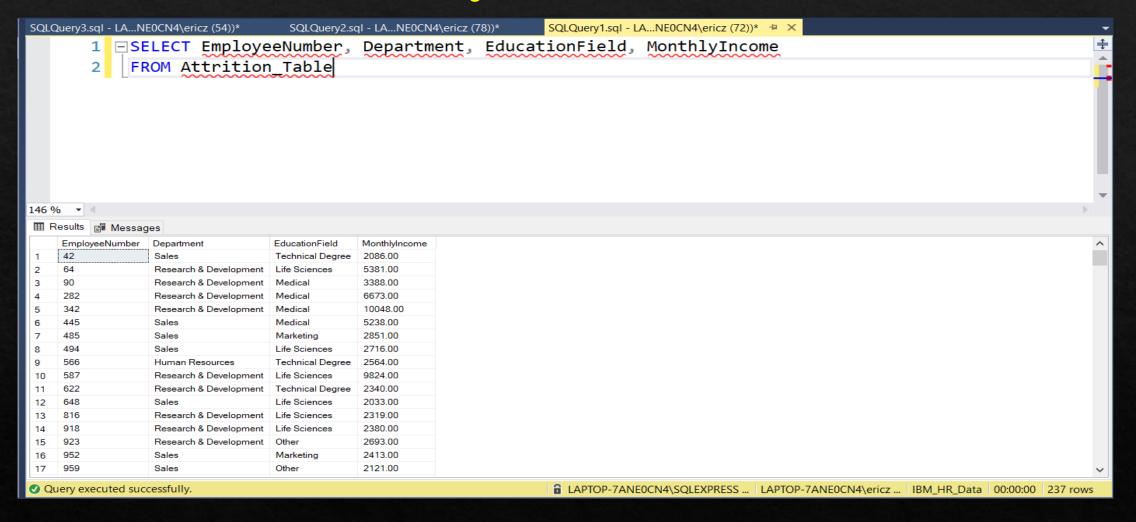
```
SQLQuery2.sql - LA...NE0CN4\ericz (78))* + X SQLQuery1.sql - LA...NE0CN4\ericz (72))*
        1 □ SELECT*
            INTO Attrition Table
            From IBM_Employees
            WHERE Attrition ='Yes'
146 % 🔻
Messages
   (237 rows affected)
   Completion time: 2025-03-08T17:42:45.8831850-05:00
Query executed successfully.
                                                                         LAPTOP-7ANEOCN4\SQLEXPRESS ... LAPTOP-7ANEOCN4\ericz ... IBM_HR_Data 00:00:00 0 rows
```

```
SQLQuery3.sql - LA...NE0CN4\ericz (54))* + X SQLQuery2.sql - LA...NE0CN4\ericz (78))*
                                                                          SQLQuery1.sql - LA...NE0CN4\ericz (72))*
         1 □SELECT *
              INTO None_Attrition_Table
              FROM IBM Employees
              WHERE Attrition = 'No';
 46 % 🔻
 Messages
    (1233 rows affected)
   Completion time: 2025-03-08T17:44:13.6251495-05:00
 146 % 🔻 🤇

    Query executed successfully

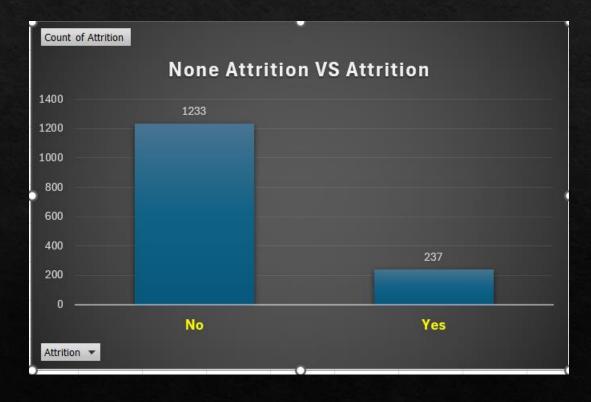
                                                                             ☐ LAPTOP-7ANEOCN4\SQLEXPRESS ... LAPTOP-7ANEOCN4\ericz ... IBM_HR_Data 00:00:00 0 rows
```

#### Testing the contents of Attrition Table



#### Visualizing Attrition Table: Excel and Power BI

_	Attrit	tion_Table	=	63
EmployeeNumber	Department	EducationField	Sum of MonthlyIncome	
1	Sales	Life Sciences	\$5,993	- 1
1004	Research & Development	Life Sciences	\$2,132	
1010	Research & Development	Other	\$3,743	
1016	Research & Development	Medical	\$2,600	
1017	Research & Development	Medical	\$2,422	
1033	Research & Development	Medical	\$4,777	
1037	Sales	Medical	\$4,969	
1038	Sales	Marketing	\$19,845	
1042	Research & Development	Life Sciences	\$2,743	
1052	Research & Development	Other	\$4,834	
1053	Research & Development	Life Sciences	\$2,042	
1077	Sales	Marketing	\$2,323	
1079	Research & Development	Life Sciences	\$1,416	
1081	Research & Development	Life Sciences	\$2,461	
1082	Research & Development	Technical Degree	\$8,722	
1098	Human Resources	Medical	\$10,482	
1100	Sales	Technical Degree	\$9,582	
1101	Research & Development	Medical	\$4,508	
1106	Research & Development	Technical Degree	\$3,691	
1107	Research & Development	Medical	\$2,377	
1108	Research & Development	Medical	\$2,313	
1111	Research & Development	Medical	\$2.596	
Total			\$1,134,541	



1 SELECT EmployeeNumber, Department, EducationField, MonthlyIncome

FROM None\_Attrition\_Table;

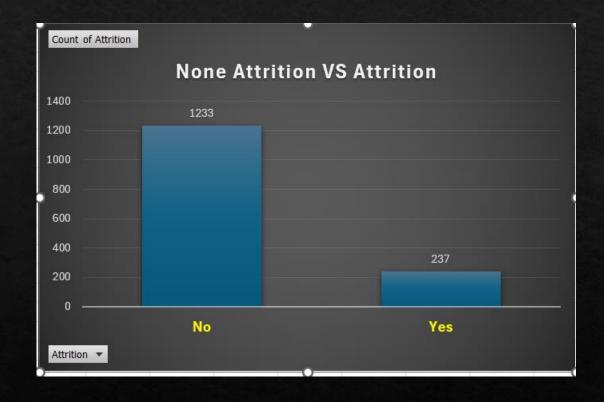
146 % ▼ <

	EmployeeNumber	Department	EducationField	MonthlyIncome
1	22	Research & Development	Medical	2935.00
2	53	Research & Development	Other	1951.00
3	54	Research & Development	Life Sciences	2341.00
4	86	Research & Development	Life Sciences	9724.00
5	97	Research & Development	Life Sciences	3038.00
6	134	Research & Development	Life Sciences	2956.00
7	139	Research & Development	Life Sciences	5163.00
8	151	Research & Development	Life Sciences	4505.00
9	201	Research & Development	Medical	1483.00
10	211	Research & Development	Medical	6132.00
11	271	Research & Development	Life Sciences	6553.00
12	298	Sales	Life Sciences	13591.00
13	309	Research & Development	Life Sciences	2177.00
14	334	Research & Development	Life Sciences	3072.00
15	353	Research & Development	Life Sciences	2723.00
16	407	Research & Development	Life Sciences	3688.00
17	451	Research & Development	Life Sciences	9985.00

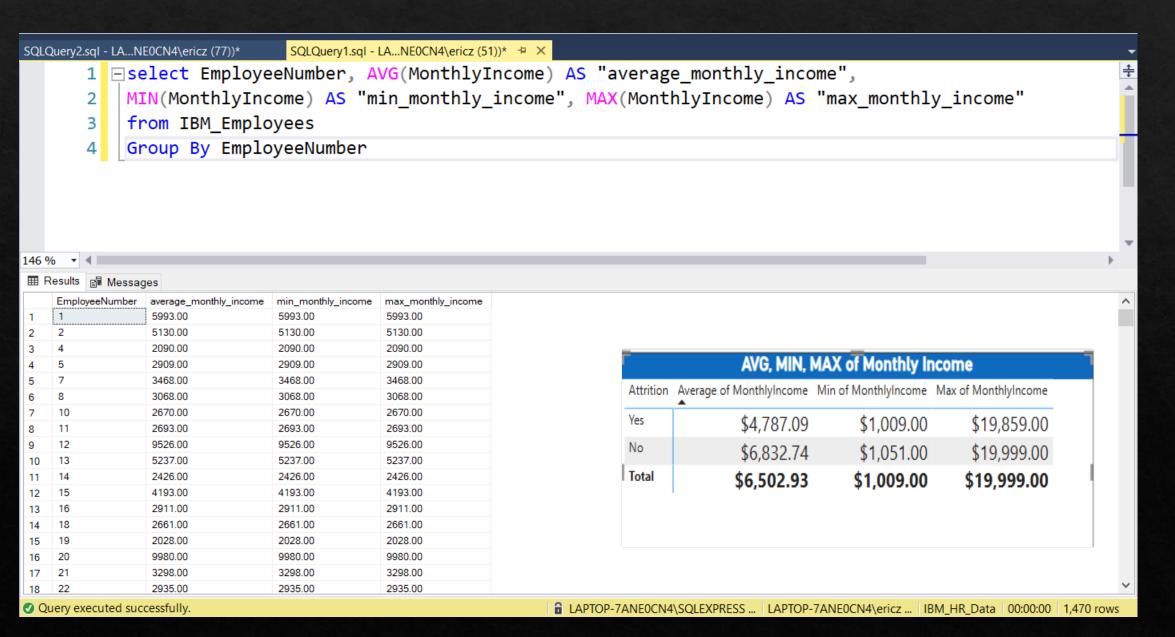
### Testing the contents of None **Attrition Table**

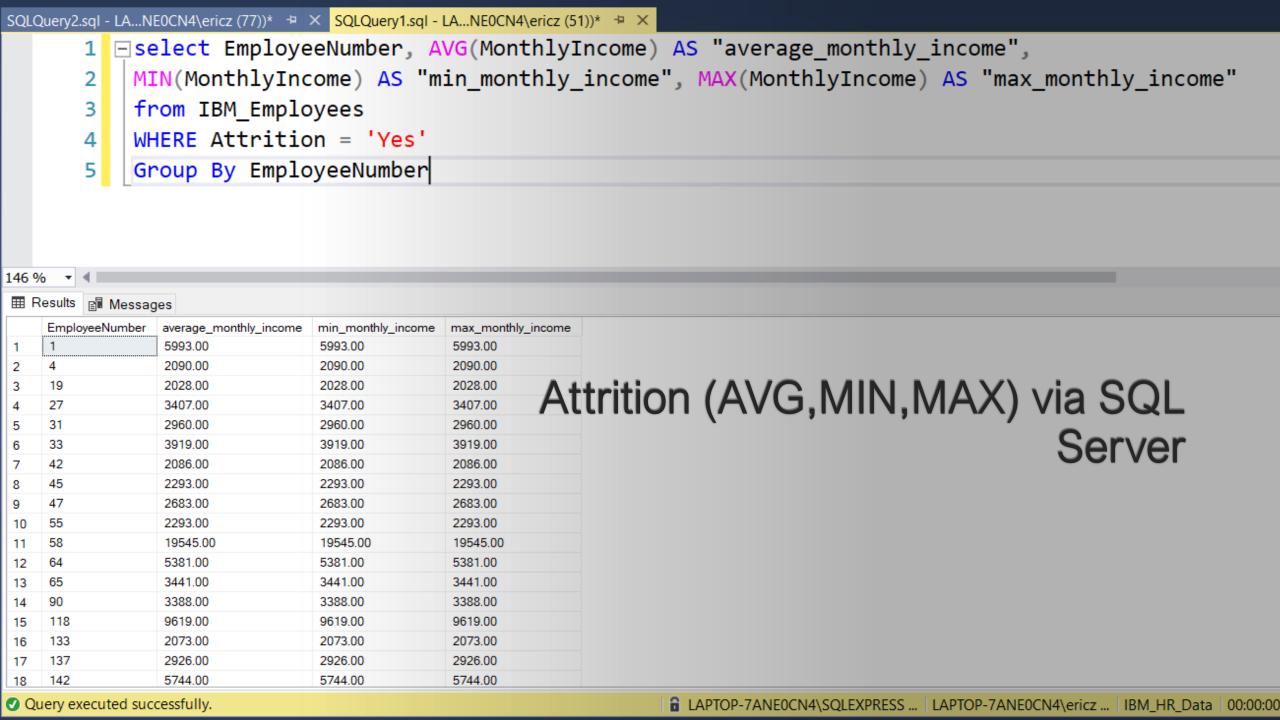
#### Visualizing None Attrition Table: Excel and Power BI

Г	None_Attri	tion_Table	= 63 *	
EmployeeNumber	Department	EducationField	Sum of MonthlyIncome	
1027	Research & Development	Life Sciences	\$4,227	
1028	Research & Development	Other	\$3,917	
1029	Sales	Marketing	\$18,303	
103	Human Resources	Medical	\$5,021	
1030	Research & Development	Life Sciences	\$2,380	
1032	Research & Development	Life Sciences	\$13,726	
1034	Research & Development	Medical	\$6,385	
1035	Research & Development	Life Sciences	\$19,973	
1036	Sales	Life Sciences	\$6,861	
1039	Sales	Medical	\$13,320	
104	Research & Development	Life Sciences	\$5,126	1
1040	Sales	Life Sciences	\$6,347	
1043	Research & Development	Medical	\$10,880	
1044	Sales	Life Sciences	\$2,342	
1045	Sales	Life Sciences	\$17,650	
1046	Research & Development	Medical	\$4,025	
1047	Sales	Marketing	\$9,725	
1048	Sales	Technical Degree	\$11,904	
1049	Human Resources	Medical	\$2,177	
105	Research & Development	Medical	\$2,859	
1050	Sales	Marketing	\$7,525	
1055	Calaa	Life Celement	#2.220	
_Total	_		\$8,424,768	



#### 3 Statistical Tables: AVG, MIN MAX

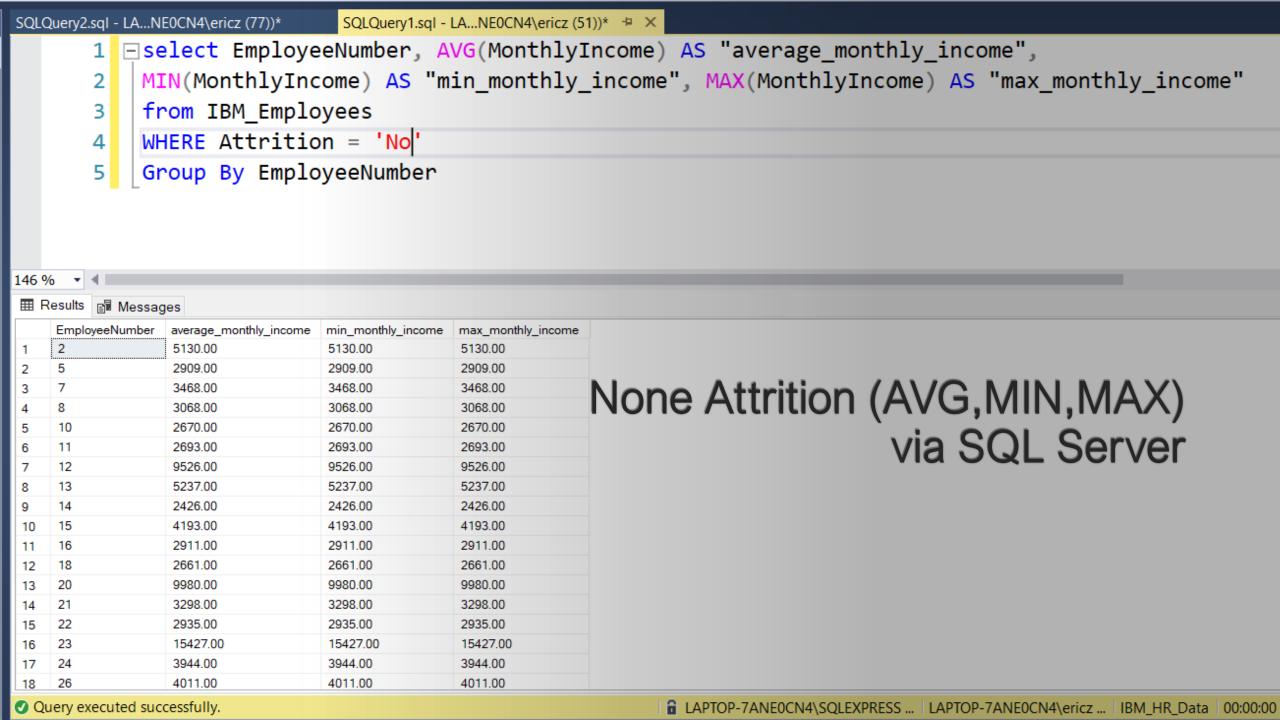




#### Visualizing Attrition's AVG, MIN, MAX Monthly Incomes

	Attı	rition_Table(AVG MIN MA)	X)	= 62
EmployeeNumber	Department	Average_Monthly_Income	Min_Monthly_Income	Max_Monthly_Income
1	Sales	\$5,993	\$5,993	\$5,993
1004	Research & Development	\$2,132	\$2,132	\$2,132
1010	Research & Development	\$3,743	\$3,743	\$3,743
1016	Research & Development	\$2,600	\$2,600	\$2,600
1017	Research & Development	\$2,422	\$2,422	\$2,422
1033	Research & Development	\$4,777	\$4,777	\$4,777
1037	Sales	\$4,969	\$4,969	\$4,969
1038	Sales	\$19,845	\$19,845	\$19,845
1042	Research & Development	\$2,743	\$2,743	\$2,743
1052	Research & Development	\$4,834	\$4,834	\$4,834
1053	Research & Development	\$2,042	\$2,042	\$2,042
1077	Sales	\$2,323	\$2,323	\$2,323
1079	Research & Development	\$1,416	\$1,416	\$1,416
1081	Research & Development	\$2,461	\$2,461	\$2,461
1082	Research & Development	\$8,722	\$8,722	\$8,722
1098	Human Resources	\$10,482	\$10,482	\$10,482
1100	Sales	\$9,582	\$9,582	\$9,582
1101	Research & Development	\$4,508	\$4,508	\$4,508
1106	Research & Development	\$3,691	\$3,691	\$3,691
1107	Research & Development	\$2,377	\$2,377	\$2,377
1108	Research & Development	\$2,313	\$2,313	\$2,313
1111	Research & Development	\$2.596	\$2.596	\$2.596
Total		\$4,787.0 <u>9</u> 282700422	\$1,009	\$19,859

	AVG, MIN, MAX of Monthly Income			
Attrition	Average of MonthlyIncome	Min of MonthlyIncome	Max of MonthlyIncome	
Yes	\$4,787.09	\$1,009.00	\$19,859.00	
No	\$6,832.74	\$1,051.00	\$19,999.00	
Total	\$6,502.93	\$1,009.00	\$19,999.00	

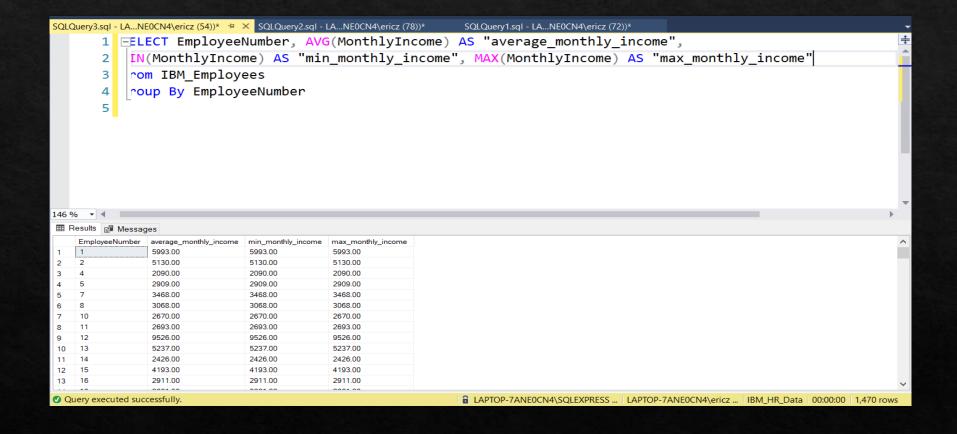


#### Visualizing None Attrition's AVG, MIN, MAX Monthly Incomes

	None A	Attrition_Table(AVG MIN M	AX)	= 63
EmployeeNumber	Department	Average_Monthly_Income	${\sf Min\_Monthly\_Income}$	${\sf Max\_Monthly\_Income}$
10	Research & Development	\$2,670	\$2,670	\$2,670
100	Sales	\$4,312	\$4,312	\$4,312
1001	Research & Development	\$2,811	\$2,811	\$2,811
1002	Research & Development	\$3,633	\$3,633	\$3,633
1003	Sales	\$4,163	\$4,163	\$4,163
1005	Research & Development	\$13,973	\$13,973	\$13,973
1006	Research & Development	\$2,684	\$2,684	\$2,684
1007	Research & Development	\$10,845	\$10,845	\$10,845
1009	Research & Development	\$4,377	\$4,377	\$4,377
101	Research & Development	\$13,245	\$13,245	\$13,245
1011	Research & Development	\$4,148	\$4,148	\$4,148
1012	Research & Development	\$1,051	\$1,051	\$1,051
1013	Research & Development	\$10,739	\$10,739	\$10,739
1014	Research & Development	\$10,388	\$10,388	\$10,388
1015	Research & Development	\$11,416	\$11,416	\$11,416
1018	Research & Development	\$5,472	\$5,472	\$5,472
1019	Research & Development	\$2,451	\$2,451	\$2,451
102	Research & Development	\$13,664	\$13,664	\$13,664
1022	Research & Development	\$4,240	\$4,240	\$4,240
1024	Research & Development	\$10,999	\$10,999	\$10,999
1025	Research & Development	\$5,003	\$5,003	\$5,003
1026	Research & Development	\$12.742	\$12.742	\$12.742
Total		\$6,832.739659367397	\$1,051	\$19,999

AVG, MIN, MAX of Monthly Income			
Attrition	Average of MonthlyIncome	Min of MonthlyIncome	Max of MonthlyIncome
Yes	\$4,787.09	\$1,009.00	\$19,859.00
No	\$6,832.74	\$1,051.00	\$19,999.00
Total	\$6,502.93	\$1,009.00	\$19,999.00

#### SQL Query showing All Employees (both Attrition & None Attrition)'s AVG,MIN,MAX Monthly Income



```
SQLQuery3.sql - LA_NEOCN4(ericz (54))* * X SQLQuery2.sql - LA_NEOCN4(ericz (78))*

SQLQuery1.sql - LA_NEOCN4(ericz (72))*

SQLQuery1.sql - LA_NEOCN4(ericz (72))*

SQLQuery1.sql - LA_NEOCN4(ericz (72))*

PROM IBM_Employees

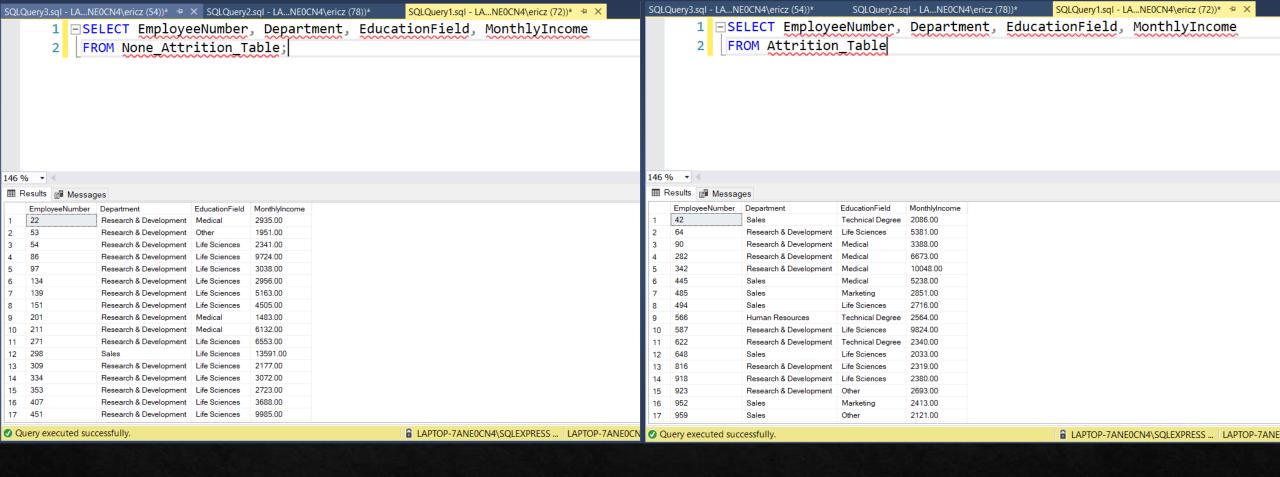
WHERE Attrition = 'No';

Messages

(1233 rows affected)

Completion time: 2025-03-08T17:44:13.6251495-05:00
```

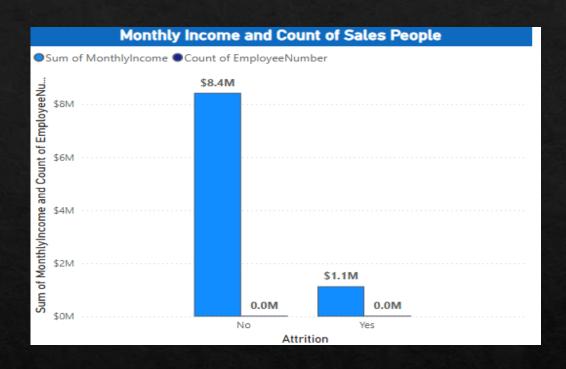
# Alternative ways of creating attrition and none attrition tables via SQL (Using Insert)

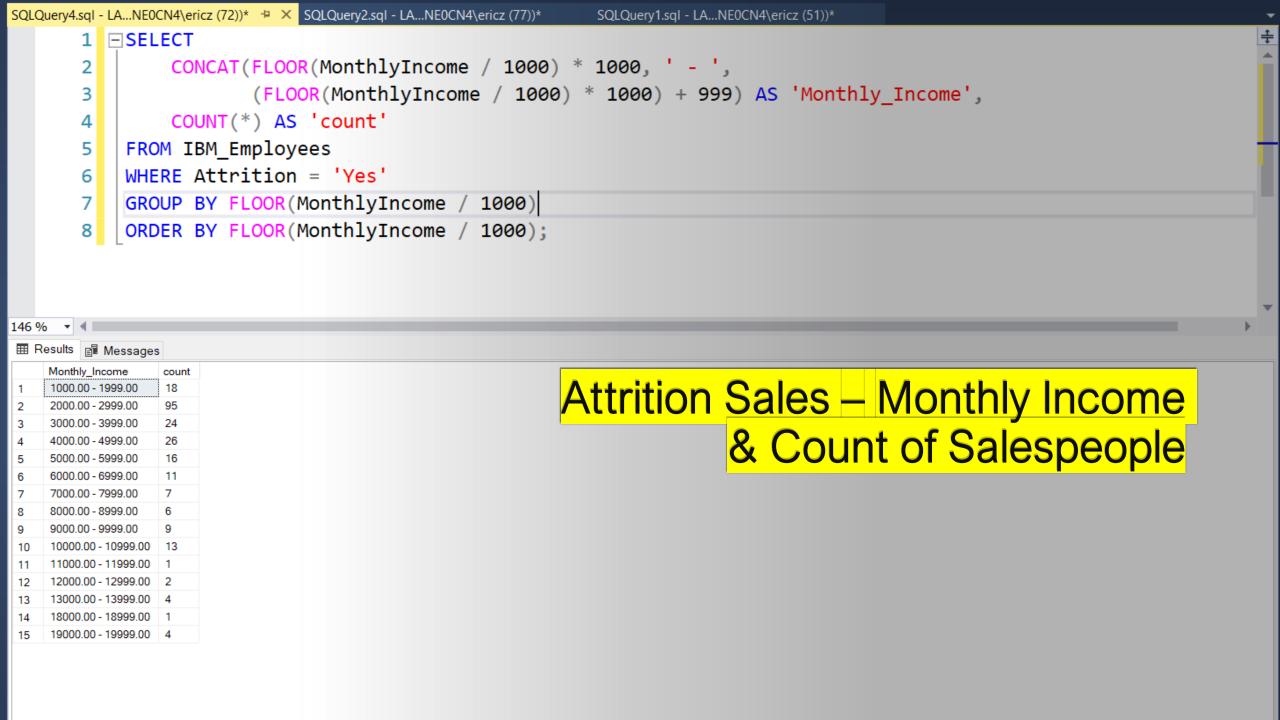


## Testing if using 'INSERT' yields correct answers

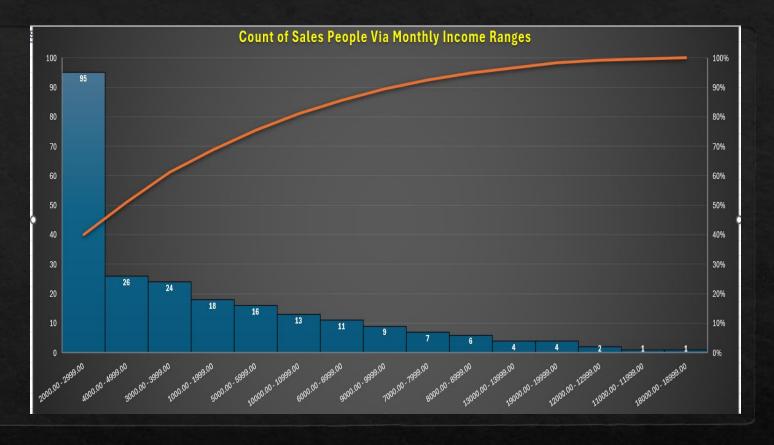
#### Monthly Income & Count of SalesPeople

Monthly Income and Count of Sales People				
Attrition	Sum of MonthlyIncome	Count of EmployeeNumber		
No	\$8,424,768	1233		
Yes	\$1,134,541	237		
Total	\$9,559,309	1470		

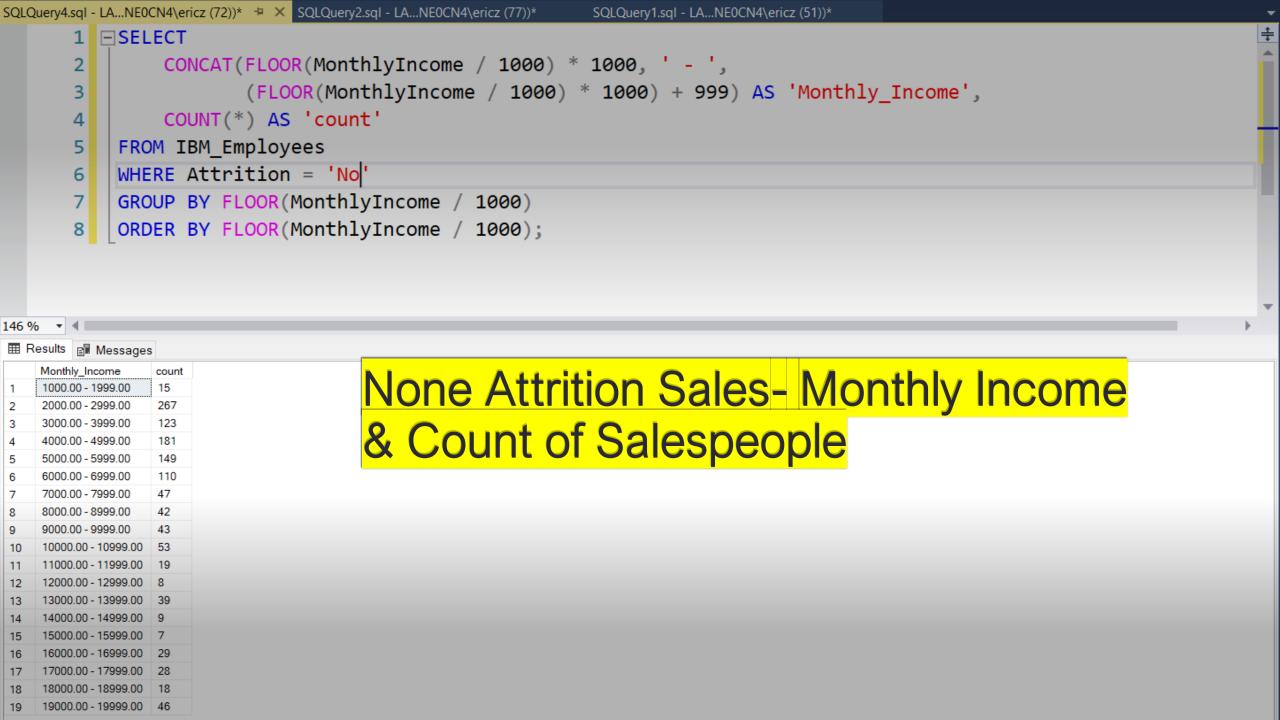




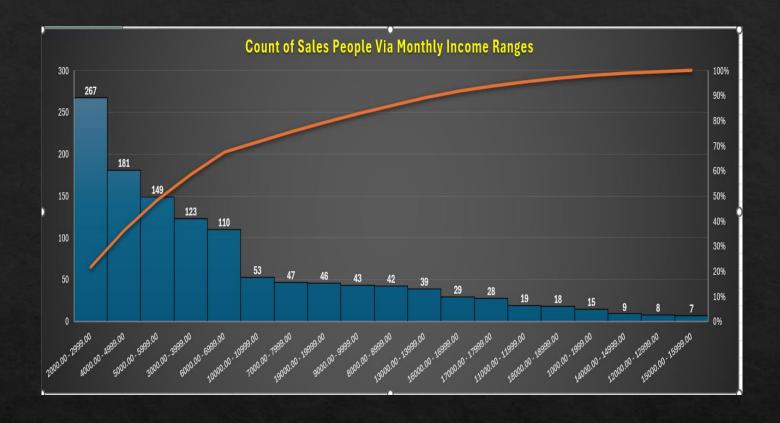
Monthly_Income Range	¥	Count of Sale People	¥
1000.00 - 1999.00			18
2000.00 - 2999.00			95
3000.00 - 3999.00			24
4000.00 - 4999.00			26
5000.00 - 5999.00			16
6000.00 - 6999.00			11
7000.00 - 7999.00			7
8000.00 - 8999.00			6
9000.00 - 9999.00			9
10000.00 - 10999.00			13
11000.00 - 11999.00			1
12000.00 - 12999.00			2
13000.00 - 13999.00			4
18000.00 - 18999.00			1
19000.00 - 19999.00			4,



Visualizing Attrition's Monthly Income via Count of Sales People



Monthly_Income Range	¥	Count of SalesPeople 💌
1000.00 - 1999.00		15
2000.00 - 2999.00		267
3000.00 - 3999.00		123
4000.00 - 4999.00		181
5000.00 - 5999.00		149
6000.00 - 6999.00		110
7000.00 - 7999.00		47
8000.00 - 8999.00		42
9000.00 - 9999.00		43
10000.00 - 10999.00		53
11000.00 - 11999.00		19
12000.00 - 12999.00		8
13000.00 - 13999.00		39
14000.00 - 14999.00		9
15000.00 - 15999.00		7
16000.00 - 16999.00		29
17000.00 - 17999.00		28
18000.00 - 18999.00		18
19000.00 - 19999.00		46.



Visualizing None Attrition's Monthly Income via Count of Sales People