DATA-DRIVEN HR SOLUTIONS: TURNOVER AND PERFORMANCE

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INTRO

This project presents modifications to employee and performance data for analysis, focusing on turnover causes and performance trends. The data cleaning phase standardized values and addressed missing data. Key factors contributing to turnover, such as overtime and years of service, were identified, along with elements affecting job satisfaction and work-life balance. Dashboard visualizations highlighted insights on training, diversity, and fairness within the company.

TOOLS

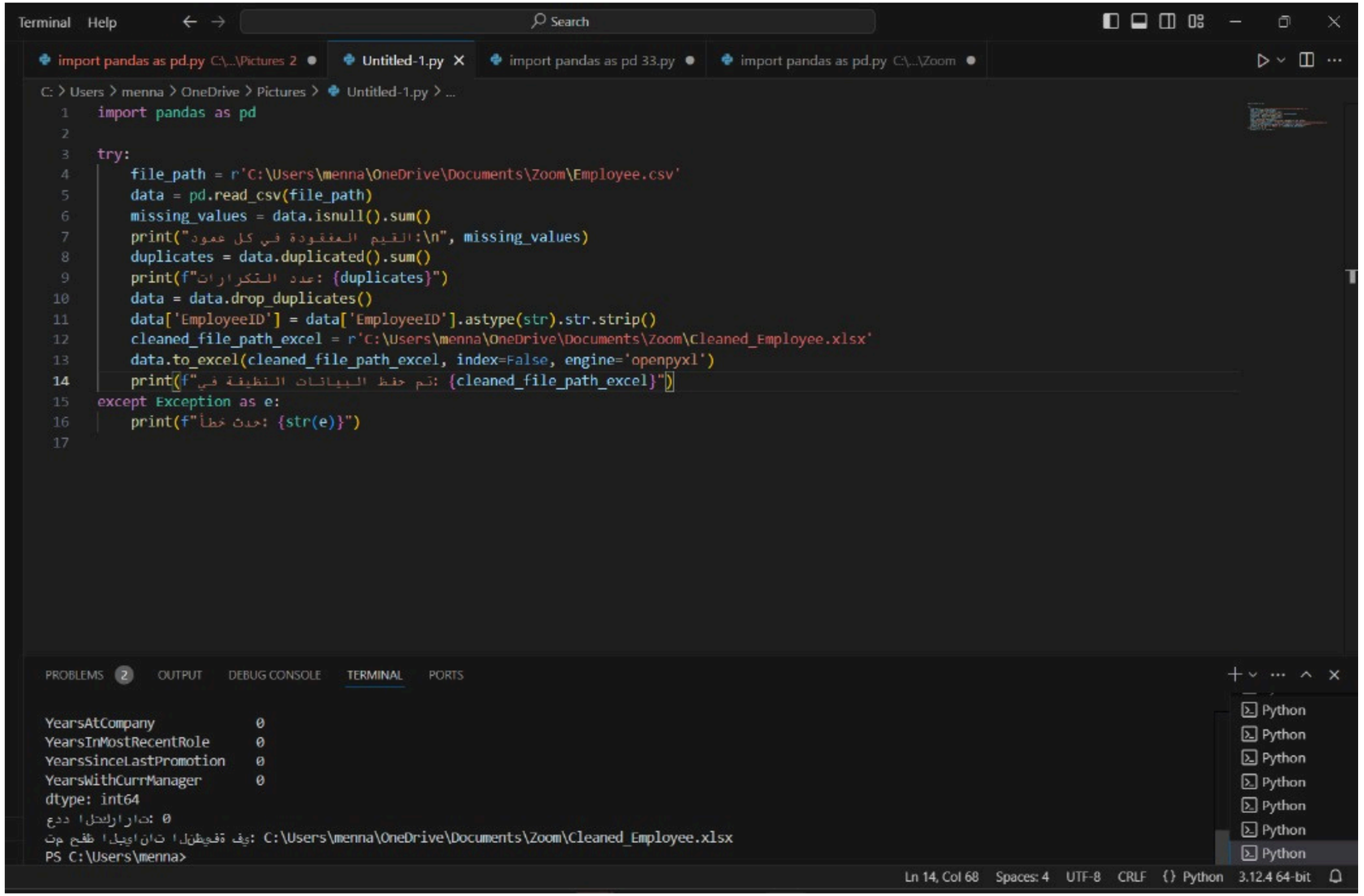
python™

SQL

+ableau

R PROGRAMMING

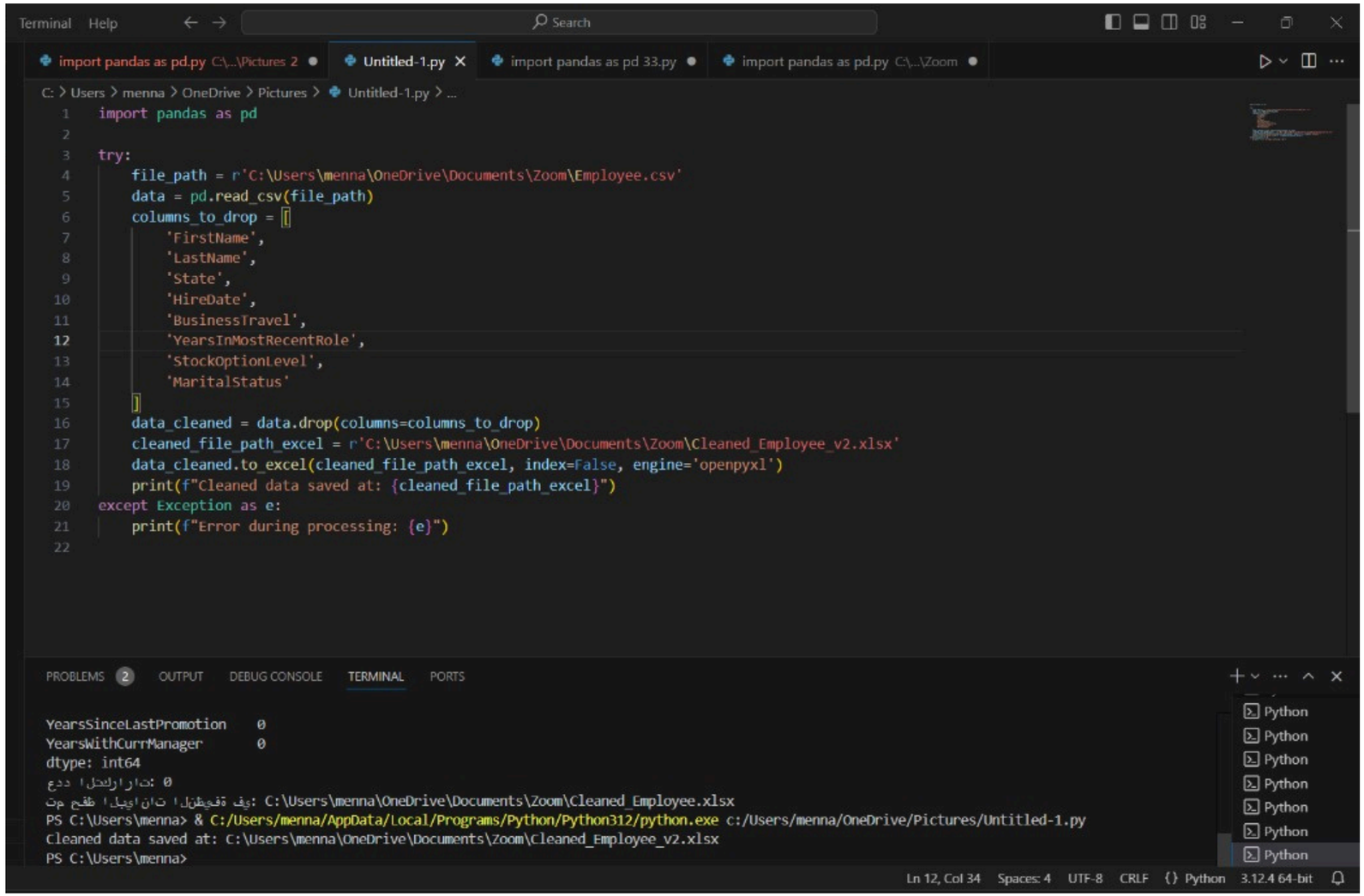
CLEANING



Check for Missing Values and Duplicates:

- **A thorough review will be conducted to identify any missing values within the dataset. Additionally, duplicate entries will be removed to ensure data integrity and accuracy.**

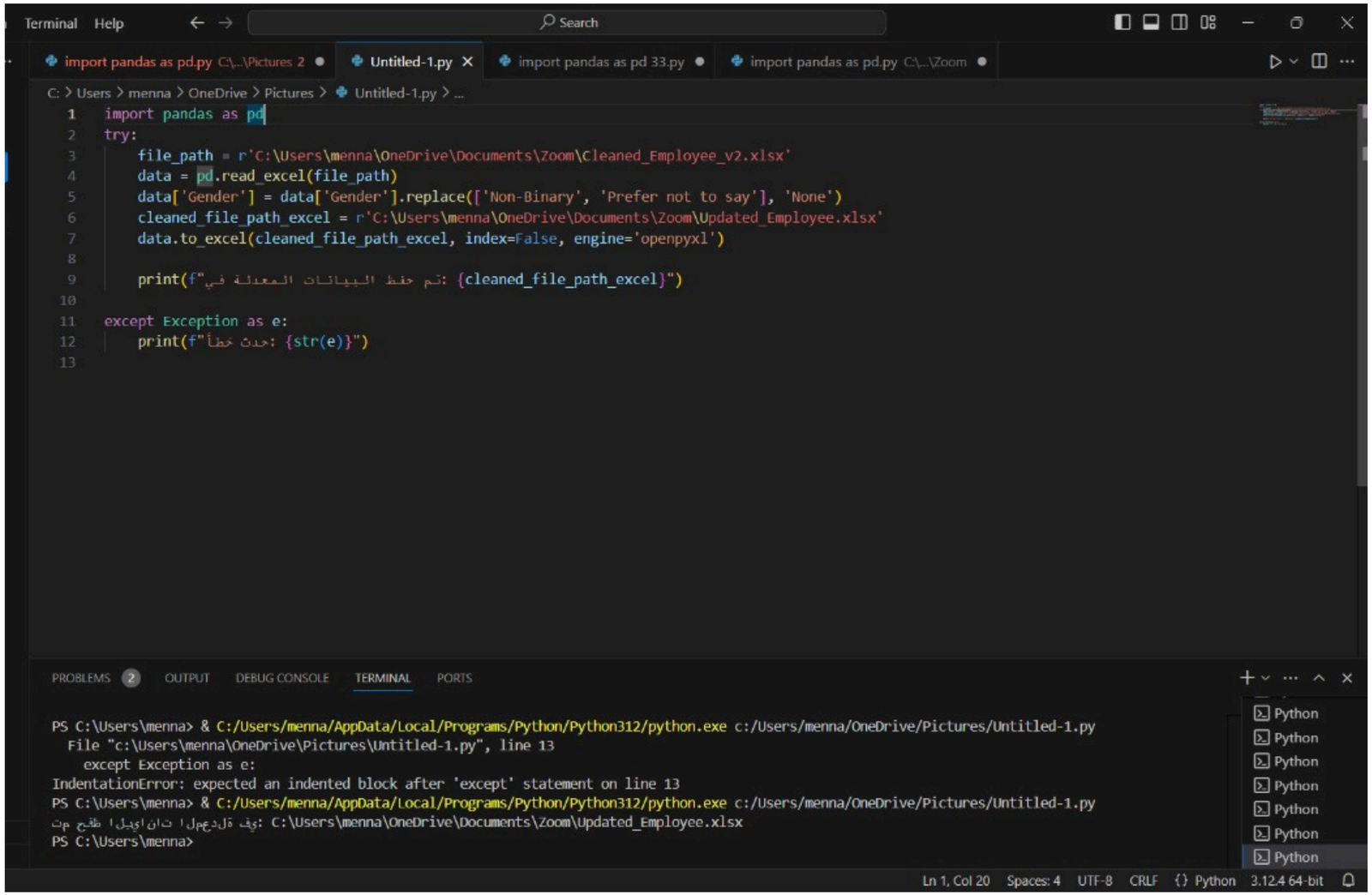
CLEANING



Remove Unused Columns:

- Unnecessary columns that are not relevant to our analysis will be eliminated. Each column name will be listed to specify which ones will be discarded, streamlining the dataset for further processing.

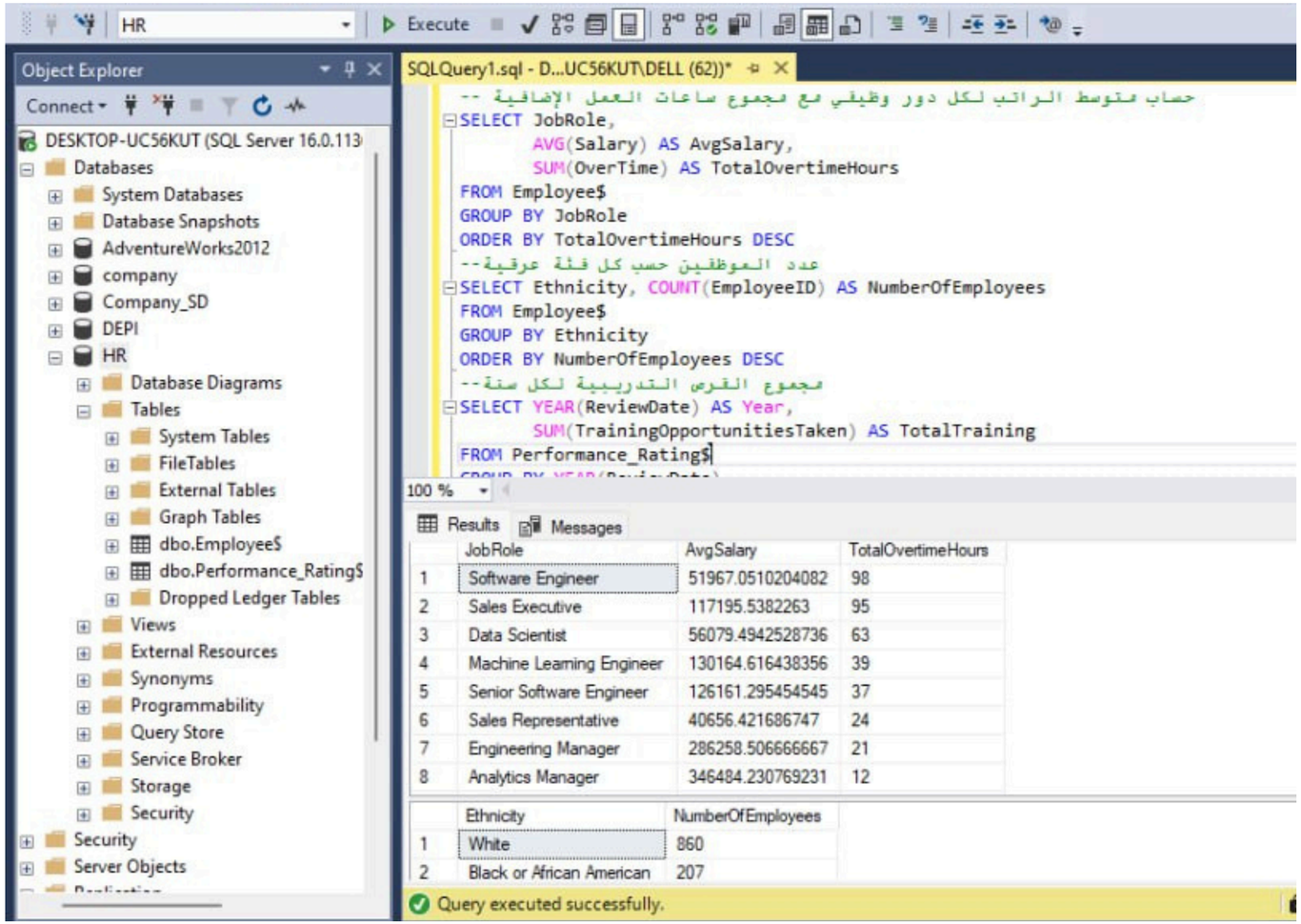
CLEANING



Transform Non-Binary Values:

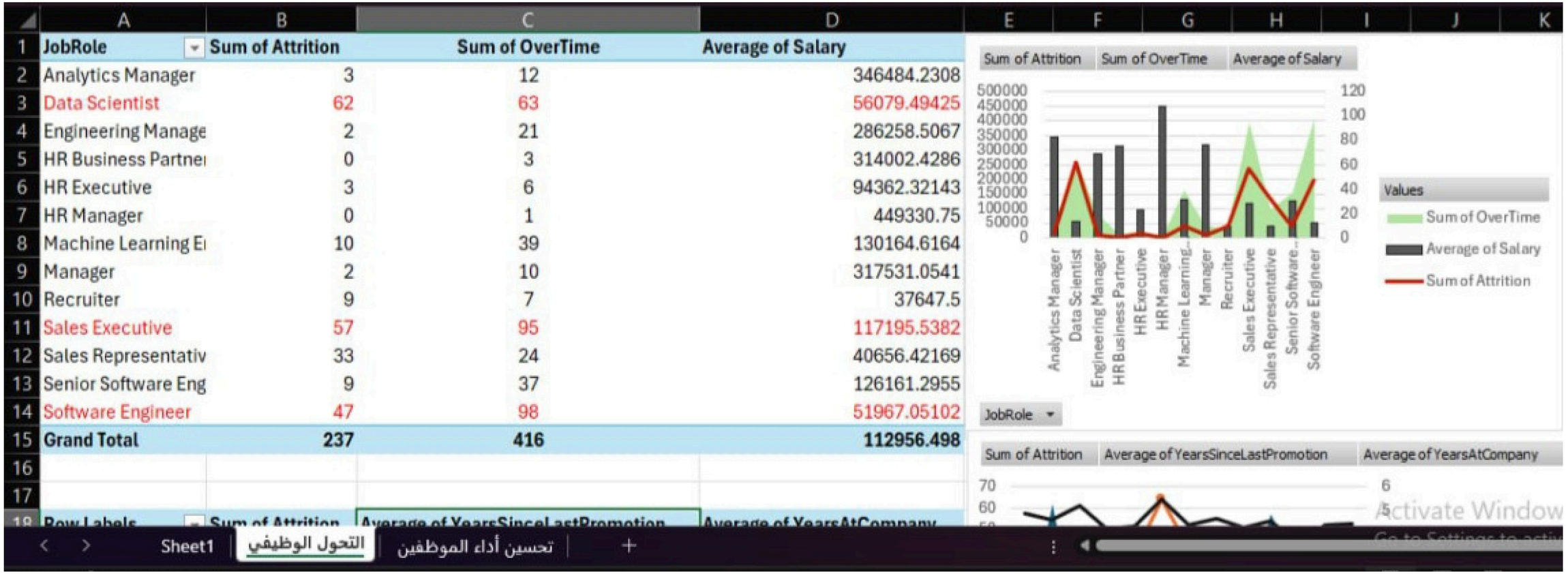
- **To ensure inclusivity, all cells containing "non-binary" or "not preferred to say" will be replaced with "NULL" This standardization helps maintain consistency in the dataset.**

ANALIZING



A database was created using an SQL server to analyze relationships such as number of employees for each racial groub to look for discrimination in employment opportunities or racism, also the relation between "average salaries" and "total overtime hours" for each job, as shown.

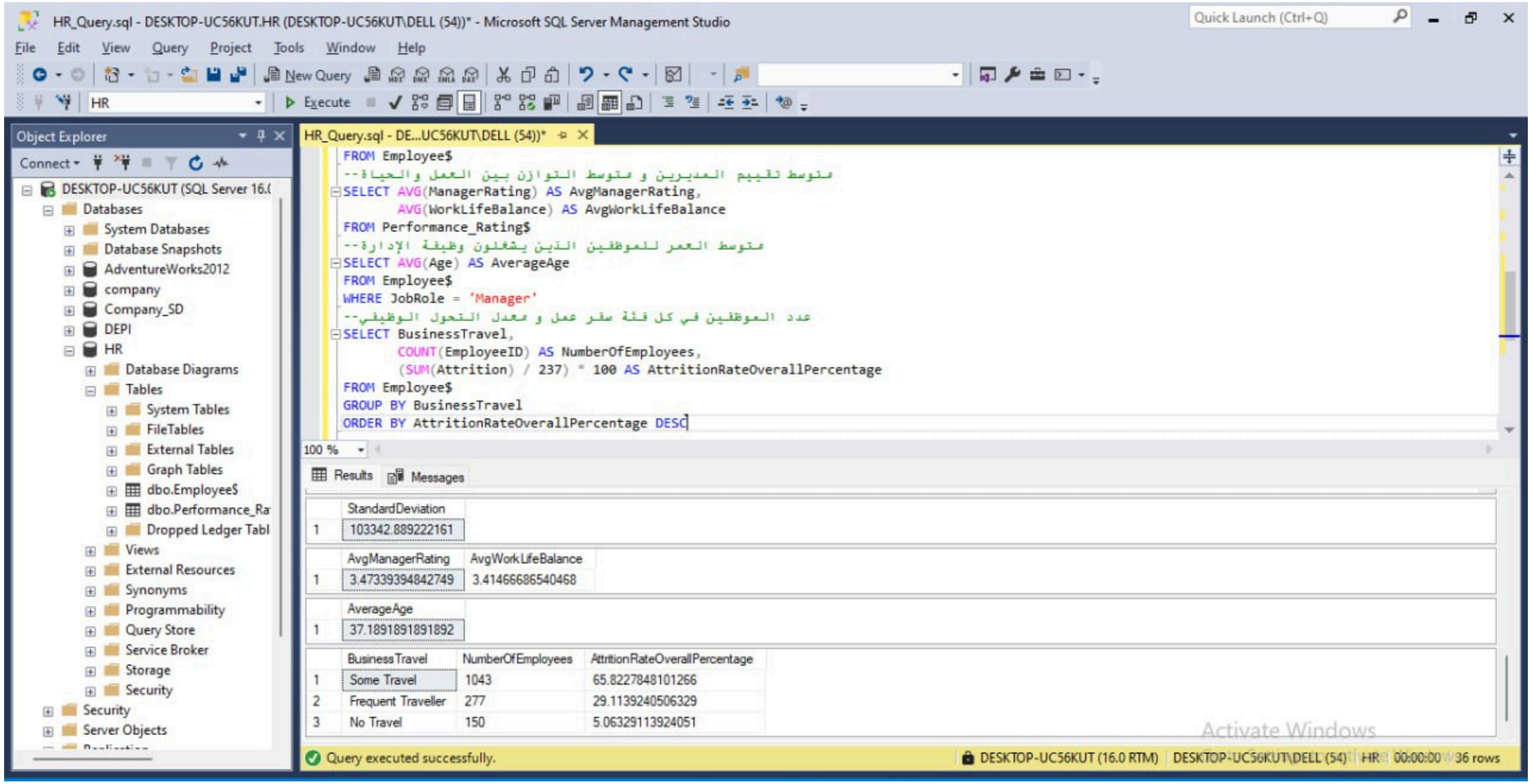
ANALIZING



JobRole	Sum of Attrition	Sum of OverTime	Average of Salary
Analytics Manager	3	12	346484.2308
Data Scientist	62	63	56079.49425
Engineering Manage	2	21	286258.5067
HR Business Partne	0	3	314002.4286
HR Executive	3	6	94362.32143
HR Manager	0	1	449330.75
Machine Learning E	10	39	130164.6164
Manager	2	10	317531.0541
Recruiter	9	7	37647.5
Sales Executive	57	95	117195.5382
Sales Representativ	33	24	40656.42169
Senior Software Eng	9	37	126161.2955
Software Engineer	47	98	51967.05102
Grand Total	237	416	112956.498

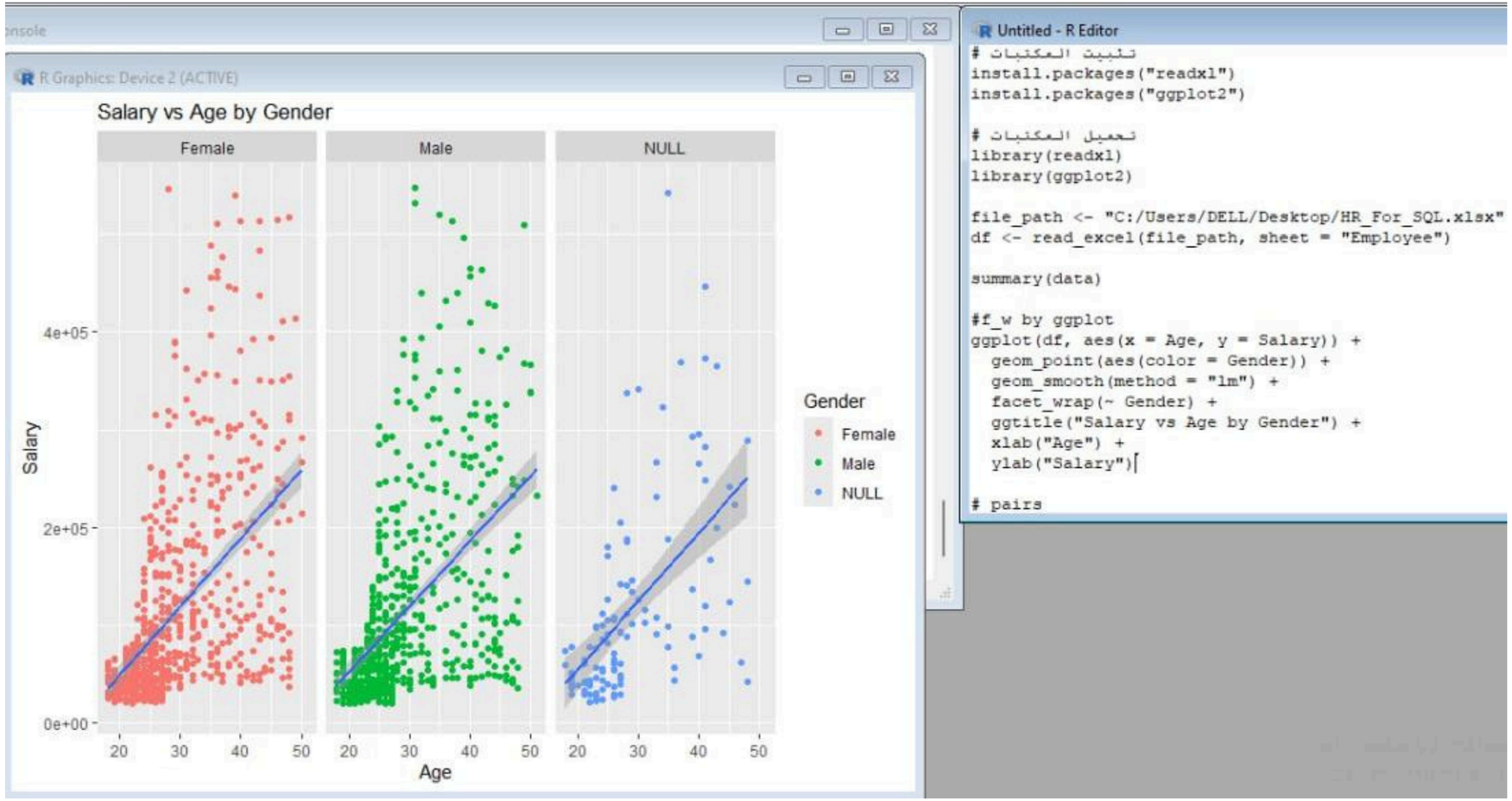
The same data was visualized in Excel, incorporating other factors analysis to explore the effect on Attrition, illustrated in the Figure.

ANALIZING



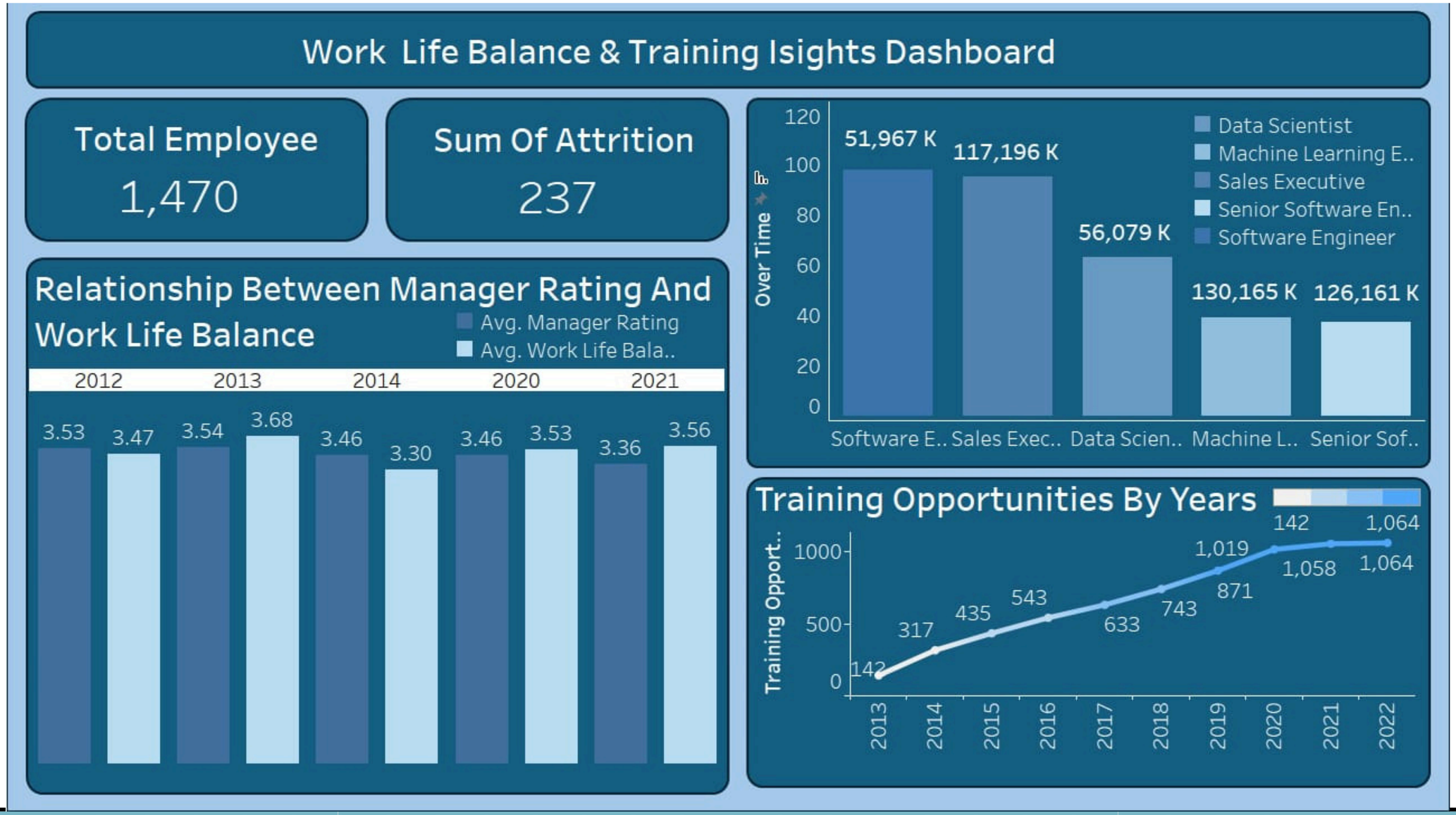
The average age of managers was calculated to assess the fairness of hiring criteria, as depicted in the Figure

ANALIZING

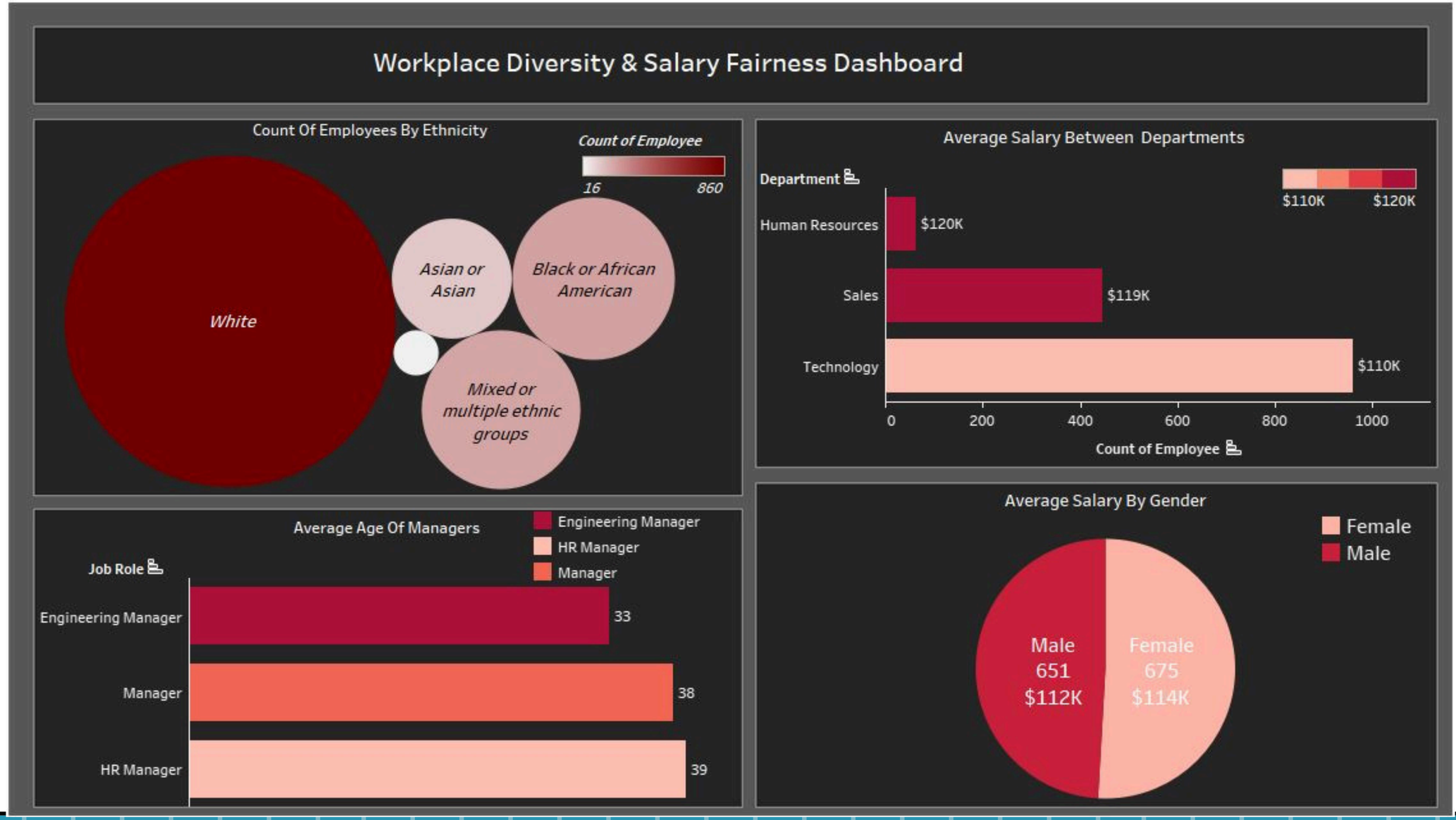


while gender inequality in salaries and job opportunities was assessed, as shown in the Figure

DASHBOARD

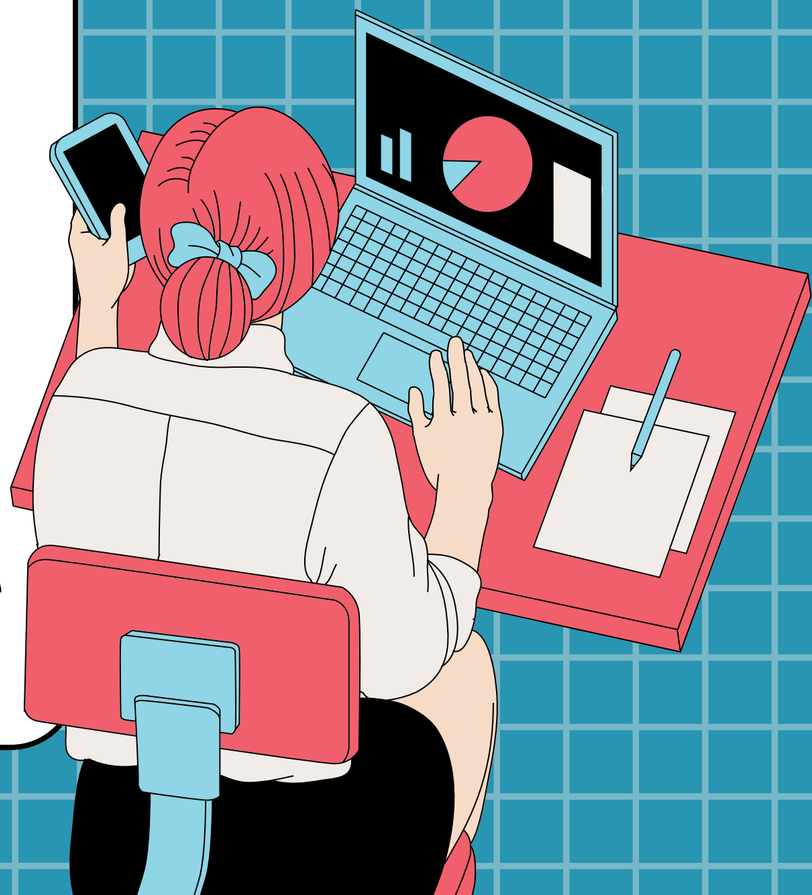

Work Life Balance & Training Isights Dashboard
Total Employee
1,470
Sum Of Attrition
237
Relationship Between Manager Rating And Work Life Balance
Avg. Manager Rating
Avg. Work Life Bala..
2012
2013
2014
2020
2021
3.53
3.47
3.54
3.68
3.46
3.30
3.46
3.53
3.36
3.56
Over Time
120
100
80
60
40
20
0
51,967 K
117,196 K
56,079 K
130,165 K
126,161 K
Data Scientist
Machine Learning E..
Sales Executive
Senior Software En..
Software Engineer
Software E..
Sales Exec..
Data Scien..
Machine L..
Senior Sof..
Training Opportunities By Years
Training Opport..
1000
500
0
142
317
435
543
633
743
871
1,019
1,058
1,064
142
1,064
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022

DASHBOARD


Workplace Diversity & Salary Fairness Dashboard
Count Of Employees By Ethnicity
Count of Employee
16
860
White
Asian or Asian
Black or African American
Mixed or multiple ethnic groups
Average Salary Between Departments
Department
$110K
$120K
Human Resources
$120K
Sales
$119K
Technology
$110K
0
200
400
600
800
1000
Count of Employee
Average Age Of Managers
Engineering Manager
HR Manager
Manager
Job Role
Engineering Manager
33
Manager
38
HR Manager
39
Average Salary By Gender
Female
Male
Male
651
$112K
Female
675
$114K

CONCLUSIONS

- Jobs requiring more overtime tend to offer lower average salaries.
- Better work-life balance improves employee productivity and manager evaluations.
- The company has increasingly focused on providing regular training opportunities.
- The company shows a hiring preference for white employees.

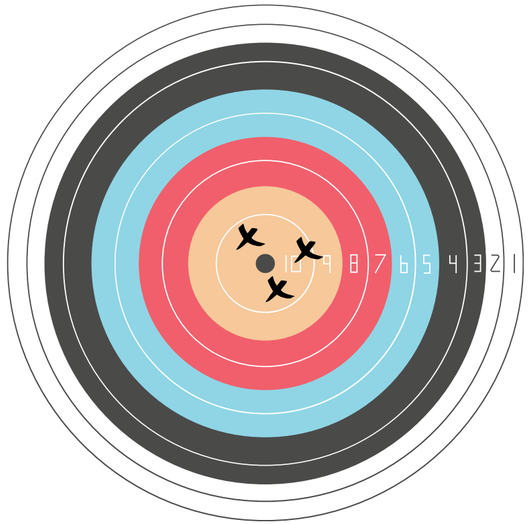


CONCLUSIONS

- No significant gender differences in job opportunities or salaries.
- Desk work combined with business travel influences career shifts.
- Younger managers are selected based on competence rather than years of service.

SUGGESTIONS

- Offer incentives for overtime work and provide targeted training for skill gaps.
- Increase flexible work policies and allow remote work when suitable.
- Align hiring and training departments to focus on relevant skill development.
- Implement anti-racism awareness programs and monitor recruitment practices.



THANK YOU!