

People Analytics

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Background

- Employee job satisfaction affects the performance, retention and well-being of the employee
- By identifying factors contribution the employee satisfaction could improve employee's workplace culture
- This analysis uses employee dataset with demographics, work conditions, and satisfaction ratings to understand drivers of job satisfaction.

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Objective

Provide actionable recommendations that help improve employee experience and organizational productivity

Analyse factors affecting job satisfaction

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Data Understanding

This dataset is obtained from Kaggle which shows the employee background and survey in the company. The main variable used to analyse is the job satisfaction where the job satisfaction of the employee are affected by the overtime, work life balance, work environment, sleep hours, workload, and stress

This dataset have 3,025 records

23 Columns

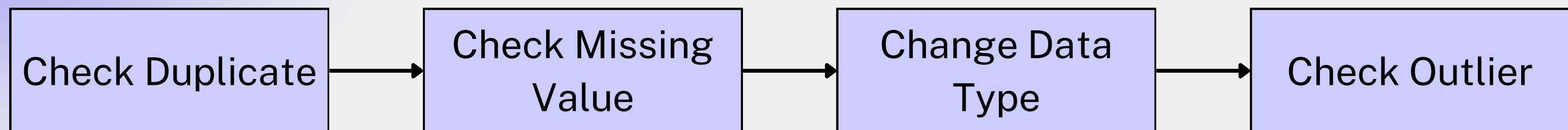
Dataset source:

[Employee Survey Dataset](#)

Column Name	Description
EmpID	Unique identifier for each employee.
Gender	Gender of the employee (Male, Female, Other).
Age	Age of the employee.
MaritalStatus	Marital status (Single, Married, Divorced, Widowed).
JobLevel	Employee job level (Intern/Fresher, Junior, Mid, Senior, Lead).
Experience	Total years of work experience.
Dept	Department of the employee (IT, HR, Finance, Marketing, Sales, Legal, Operations, Customer Service).
EmpType	Type of employment (Full-Time, Part-Time, Contract).
WLB	Work-life balance rating (1–5).
WorkEnv	Work environment satisfaction rating (1–5).
PhysicalActivityHours	Hours of physical activity per week.
Workload	Workload rating (1–5).
Stress	Stress level rating (1–5).
SleepHours	Sleep hours per night.
CommuteMode	Mode of commute (Car, Public Transport, Bike, Walk, Motorbike).
CommuteDistance	Commute distance in kilometers.
NumCompanies	Number of different companies previously worked for.
TeamSize	Number of people in the employee's team.
NumReports	Number of subordinates (for Senior/Lead roles).
EduLevel	Highest education level (High School, Bachelor, Master, PhD).
haveOT	Whether employee does overtime (True/False).
TrainingHoursPerYear	Yearly training hours.
JobSatisfaction	Job satisfaction rating (1–5).

Data Preprocessing

Data Processing process can be access in this link: [Python](#)



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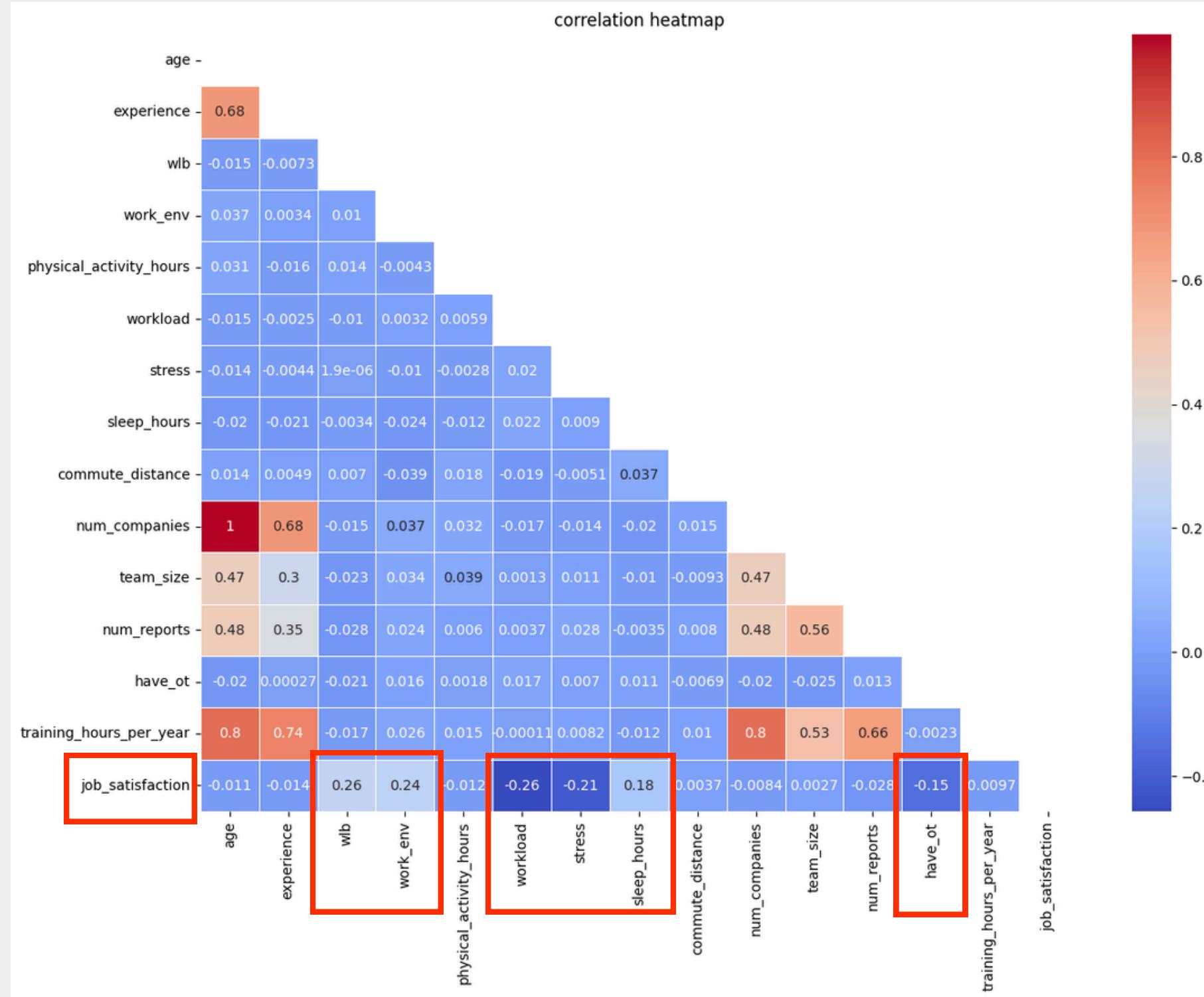
No missing value found

- Change emp_id from integer to string
- Change have_ot from bool to integer for heatmap and correlation test

No outlier found

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Correlation Heatmap on Variables



To maintain the employee engagement, we are trying to keep the job_satisfaction high

- The job satisfaction of employee is directly proportional with the employee's work life balance (wlb), work environment (work_env), and sleep hours. Meaning with increasing wlb, work_env and sleep_hours will increase the employee's job satisfaction.
- The job satisfaction of employee is inversely proportional with the employee's workload, stress, and overtime (have_ot). Meaning with decreasing workload, stress, and overtime will increase the employee's job satisfaction.

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Hypothesis Testing

Hypothesis testing is done to see if categorical variables affects the job satisfaction of the employees

Job Satisfaction and Department

- Tested with ANOVA
- Department has no effect in job satisfaction

Job Satisfaction and Job Level

- Tested with ANOVA
- Job level has no effect in job satisfaction

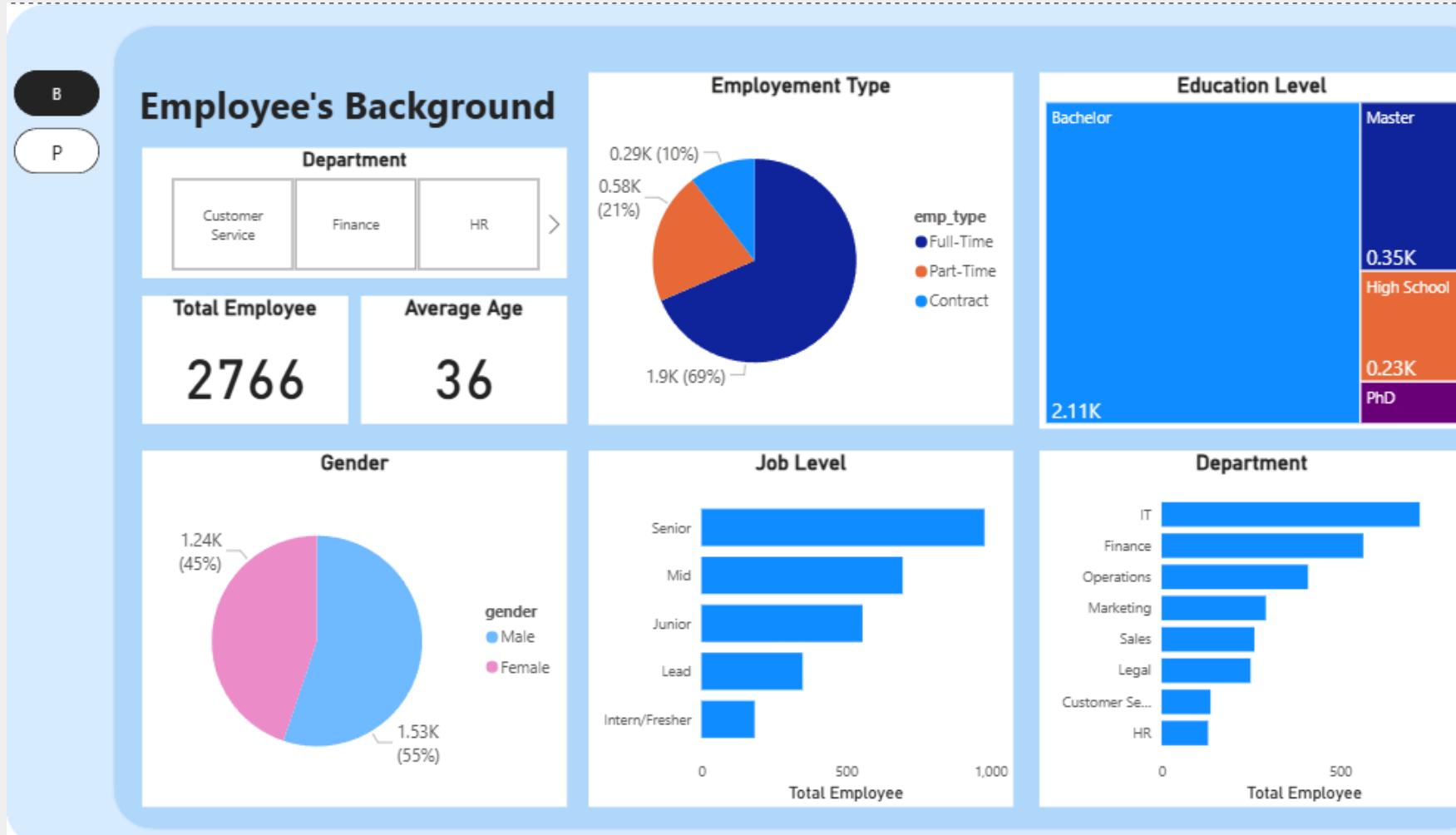
Job Satisfaction and Employee Type

- Tested with ANOVA
- Employment type has no effect in job satisfaction

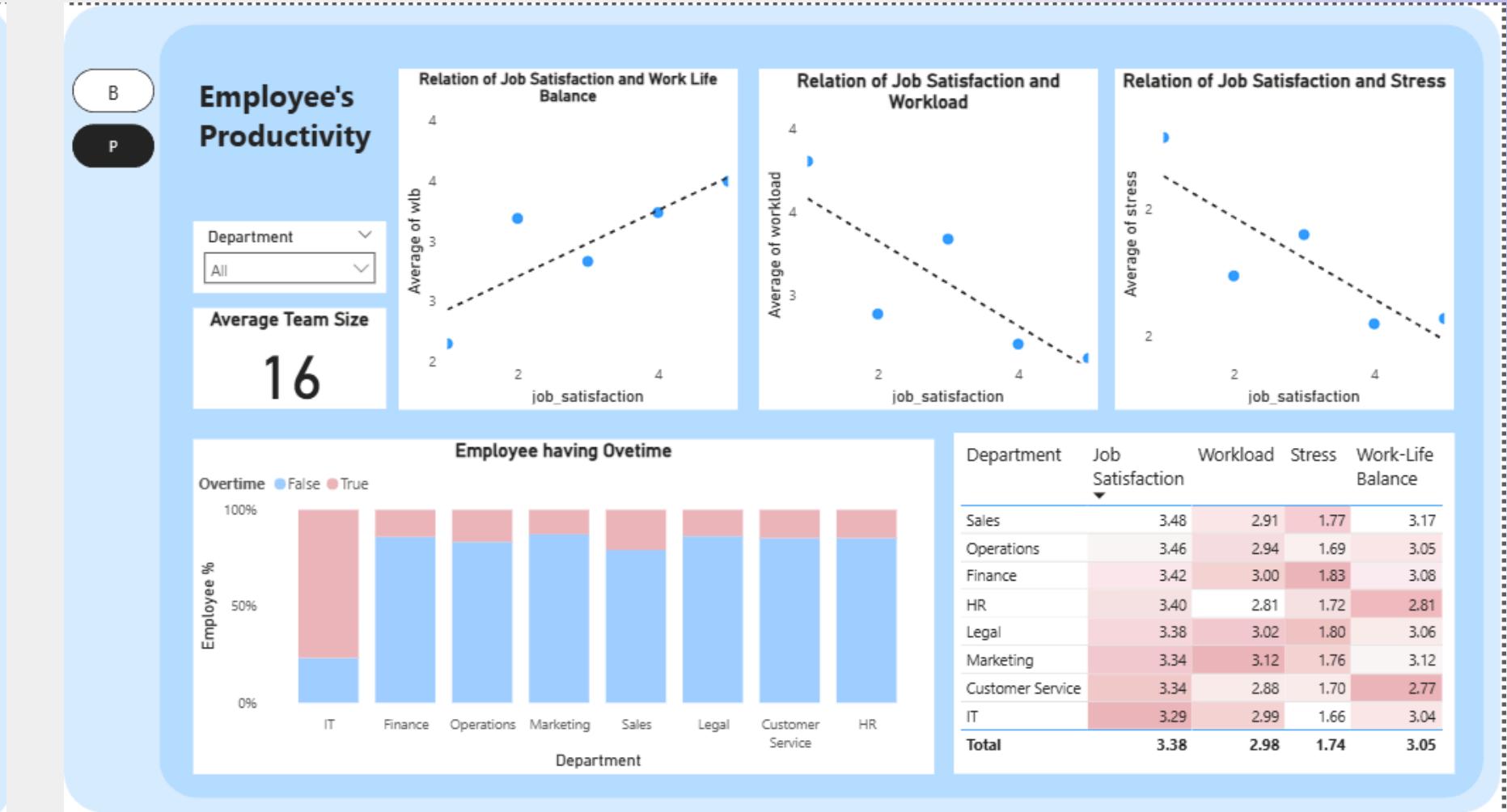
Job Satisfaction and Overtime

- Tested with t-test
- Overtime type has effect in job satisfaction

Dashboard



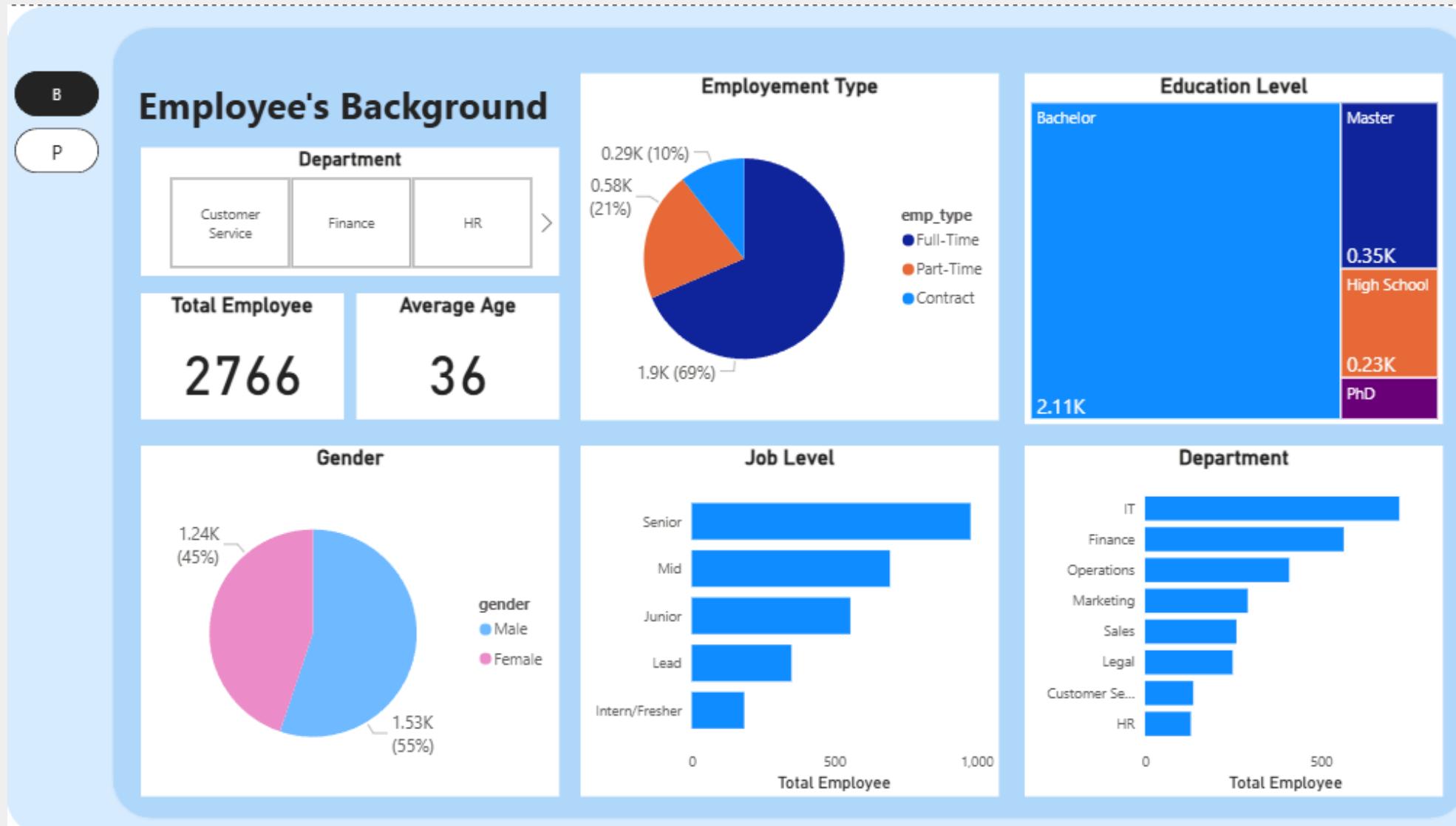
Employee's Background Page



Employee's Productivity Page

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Employee Background



Insights:

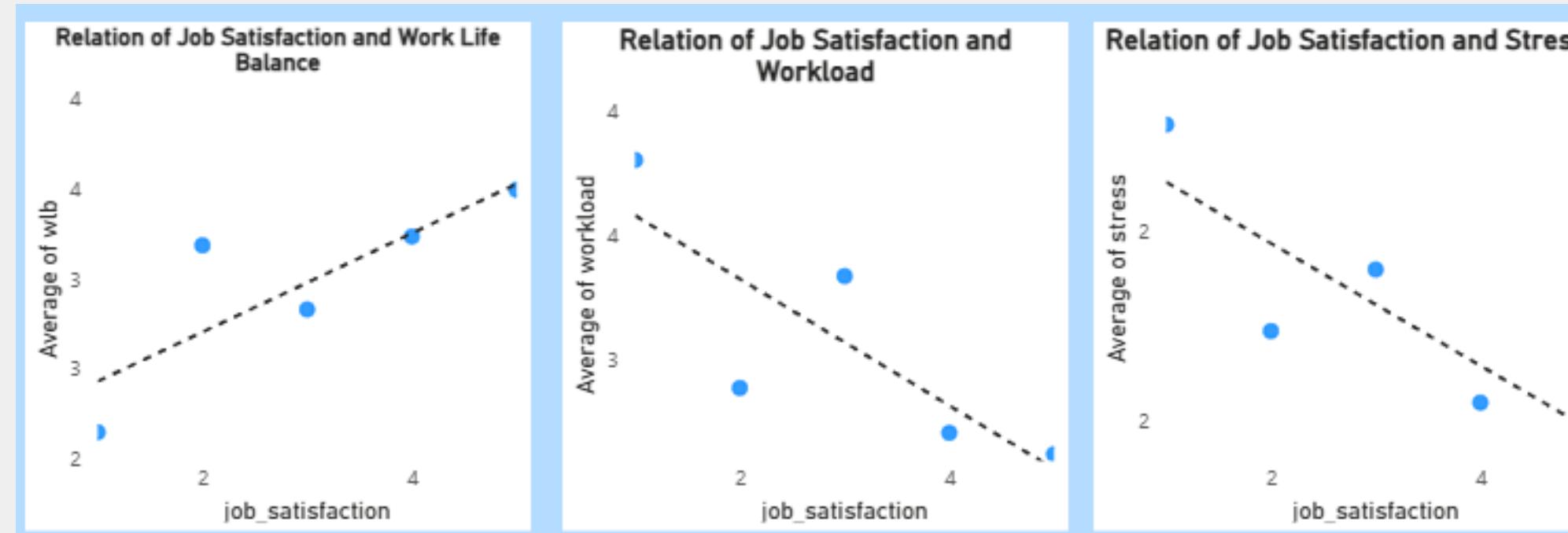
- Most employee is in their productive age at 36 years old
- 69% of the employee is full-time
- Most of the employee's highest education level is bachelor with senior as the most job level available, showing a strong job experience in the company
- The distribution of gender is similar, showing a gender diversity and equality company.

Recommendation:

- Continue hiring process by maintaining diversity, experiences, and productivity of the employee
- Maintain employee development programs to support experienced workforce.

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Factor affecting Job Satisfaction



Insights:

- The relation of job satisfaction and work life balance is directly proportional.
- There is an inversely proportional relation of job satisfaction with work load and stress.

Recommendation:

- In order to increase a good job satisfaction, a work life balance culture needs to be implemented to decrease stress. Company may provide a time-management training to the employee and provide a comfortable working hours.
- Decrease in workload can increase the job satisfaction. Survey the employee that receive a heavy workload and analyse aspects that affects it.
- Redistribute tasks or increase workforce to solve workload problem

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Factor affecting Job Satisfaction

Department	Job Satisfaction	Workload	Stress	Work-Life Balance
Sales	3.48	2.91	1.77	3.17
Operations	3.46	2.94	1.69	3.05
Finance	3.42	3.00	1.83	3.08
HR	3.40	2.81	1.72	2.81
Legal	3.38	3.02	1.80	3.06
Marketing	3.34	3.12	1.76	3.12
Customer Service	3.34	2.88	1.70	2.77
IT	3.29	2.99	1.66	3.04
Total	3.38	2.98	1.74	3.05

Insights:

- The overall job satisfaction score is 3.38, which is considered medium. Department IT is the least satisfied.
- The overall amount of workload given score is 2.98 with Marketing having the most workload.
- The overall stress score is considered low (1.74) with Legal department having the highest score.
- Overall work-life balance employee is medium (3.05) with HR and Customer Service having the least work life balance.

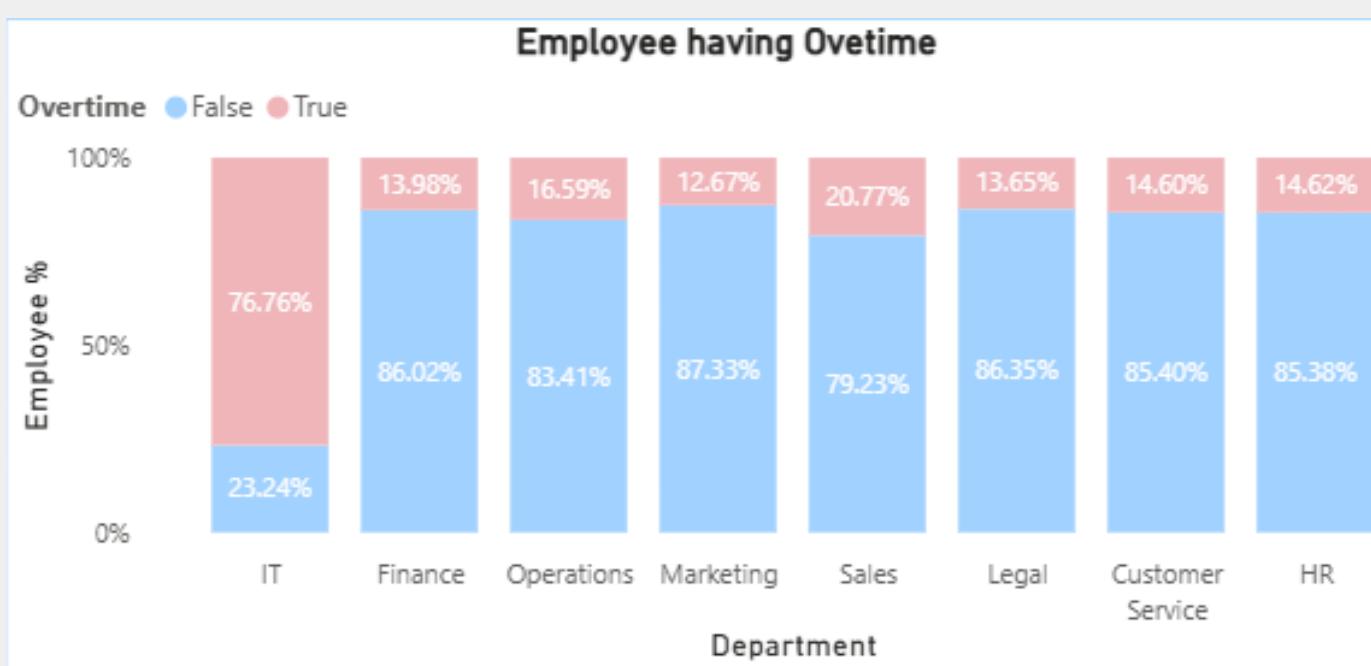
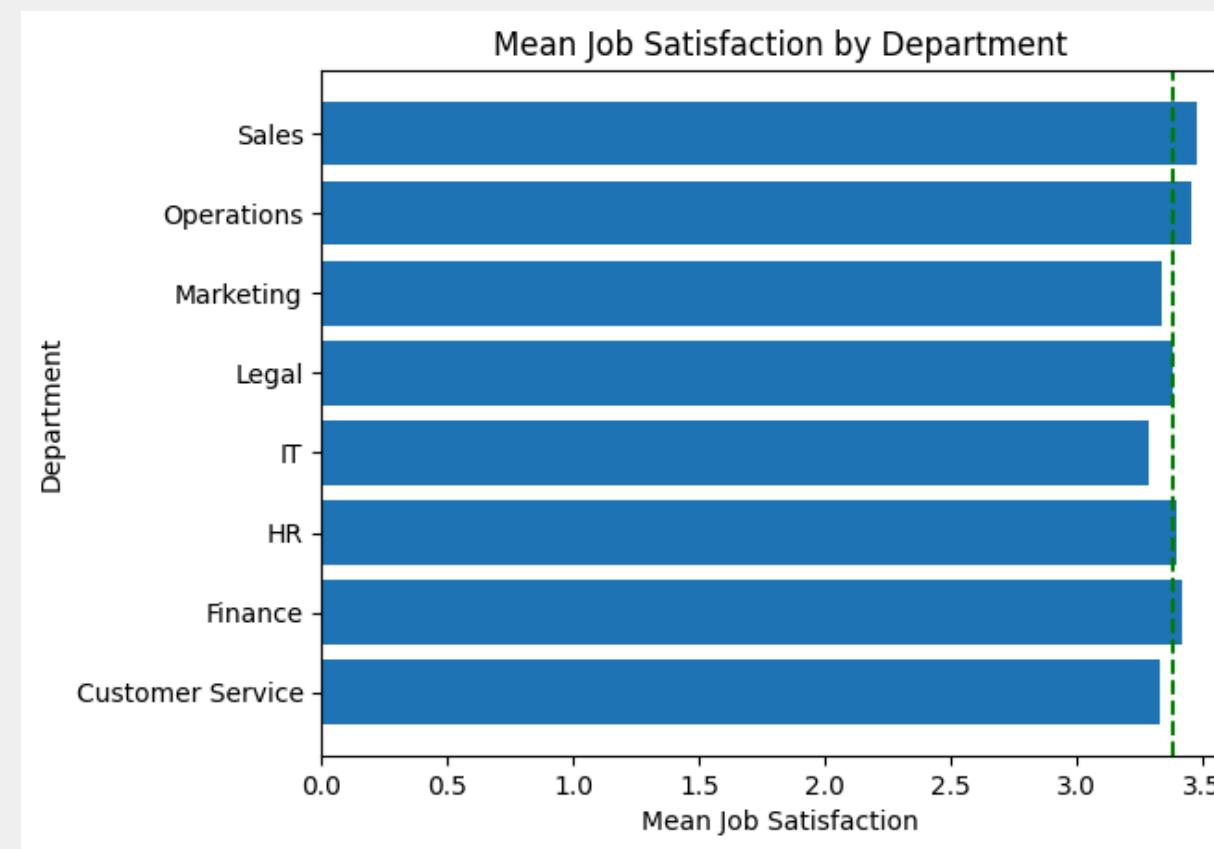
Recommendation:

- Analyse dissatisfaction reasons by doing department specific assessments/survey
- Improve workload allocation for IT, Marketing and Legal team

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Factor affecting Job Satisfaction

Based on the hypothesis test, job satisfaction has affect on the over time taken by the employee

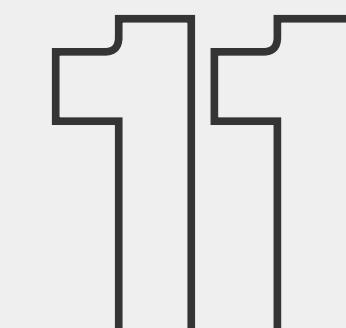


Insights:

- Most departments have 13-20% of the employees taking overtime.
- Marketing, Customer Service and IT departments have their job satisfaction bellow average.
- However, IT team has the lowest job satisfaction score, where it shows around 77% of the employees are taking overtime.

Recommendation:

- Analyse reason for overtime in IT departments
- Provide more workforce supports in the IT departments
- Provide compensatory benefits or rewards for overtime employees



Conclusion

Insights:

- Company overall job satisfaction is moderate (3.38), improvement is needed.
- Work life balance highly affects the job satisfaction score.
- High workload, stress and overtime linked to lower satisfaction.

Recommendation:

- Improve work life balance by flexible work and time management training
- Reduce workload and stress by better task distribution and hiring supports in overwork departments
- Analyse overtime department (IT) and offer compensation or staff adjustment
- Monitor and track job satisfaction of employee through surveys



Thank You

I'm open for further discussions through [linkedIn!](#)