

Project Assignment 2

Evaluating Employee Performance and Timekeeping in a Medical Company: An Examination of Compliance and Completeness

Group 12:

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PROBLEM

Attendance non-compliance, chronic tardiness, leaving early, and not consistently logging work hours, can have a negative impact on a company's productivity and operations. In healthcare, where employees are required to be on schedule, non-compliance can also lead to increased stress and pressure on other employees. It is crucial for companies to monitor and ensure that employees are adhering to their schedules and regulations to maintain a smooth and efficient work environment.

With the provided data, the HR department asked the team to analyze the attendance records and answer questions formulated by the CEO with regards to the discipline of the employees, patterns or trend on the number of late, absences, and leaves, and the behavior of each department.

METHODOLOGY

I. Identification of problem

- The data analytics team aims to address the questions raised by the CEO regarding employee discipline, tardiness, leaves, and departmental behavior. Additionally, the team aims to uncover any further insights that may be discovered as the data allows.

II. Utilizing the company-provided data

- PostgreSQL and Power BI were used as tools to come up with cleaned data, visualization, and analyses.
 - o Data was cleaned using PostgreSQL
 - o Correlation between data was determined using Power BI. Furthermore, graphs and charts were plotted to look into various patterns and trends.
 - o Lastly, an interactive dashboard was created for easy navigation when comparing different data to arrive with informed business decisions.

III. Some Notes/Assumptions

- Outlier (time in and time out more than 2 hours) excluded from attendance table
- No time in and time out with valid schedules are treated as absences.

- Schedules filtered from October 20, 2021 to October 19, 2022 based on below:

Table	Column	Earliest Date	Latest Date
users	created at	10/20/2021 11:15	10/16/2022 9:57
leave_requests	created at	11/15/2021 13:45	10/17/2022 4:17
	dates	11/16/2021	10/23/2022
attendance	date	10/20/2021	10/19/2022
payroll	date_start	12/1/2021	9/1/2022
	date_end	12/31/2021	9/30/2022
	created at	12/28/2021 4:08	10/7/2022 5:01

IV. Generating insights and recommendations

- Through tables and visualizations, insights were generated that led to actionable recommendations that could address the company issue related time and attendance non-compliance.

FINDINGS

The CEO wanted to answer the following question:

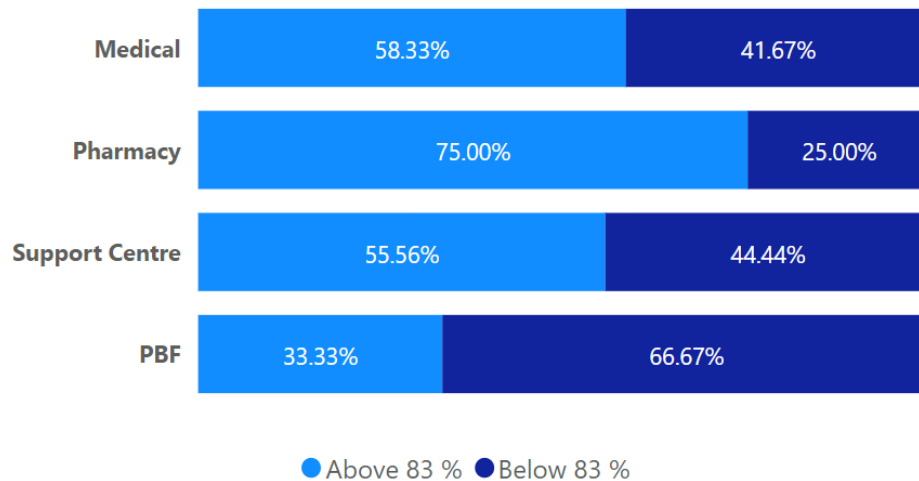
1. Identify the most disciplined and undisciplined employees and divisions.

Employees are ranked according to their level of discipline, with factors like punctuality, shift completion, lateness, undertime, and proper time-keeping being taken into account. To evaluate each employee's compliance, a percentage is calculated based on their scheduled work days and the aforementioned factors.

- **For instance, employee 75834 has an outstanding compliance rate of 95.83%**
 - have 6 scheduled work days, likely indicating they are new to the company
 - have been on time for 5 days, completed all 6 shifts
 - have always recorded their time in and out accurately.
- **Employee 160306 has the lowest compliance rate of only 50.89%**
 - have 365 scheduled work days
 - have only recorded 5 on-time attendances and 1 completed shift
 - employee seems to have a lack of consistency in properly recording their time in and out indicates that the employee is negligent in terms of adhering to their work schedule and following company regulations.
- **Pharmacy department has the highest level of discipline based on the criteria used**
 - 75% of employees in the department have high compliance rating which suggests that the department head is effectively monitoring and enforcing compliance
- **Medical department is larger than the pharmacy department.**
 - The size of the medical department may contribute to the lower compliance rate.
 - However, it can't be ignored that almost half of the staff in the medical department has a low compliance rating which indicates a lack of effective monitoring and enforcement by the department head
- **Support center department has fewer employees than medical and pharmacy departments, but it still faces challenges in monitoring employee compliance**
 - support center department has a higher number of employees with low compliance ratings than the medical department which might suggest that they are the most undisciplined department
- **PBF department has the lowest number of employees and also the largest amount of non-compliant employees**

- However, since they only have a small team of 3 employees, it might not affect the performance of the company overall. But it's still be a concern for the department to make sure they manage their employee compliance

Employee Compliance Rating Distribution: Above and Below 83%



Graph 1. Employee Compliance Rating Distribution: Above and Below 83%

Identify the existing tendencies of employees being late (based on department, position, number of vacation days etc.)

- The observation made by the group suggests that the employees who commit misconduct are being forgiven or not strictly monitored by their department heads which contributes to their lack of discipline. This is a concerning issue as it implies that the tendency of employees to be undisciplined is only linked to the department they are in, rather than factors such as number of days off or salary. This suggests that the management within certain departments may not be effectively addressing issues of employee misconduct and compliance, leading to a lack of discipline among the employees within those departments.

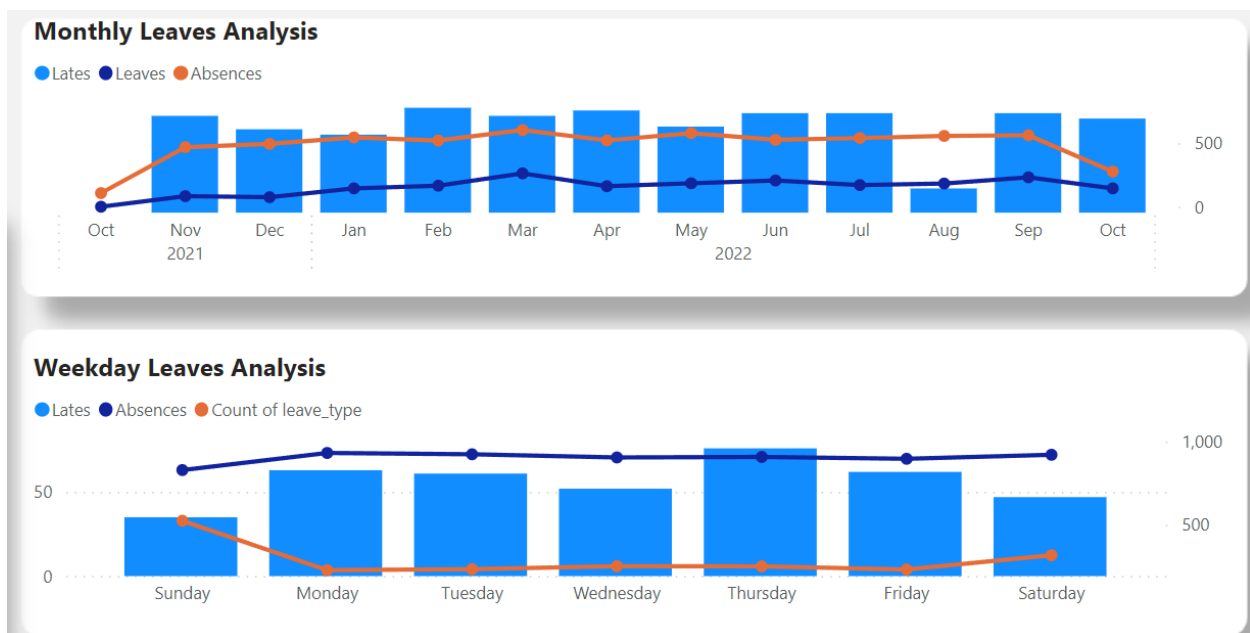
2. Create a visualization with the analysis of weekdays and months when the most employees were late/absent (either for vacation or sick leave)

LEAVES & ABSENCES

- March 2022 has the most recorded count (264 & 604 respectively). In this month, Sundays have the most number of leaves filed (58). While Thursdays have the most number of absences (104).
- For the span of 12 months, Sundays still have the most leaves filed by employees followed by Saturdays (weekends). This is understandable since this is also considered as family day. There's not much change on the number of absences except for Sundays being the lowest (908).

LATES

- Records don't fluctuate much per month, except with the lowest recorded, August 2022 (9).
- For the span of 12 months, Thursdays have the most records. This may be due to traffic increase when approaching the weekend. Wednesdays have the least next to Sundays, this may be because traffic is not as heavy as the other days.

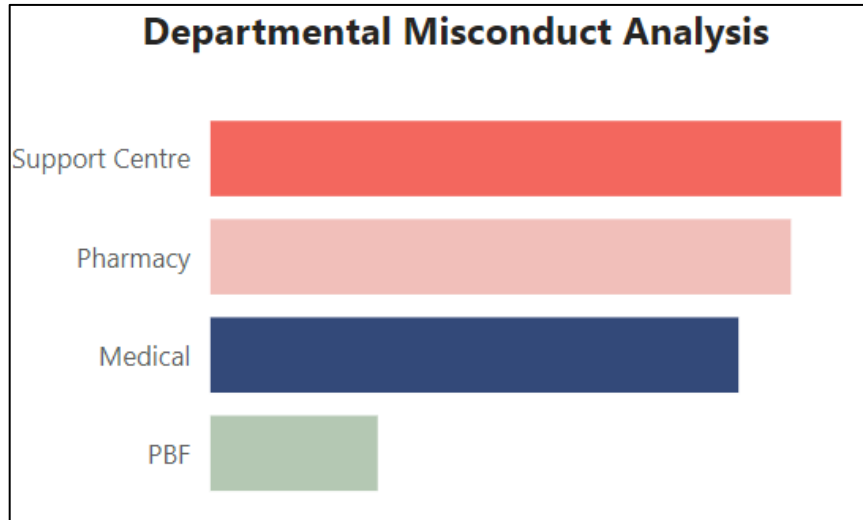


Graph 2. Analysis of Leaves by Months and Weekday

3. Answer the following questions.

a. Which head of departments tend to forgive employees for lack of discipline?

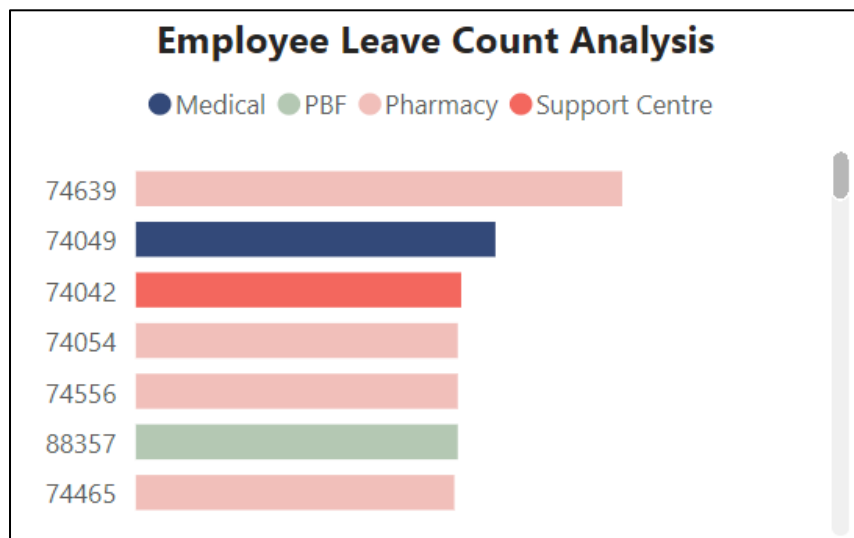
- Support Centre has the most number of recorded misconducts among the departments.



Graph 3. Departmental Misconduct Analysis

b. Are there any favorites for any head of departments?

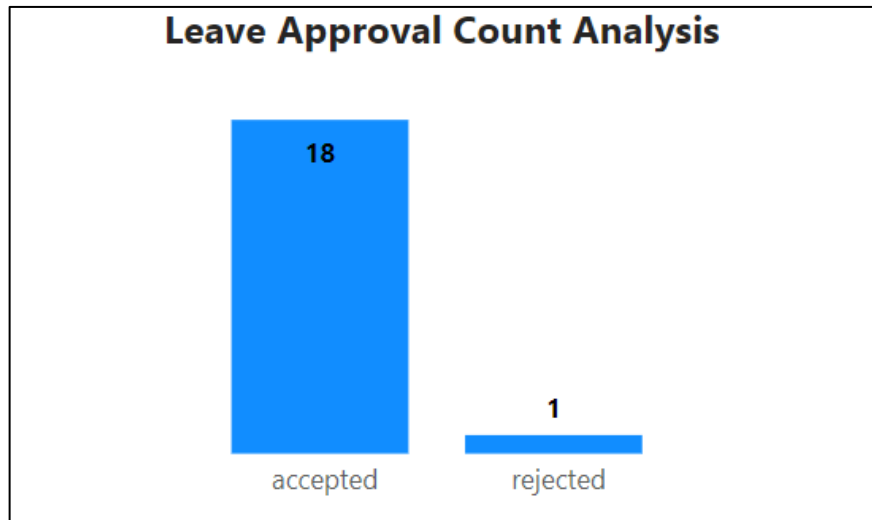
- Pharmacy employees have the highest number of leaves and occupy the majority of top spots for leave-taking. However, there is no indication of any discriminatory treatment as there are no penalties, deductions, or terminations being implemented.



Graph 4. Employee Leave Count Analysis

c. Search for casualty between the department/position of the employee and the tendency of leave_status approval.

- 1 Warehouse Staff can be considered as casualty from PBF Department with his sick leave being rejected, while all other sick leaves filed were accepted



Graph 5. Leave Approval Count Analysis

In addition to the inquiries raised by the CEO, based on our analysis, the team found that there is no evidence of favoritism in the company. We found that:

- The data source lacks information that would indicate any special treatment for certain employees.
- It is evident that there is no special treatment given to a few employees, as everyone is forgiven for being tardy.
- No deductions on salary for tardiness.
 - Example: **Position: Perawat (Nurse)**
Four nurses earn a monthly salary of 1.80M IDR despite varying levels of tardiness, while six earn 1.30M IDR and their salary also remains unchanged despite tardiness.
- Furthermore, out of 91 leave applications, only 6 were rejected, with 32 compensatory leaves, 26 sick leaves (20 of which were accepted and 6 were rejected), 13-day offs, 9 annual leaves, 8 unpaid leaves, and 3 special leaves, all accepted.

RECOMMENDATIONS

- Review company attendance policies and procedures
- Conduct a regular monthly attendance performance
- Give penalties or deductions to every late, missed time-ins/time-outs, unapproved leaves incurred by the employee
- Reward employees with excellent attendance performance
- Allow a flexible working schedule on weekends to improve absenteeism, tardiness, leaves, that fall on these days.