PROJECT REPORT

Name - Priyanka Maru (202091536)

Main goal - How can the company be improved?

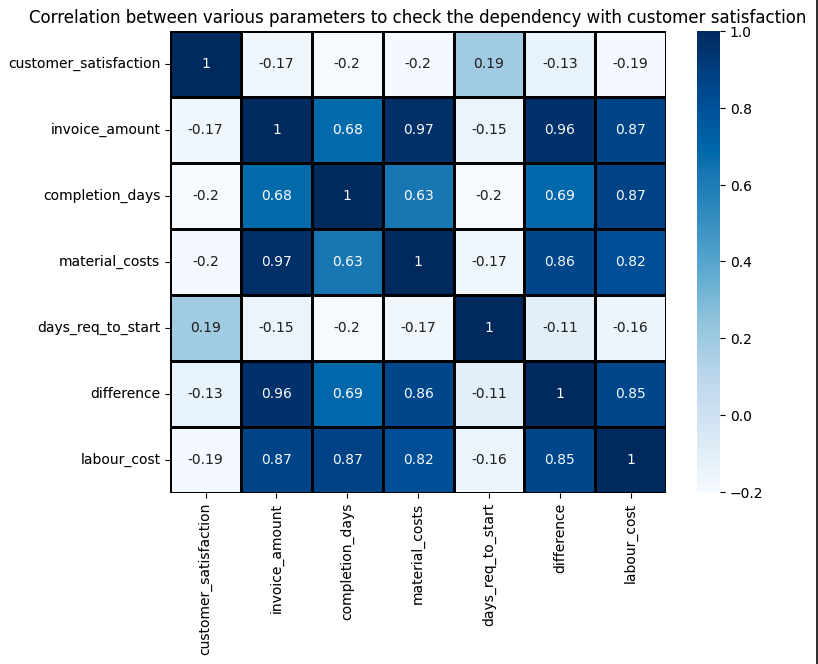
Subgoal 1 - **Promoting the jobs which are more profitable**. -Net Profit for each job = Invoice amount - material costs - wages of the employee for that job (considering the employee has worked for 4 hours in a day)

Subgoal 2 - **Improvement of the customer satisfaction**.

Chart, bar chart

Description automatically generated

The above visualization helps us understand the average customer satisfaction for each job type. If the Customer is highly satisfied as seen in case of garden beds job or else customer is not satisfied as seen in retaining wall job. We could have an idea as to which jobs to focus on and needs more improvement.



The above Visualization shows the correlation between different parameters which will help us analyse if any feature is corelated to customer satisfaction feature, so that the customer satisfaction can be improved. The correlation between the features will help us understand and evaluate which feature is related to customer\_satisfaction feature. As seen from the visualization, days\_req\_to\_start is related to customer satisfaction with a correlation of 0.19, which is not very closely related but still related to the customer satisfaction feature.

The new derived features are:

completion\_days: period between the start date and completion date in days.

days\_req\_to\_start: period between the request date and completion date in days.

difference: difference between invoice\_amount and material\_costs

labour\_costs : the wages of the employees for that particular job

Interactive Visualization: This data visualization which is a line plot helps us to understand the relation between customer\_satisfaction and days\_req\_to\_start features, as the days\_req\_to\_start feature is seen to be correlated to customer\_satisfaction feature with the correlation index as 0.19. The understanding of this relation helps us get an idea if response time is the reason for lower or higher customer satisfaction for jobs. As seen, the data is quite cluttered in the line graph so we can use the dropdown to select the required job type which will be highlighted in the graph and then can be further compared.

Chart, line chart

Description automatically generated

As seen in the above visualization, the “basic lawncare” job is selected form the dropdown and is highlighted in the line graph. We can say, most of the job type requests have been answered on an average within 10 to 25 days and it is seen that the customer satisfaction is quite good in that range.

Chart, line chart

Description automatically generated

As seen in the above visualization, the “garden bed” job is selected form the dropdown and is highlighted in the line graph. We can say, in case of garden beds job \_type the average response time ie in the range of 22 days to 27 days (on an average). The average customer satisfaction is the highest when the average response time is between 25 to 30 days.

Thus, we can conclude that the average customer satisfaction is high in those cases when the average response time is in the range from 15 days to 25 days (approximately) excluding the two job\_types which are basic\_lawncare and complete\_lawncare which have a higher customer satisfaction rate when the average response time is beyond 30 days.

Interactive Visualization: This visualization is a bar plot of Profit per job. It helps us understand which jobs are more profitable so that we promote those jobs and improve the company. The visualization consists of filtering the bar plot as per the chosen customer type. If “Commercial” is selected, the plot will display the profit per job\_type only for Commercial customer\_type and if “Residential” is selected, the plot will display the profit per job type only for Residential customer\_type and if “Commercial” and “Residential” both are selected, the grouped bar plot will display the profit per job type for both Commercial and Residential customer\_type.

Assumption: For calculating the wages of the employee, it is considered that the employee has worked for 4 hours each calendar day on a job.

Chart, funnel chart

Description automatically generated

The above visualization shows the profit per job\_type for Commercial customer\_type. As seen, basic lawncare job\_type has the maximum profit of $24000 (approximately) amongst all the job\_types for commercial customers.

Chart, funnel chart

Description automatically generated

The above visualization shows the profit per job\_type for Residential customer\_type. As seen, basic\_lawncare job has the most profit of $32000 (approximately) amongst all the other jobs incase of Residential Customers.

Chart, bar chart

Description automatically generated

The above visualization shows the profit per job\_type for Commercial and Residential customer\_type. As seen, basic\_lawncare job has the most profit of $24000 and $32000 (approximately) amongst all the other jobs incase of Residential and Commercial Customers respectively. So, by looking at the plot, we can promote basic\_lawncare, water\_feature, garden\_beds and complete\_lawncare jobs as they are the most profitable amongst all other job\_types in both Residential and Commercial customers.

Video Presentation link: