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**Local Restaurant Sales Analytics**

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1. *Personal objective*

My primary objective is to get used to working with data in Tableau and improve my data visualization, data preprocessing, and predictive modeling skills. The project goal is to predict future sales trends for a local restaurant sales data in India and help this restaurant make great decisions to boost its sales and operate more effectively. Within the project, I will analyze restaurant data in 2 years and create predictive models predicting customer behaviors, and sales trends in the future.

1. *Intended outcomes*

+ **A high-accuracy predictive model**: a model that can predict future sales by multiple factors based on past data. In addition, the model can also predict what items will be popular or what time in the day or what period of the year the restaurant will be busy. This model will help the restaurant quickly adapt to different customer behaviors and sales trends.

+ **Key data insights**: find out the trends in customer behavior, such as which are the most popular items at different times or whether payment methods can affect sales. By doing so, the owner can implement proper marketing strategies and promotions.

+ **A** **dashboard:** use Tableau to create an interactive dashboard that shows both the sale trends and predictions, where the owner or the manager can access the data and assess what to do.

1. *Description of the needs of the intended audience*

The intended audience in this project is the restaurant owner and the restaurant managers. This project will help them make informed decisions on managing team members, menu optimizing, and marketing strategies:

+ **Prepare for peak hours, and peak times**: The predictive model will let them know what time of the day or what time of the year the sales will spike so the the manager can allocate employees effectively. This is important because if there are not enough employees working, the restaurant can lose lots of customers because they have to wait too long.

+ **Optimize the menu:** the predictive model as well as the key insights will predict which dish will sell well. In addition, knowing which dishes are unpopular can also help the restaurant find out why the dishes are not favored. They can make new dishes that are quite the same as the popular ones, and adjust the favors in the unpopular, or even remove them from the menu.

+ **Increase sales at different times**: Since the predictive model can predict the revenue, the owner can offer special promotions during slower times. In addition, the owner can also put the less popular dishes on sale.

1. *Foreseeable challenges*

+The predictive models need high accuracy of the data. If the data quality is bad, or it has a lot of missing values or inaccurate data, it is hard to clean the data. In the case that I cannot handle the data cleaning and data processing well, this can affect the prediction results.  
+ The data is collected within around 2 years, so the prediction can only be based solely on the 2-year data, which means data on some special occasions that often occur 4 years a time, or 2 years a time (such as World Cup or other champions) could be missed. As a result, when these events occur in the future, the predictions can be low in accuracy.

+ To create a good predictive model, I must understand the relationship of other factors: such as popular dishes at different times. As there can be a lot of factors, it is hard to build a simple and effective model without carefully managing these relationships.