Market Segment Analysis of Online Vehicle Booking

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Datasets used :

https://drive.google.com/file/d/1SWSL4qCW5ZG3r3alXOGgOTre9SXiS4JO/view

https://drive.google.com/file/d/1MWvMXGFP2jqkVkLJwtNr8pVnrAxGSpjq/view?us p=share_link

https://drive.google.com/file/d/1_hwV8vWkVMFwB1XiiEoigKpCGqeVJ15g/view?usp=share_link

EV Market - Google Drive

1. Data Pre-Processing:

Data preprocessing is a crucial step in preparing raw data to make it suitable for machine learning models. The process involves cleaning the data, removing any errors or inconsistencies, and transforming it into a format that can be easily analyzed. It is essential to preprocess the data before performing any segmentation analysis.

To preprocess data, the first step is to import the raw data in a suitable format and create a data frame for further analysis. The next step is to identify any null values in the dataset and remove them to avoid any data inconsistencies.

```
In [2]: import pandas as pd
        import numpy as np

In [3]: df = pd.read_csv("C:/Users/patha/Downloads/rideshare_kaggle.csv")

In [4]: df.head()
```

Out[4]:

	id	timestamp	hour	day	month	datetime	timezone	source	destination	cab_type	...	precipIntensityMax	uvIndexTime	temperat
0	424553bb-7174-41ea-aeb4-fe06d4f4b9d7	1.544953e+09	9	16	12	2018-12-16 09:30:07	America/New_York	Haymarket Square	North Station	Lyft	...	0.1276	1544979600	
1	4bd23055-6827-41c6-b23b-3c491f24e74d	1.543284e+09	2	27	11	2018-11-27 02:00:23	America/New_York	Haymarket Square	North Station	Lyft	...	0.1300	1543251600	
2	981a3613-77af-4620-a42a-0c0866077d1e	1.543367e+09	1	28	11	2018-11-28 01:00:22	America/New_York	Haymarket Square	North Station	Lyft	...	0.1064	1543338000	
3	c2d88af2-d278-4bfd-a8d0-29ca77cc5512	1.543554e+09	4	30	11	2018-11-30 04:53:02	America/New_York	Haymarket Square	North Station	Lyft	...	0.0000	1543507200	
4	e0126e1f-8ca9-4f2e-82b3-50505a09db9a	1.543463e+09	3	29	11	2018-11-29 03:49:20	America/New_York	Haymarket Square	North Station	Lyft	...	0.0001	1543420800	

5 rows × 57 columns

```
In [6]: df.dropna(axis = 0, inplace = True)
        df.isnull().sum()
```

```
Out[6]: id                          0
        timestamp                   0
        hour                        0
        day                         0
        month                       0
        datetime                    0
        timezone                    0
        source                      0
        destination                 0
        cab_type                    0
        product_id                  0
        name                        0
        price                       0
        distance                    0
        surge_multiplier            0
        latitude                    0
        longitude                   0
        temperature                 0
        apparentTemperature         0
        short_summary               0
        long_summary                0
        precipIntensity             0
        precipProbability           0
        humidity                    0
        windSpeed                   0
        windGust                    0
        windGustTime                0
        visibility                  0
        temperatureHigh             0
        temperatureHighTime         0
        temperatureLow              0
```

```
In [7]: selected =  df.loc[:, ["destination", "source", "product_id", "name"]]

In [8]: categorical = selected.select_dtypes('object').columns.tolist()
        categorical

Out[8]: ['destination', 'source', 'product_id', 'name']

In [9]: for cat in categorical:
            print('category : ', cat)
            print(df[cat].value_counts())
            print('\n')
```

```
category :  destination
Financial District        54192
Back Bay                  53190
Theatre District          53189
Haymarket Square          53171
Boston University         53171
Fenway                    53166
Northeastern University   53165
North End                 53164
South Station             53159
West End                  52992
Beacon Hill               52840
North Station             52577
Name: destination, dtype: int64


category :  source
Financial District        54197
Back Bay                  53201
Theatre District          53201
Boston University         53172
Beacon Hill               52841
North Station             52576
Name: source, dtype: int64


category :  product_id
6f72dfc5-27f1-42e8-84db-ccc7a75f6969    55096
9a0e7b09-b92b-4c41-9779-2ad22b4d779d    55096
6d318bcc-22a3-4af6-bddd-b409bfce1546    55096
6c84fd89-3f11-4782-9b50-97c468b19529    55095
55c66225-fbe7-4fd5-9072-eab1ece5e23e    55094
997acbb5-e102-41e1-b155-9df7de0a73f2    55091
lyft_premier                            51235
lyft                                    51235
lyft_luxsuv                             51235
lyft_plus                               51235
lyft_lux                                51235
lyft_line                               51233
Name: product_id, dtype: int64


category :  name
UberXL          55096
WAV             55096
Black SUV       55096
Black           55095
UberX           55094
UberPool        55091
Lux             51235
Lyft            51235
Lux Black XL    51235
Lyft XL         51235
Lux Black       51235
```

To make the attributes of data easier to understand we make changes to it known as One-hot encoding which is a technique used to represent categorical variables as numerical variables so that machine learning models can use them as inputs.

```
In [10]: def one_hot_encode(df, column, prefix):
             dummy = pd.get_dummies(df[column], prefix = prefix)
             df = pd.concat([df, dummy], axis = 1)
             df = df.drop(column, axis = 1)

             return df
```

```
In [11]: categorical
Out[11]: ['destination', 'source', 'product_id', 'name']
```

```
In [12]: df = one_hot_encode(df, column = 'destination', prefix = 'desti')
         df = one_hot_encode(df, column = 'source', prefix = 'src')
         df = one_hot_encode(df, column = 'product_id', prefix = 'pid')
         df = one_hot_encode(df, column = 'name', prefix = 'nm')

         df
```

Out[12]:

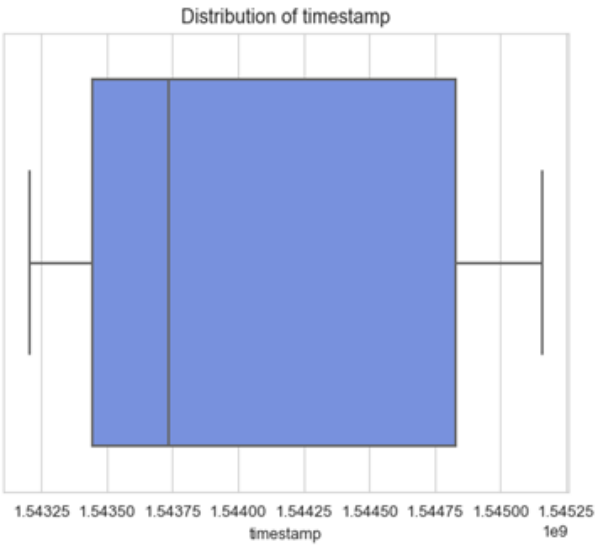
d	timestamp	hour	day	month	datetime	timezone	cab_type	price	distance	...	nm_Lux	nm_Lux Black	nm_Lux Black XL	nm_Lyft	nm_Lyft XL	nm_Shared	nm_Ul
7	1.544953e+09	9	16	12	2018-12-16 09:30:07	America/New_York	Lyft	5.0	0.44	...	0	0	0	0	0	1	
d	1.543284e+09	2	27	11	2018-11-27 02:00:23	America/New_York	Lyft	11.0	0.44	...	1	0	0	0	0	0	
e	1.543367e+09	1	28	11	2018-11-28 01:00:22	America/New_York	Lyft	7.0	0.44	...	0	0	0	1	0	0	

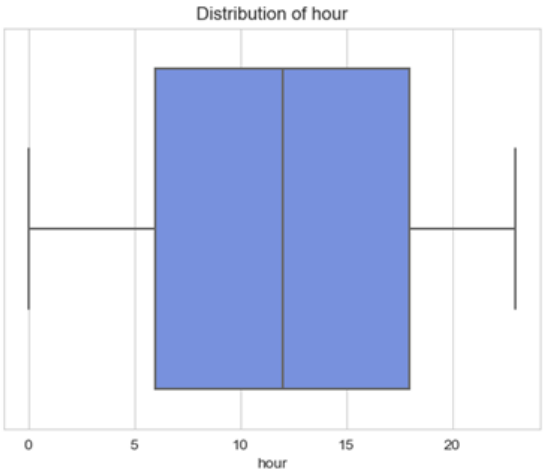
2. Visualization

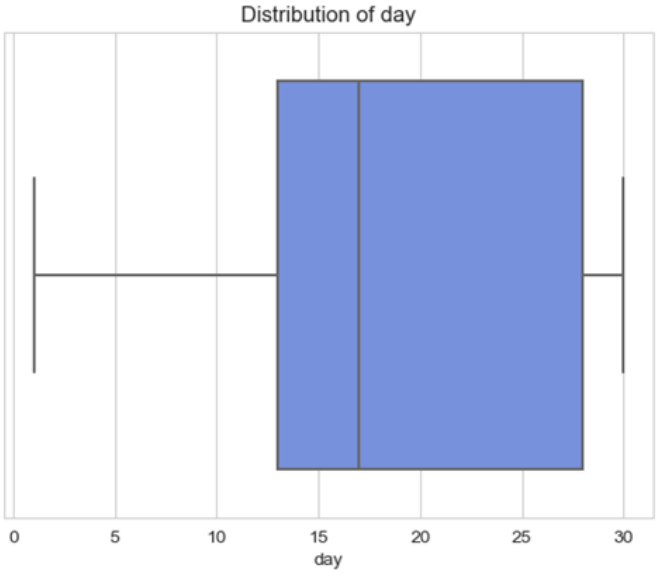
Data visualization is used to make complex data easier to understand, identify relationships and correlations, and communicate insights and findings to others. It also makes data more engaging, which can encourage people to explore it further. Finally, data visualization supports decision-making by providing a clear, visual representation of the data that can help identify trends and patterns that might be missed in other forms of analysis.

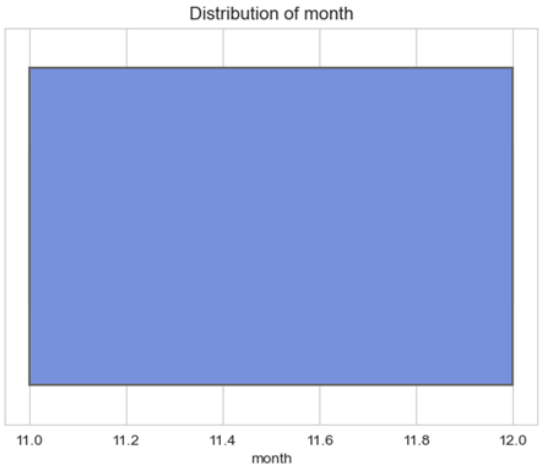
```
In [13]: import seaborn as sns
         import matplotlib.pyplot as plt
```

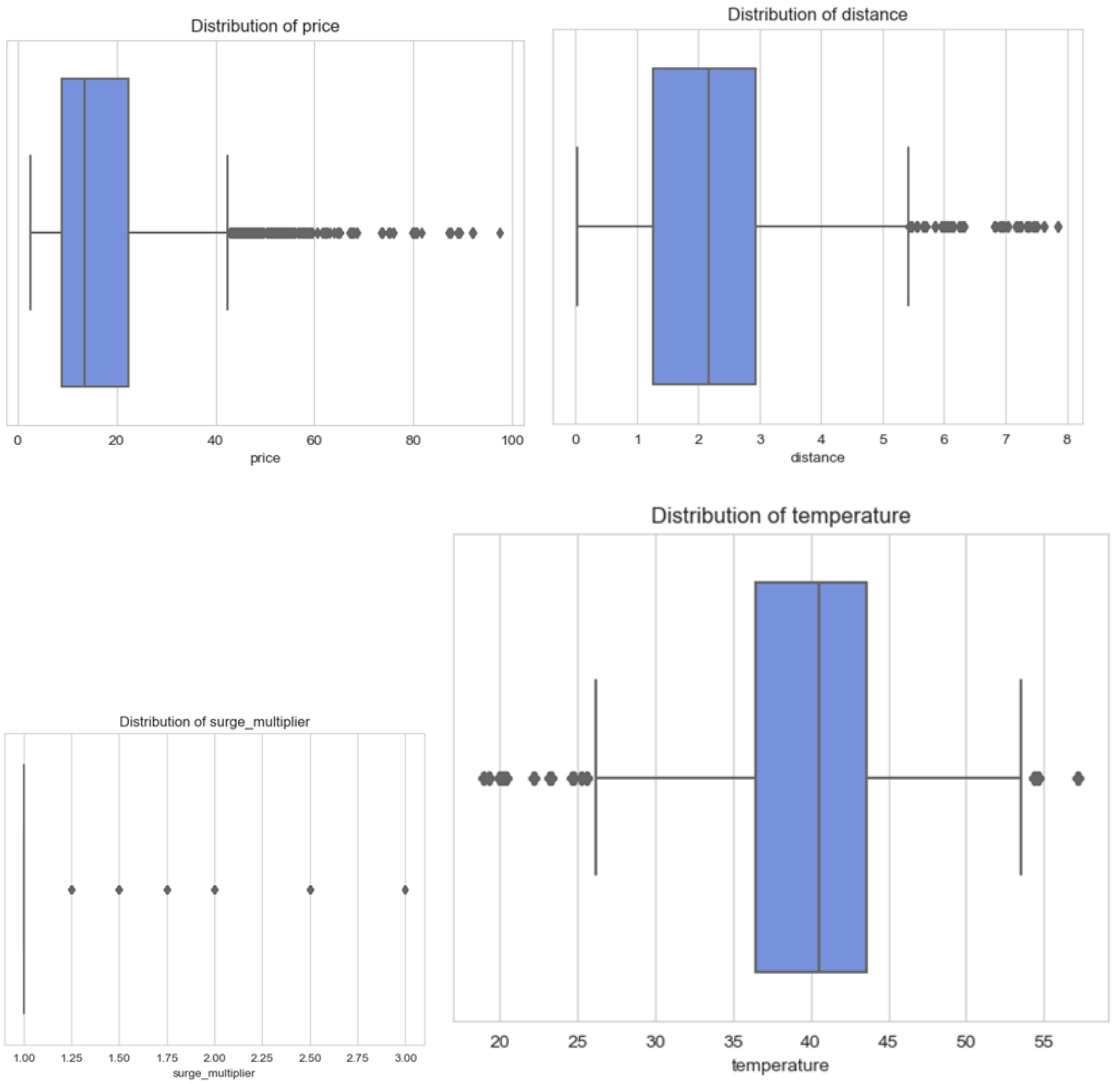
```
In [14]: sns.set_style('whitegrid')
         sns.set_palette('coolwarm')

         for i in df.columns:
             if df[i].dtype != 'O':
                 sns.boxplot(x = df[i])
                 plt.title('Distribution of '+i)
                 plt.show()
```


Distribution of timestamp
1.54325
1.54350
1.54375
1.54400
1.54425
1.54450
1.54475
1.54500
1.54525
timestamp
1e9


Distribution of hour
0
5
10
15
20
hour


Distribution of day
0
5
10
15
20
25
30
day


Distribution of month
11.0
11.2
11.4
11.6
11.8
12.0
month



Observations:

The following are insights based on the given data:

Data is almost equally distributed for source and destination:

The even distribution of data for source and destination suggests that the customers booking the cab are spread out across various locations, which can be advantageous for cab companies to optimize their services and coverage.

Weather was cloudy when most of the customers booked cab and least of them booked on foggy day:

It appears that customers are more likely to book a cab on cloudy days and less likely on foggy days. This may be due to the fact that cloudy weather may not significantly impact transportation, while foggy weather can be challenging and even dangerous to drive in, causing people to avoid booking a cab altogether.

Most of the cabs were booked in the midnight mostly after 10 P.M.:

The high number of bookings after 10 P.M. indicates that there is significant demand for transportation services during late hours. Cab companies can use this insight to optimize their services during these peak hours.

Month end found to be the busiest days:

The observation that month-end is the busiest day for cab bookings could suggest that customers are more likely to book a cab during payday or while running errands to complete their month-end tasks.

People mostly booking the cabs which are budget-friendly:

Customers preferring budget-friendly cabs could indicate that price sensitivity is an essential factor for cab bookings. Cab companies can use this insight to offer more budget-friendly services or pricing strategies to attract more customers.

Geometric Analysis

Geometric analysis is used to study geometric objects and their properties such as shape, size, and position. It is used to provide a rigorous mathematical foundation for various areas such as physics, engineering, and computer science. Geometric analysis enables the development of powerful tools to solve complex problems in these fields.

In [6]:
```
df = pd.read_csv("C:/Users/patha/Downloads/rideshare_kaggle.csv")
```

In [7]:
```
pip install folium
```

```
Requirement already satisfied: folium in c:\users\patha\anaconda3\lib\site-packages (0.14.0)Note: you may need to restart the k
ernel to use updated packages.

Requirement already satisfied: numpy in c:\users\patha\anaconda3\lib\site-packages (from folium) (1.21.5)
Requirement already satisfied: branca>=0.6.0 in c:\users\patha\anaconda3\lib\site-packages (from folium) (0.6.0)
Requirement already satisfied: jinja2>=2.9 in c:\users\patha\anaconda3\lib\site-packages (from folium) (2.11.3)
Requirement already satisfied: requests in c:\users\patha\anaconda3\lib\site-packages (from folium) (2.28.1)
Requirement already satisfied: MarkupSafe>=0.23 in c:\users\patha\anaconda3\lib\site-packages (from jinja2>=2.9->folium) (2.0.
1)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\patha\anaconda3\lib\site-packages (from requests->folium) (1.2
6.11)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\patha\anaconda3\lib\site-packages (from requests->folium) (2022.
9.14)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\patha\anaconda3\lib\site-packages (from requests->folium)
(2.0.4)
Requirement already satisfied: idna<4,>=2.5 in c:\users\patha\anaconda3\lib\site-packages (from requests->folium) (3.3)
```

In [8]:
```
import folium
from folium import plugins
from folium.plugins import HeatMap

longs = df.longitude.to_list()
lats = df.latitude.to_list ()

import statistics
meanlong = statistics.mean(longs)
meanLat = statistics.mean(lats)

mapobj = folium.Map(location = [meanLat, meanlong], tiles="openstreetmap", zoom_start = 10)
```

In [6]:
```
df.dropna(inplace = True)
heatmap = HeatMap( list(zip(lats, longs, df["price"])),
                   min_opacity=0.2,
                   max_val=df["price"].max(),
                   radius=50, blur=50,
                   max_zoom=1)

heatmap.add_to(mapobj)
mapobj
```

```
C:\Users\patha\AppData\Local\Temp\ipykernel_14352\2706652534.py:2: UserWarning: The `max_val` parameter is no longer necessary.
The largest intensity is calculated automatically.
  heatmap = HeatMap( list(zip(lats, longs, df["price"])),
```

Out[6]:

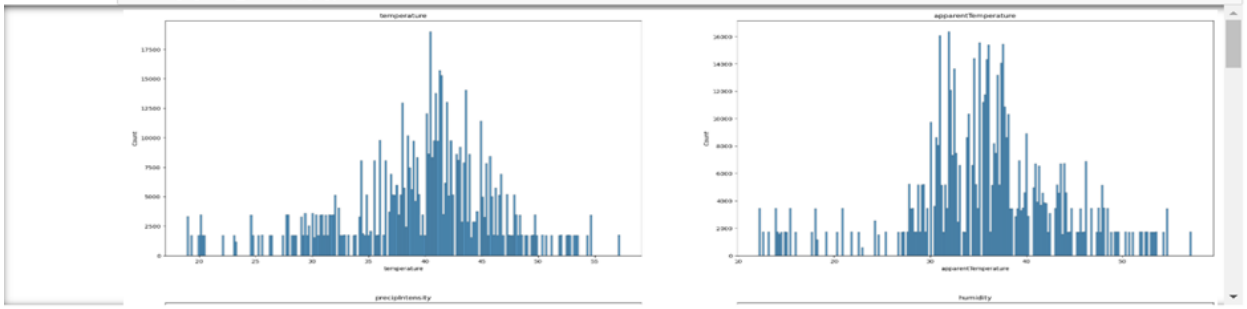
Observations:

According to the available data, most of the cab bookings are from the Boston area. This could be due to various factors, such as a higher population density, greater business opportunities. Another possible factor could be the quality and reliability of cab services in the Boston area. Cab companies operating in this region may have a reputation for providing efficient and affordable transportation services.

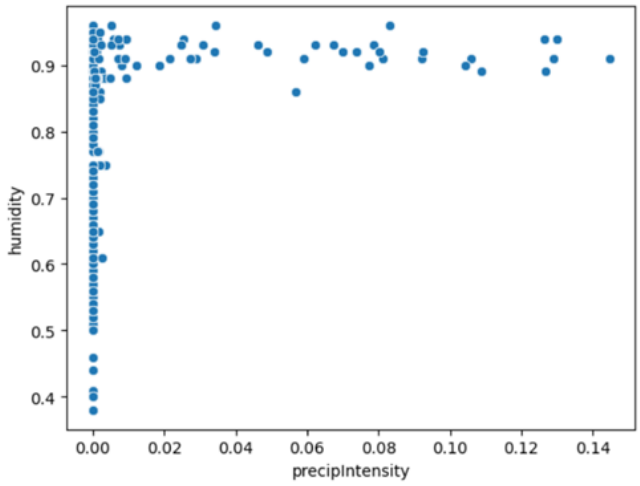
Psychographic Analysis

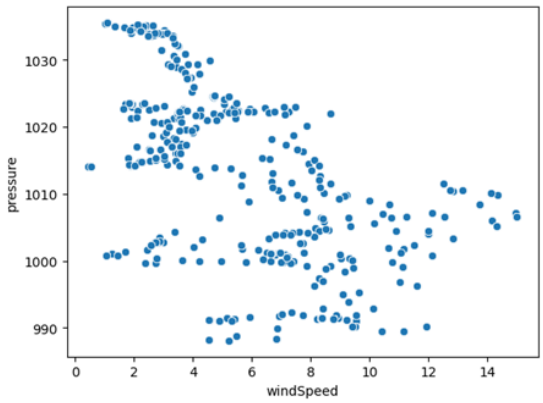
Psychographics helps in understanding consumer behavior by analyzing their personality, values, interests, and lifestyle. It provides insights into the motivations and attitudes of the target audience, which can help marketers create more effective marketing strategies. By understanding the psychographics of their target audience, businesses can tailor their products and services to better meet customer needs and preferences.

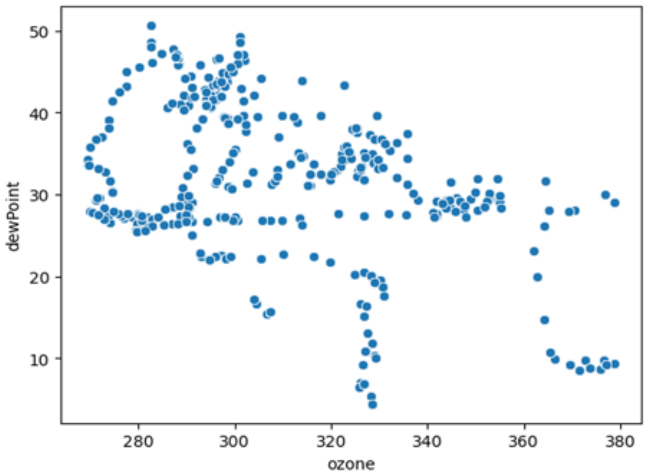
```
In [8]: a = 'temperature,apparentTemperature,precipIntensity,humidity,windSpeed,visibility,temperatureHigh,temperatureLow,icon,dewPoint,p

In [9]: fig,([ax0,ax1], [ax2,ax3], [ax4,ax5], [ax6,ax7], [ax8,ax9], [ax10,ax11]) = plt.subplots(ncols=2,nrows=6,figsize=(30,60))

        ax = [ax0, ax1, ax2, ax3, ax4, ax5, ax6, ax7, ax8, ax9, ax10, ax11]

        for i in range(0,12):
            sns.histplot(data=df,x=a[i],ax=ax[i])
            ax[i].set_title(a[i])
```



```
In [10]: sns.scatterplot(x=df['precipIntensity'],y=df['humidity'])
         plt.show()
         sns.scatterplot(x=df['windSpeed'],y=df['pressure'])
         plt. show()
         sns.scatterplot(x=df['ozone'], y=df['dewPoint'])
         plt.show()
```







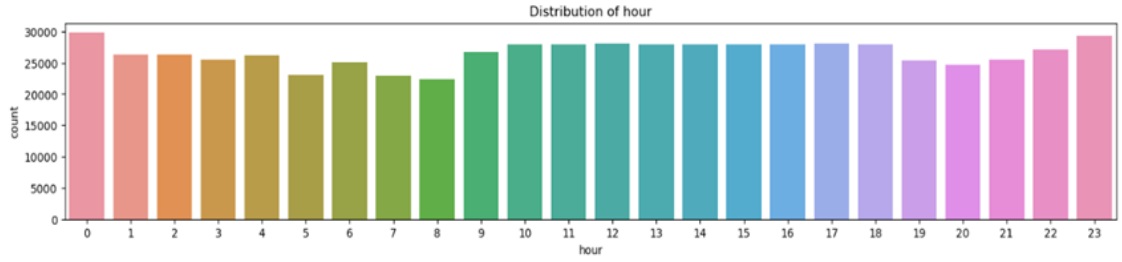
Observations:

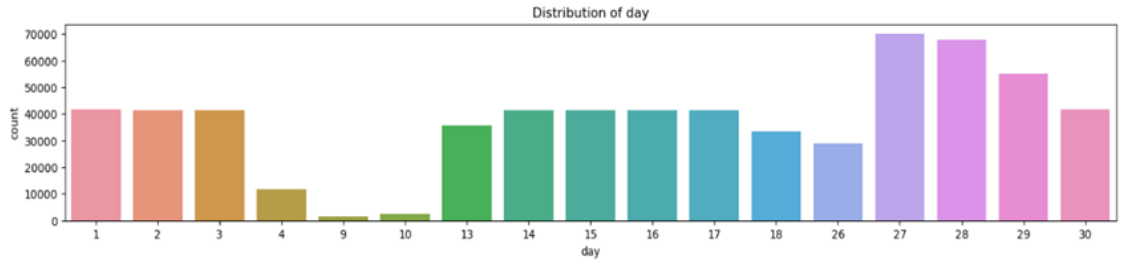
The distribution of temperature is approximately normal, with a majority of values ranging from 35 to 45 degrees. The preparation intensity is centered around 0.00, and visibility is around 10. Interestingly, the busiest day for cab bookings was found to be cloudy, while the least busy day was surprisingly a foggy day. Additionally, customers are more likely to ride a cab when there is a precipitation intensity greater than 0.01 and humidity greater than 0.8. These findings provide valuable insights into the relationships between weather conditions and cab booking behavior.

Demographic Analysis:

Demographic analysis helps in understanding the characteristics of a population, such as age, gender, income, and education. It provides insights into the preferences and behaviors of a particular group, which can help in developing effective marketing strategies. By understanding the demographic makeup of their target audience, businesses can tailor their products and services to better meet customer needs and preferences.

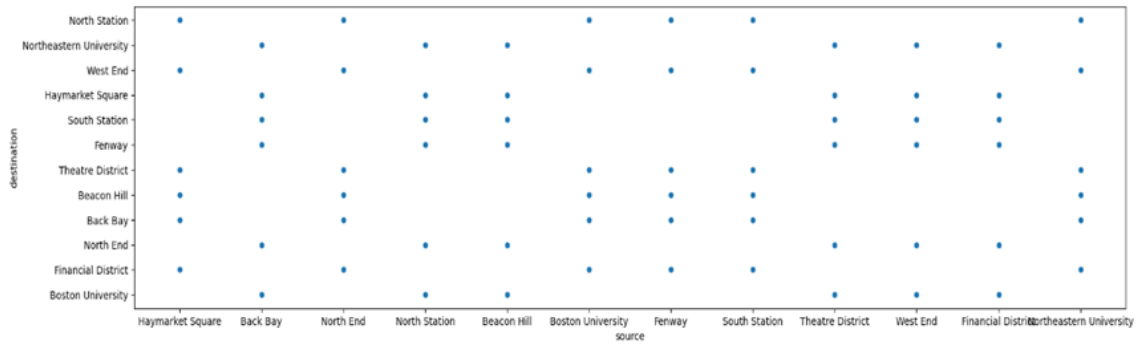
```
In [12]: one = ['hour', 'day', 'month', 'source', 'destination']

         for i in one:
             plt.figure(figsize=(18,3))
             sns.countplot(x=df[i])
             plt.title('Distribution of '+i)
             plt.show()
```





```
In [13]: plt.figure(figsize=(20,5))
         sns.scatterplot(x=df['source'],y = df['destination'])
```

```
Out[13]: <AxesSubplot:xlabel='source', ylabel='destination'>
```



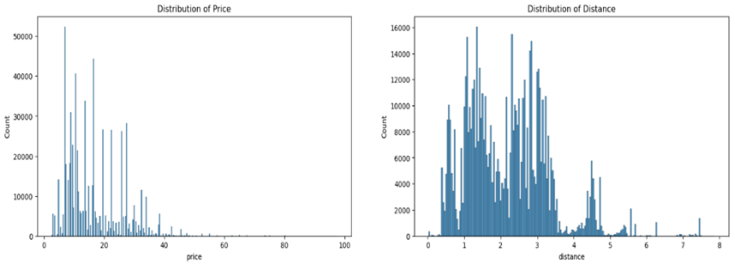
Observations:

According to the data from the last two months of 2018, the busiest times for cab bookings are between 10 A.M. to 6 P.M. and after 10 P.M. Similarly, the end of the month appears to be the busiest period for cab drivers, while the period from the 4th to the 13th of each month sees relatively fewer cab bookings. The data also indicates that there is a relatively even distribution of cab bookings across all source and destination points.

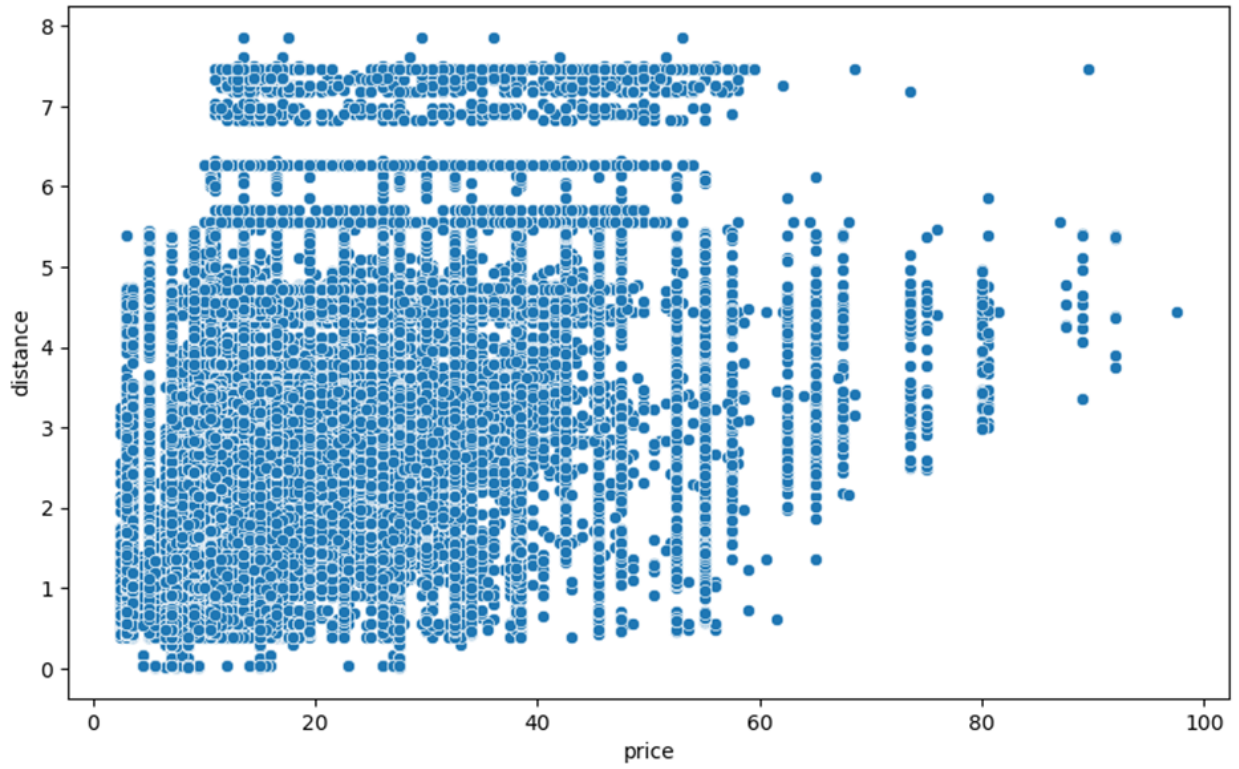
Behaviour Analysis:

Behavior analysis helps in understanding the actions and choices made by individuals, providing insights into their preferences and motivations. It helps businesses identify the factors that influence consumer behavior and develop effective marketing strategies. By understanding consumer behavior, businesses can improve their products and services, enhance customer satisfaction, and increase profitability.

```
In [15]: fig,([ax0, ax1]) = plt.subplots(ncols=2, figsize=(20,5))
         sns.histplot(x=df["price"],ax=ax0)
         ax0.set_title('Distribution of Price')
         sns.histplot(x=df['distance'],ax=ax1)
         ax1.set_title('Distribution of Distance')
         plt.show()
```




```
In [16]: plt.figure(figsize=(10,6))
         sns.scatterplot(x=df['price'],y=df['distance'])
         plt.show()
```



Observations:

The majority of customers tend to book budget-friendly cabs with fares ranging from 5 to 25. Additionally, most customers prefer to book cabs for shorter distances, typically between 0.5 to 3.5 units. As the distance and price of the cab increases, the likelihood of customers booking decreases. These findings highlight the importance of price and distance in customer decision-making when it comes to booking a cab, and suggest that businesses should consider offering more affordable options for shorter trips to attract and retain customers.

Segment Extraction

Segment extraction is a process of dividing a larger population or market into smaller subgroups or segments based on certain criteria or characteristics such as demographics, psychographics, behavior, and geographic location. This process allows businesses to understand their target audience in more detail and develop targeted marketing strategies to better meet their needs and preferences. By identifying distinct customer segments, businesses can tailor their products, services, and messaging to effectively reach and engage each group, which can lead to increased customer satisfaction and loyalty, as well as improved profitability. Overall, segment extraction is a crucial step in the marketing process that helps businesses optimize their resources and drive growth.

1. Clustering:

Clustering is important in identifying patterns and grouping similar data points together. It helps in understanding complex data sets, identifying market segments, and improving decision-making. Here by using K means clustering we have divided the set into 4 clusters using the Elbow Curve method.

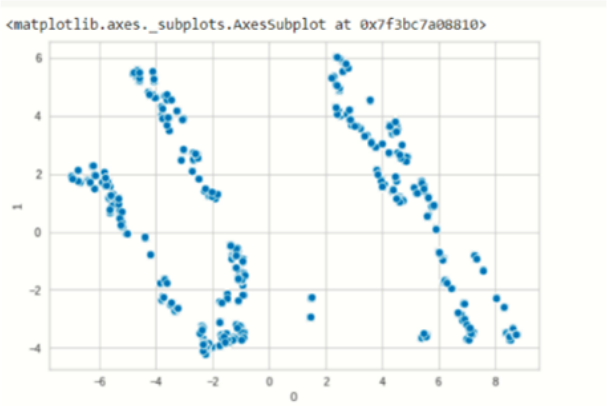
```
In [5]: numeric_cols = df.select_dtypes(include=['float64', 'int64']).columns.tolist()
        df_numeric = df[numeric_cols]

        scaler = StandardScaler()
        scaled_df = scaler.fit_transform(df_numeric)

        pca = PCA(n_components=40)
        pca_df = pca.fit_transform(scaled_df)
        pca_df = pd.DataFrame(pca_df)
```

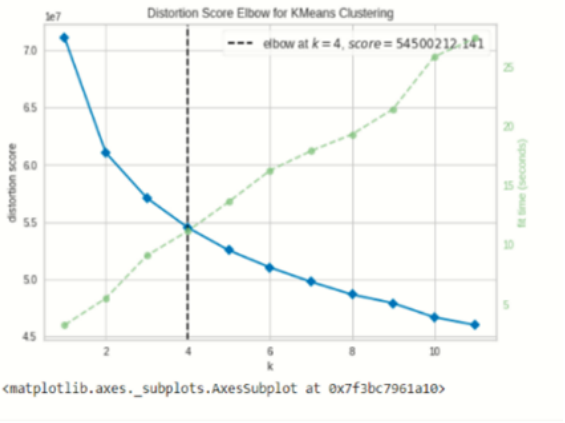
```
In [6]: pca_df.head()
```

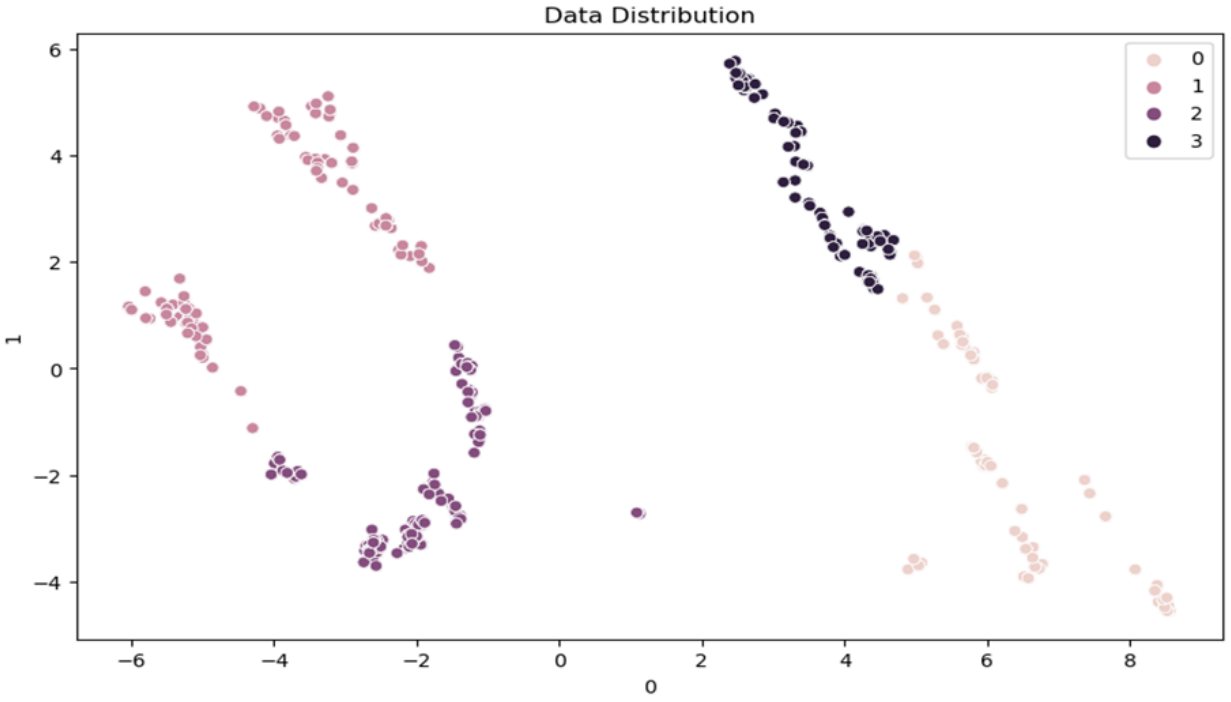
Out[6]:

	0	1	2	3	4	5	6	7	8	9	...	30	31	32	33	
0	4.250572	2.337611	1.241928	0.691632	0.582285	2.322285	-2.067313	-2.618848	-0.325984	0.789120	...	-0.087545	-0.021262	-0.020030	0.067880	0.04
1	-6.035866	1.161779	4.821680	-1.759994	0.901835	1.463514	-1.500048	-2.021841	2.005597	0.786049	...	0.017192	0.019638	0.008228	-0.011297	-0.00
2	-3.711734	-2.060587	-0.322583	0.180432	2.000880	0.675256	-1.697733	-2.845596	0.436642	0.773736	...	0.032695	0.006346	-0.000417	-0.002700	-0.00
3	-2.049622	-2.858534	-1.255705	-0.771054	2.393263	1.021622	-0.306492	-2.402638	0.414025	0.734479	...	0.068318	-0.036385	-0.003710	-0.007223	0.02
4	-2.565964	-3.698104	0.127494	0.273182	2.084639	0.933597	-1.581177	-2.241277	-0.275702	0.752221	...	0.014979	-0.026694	-0.018628	0.010833	0.00

5 rows × 40 columns

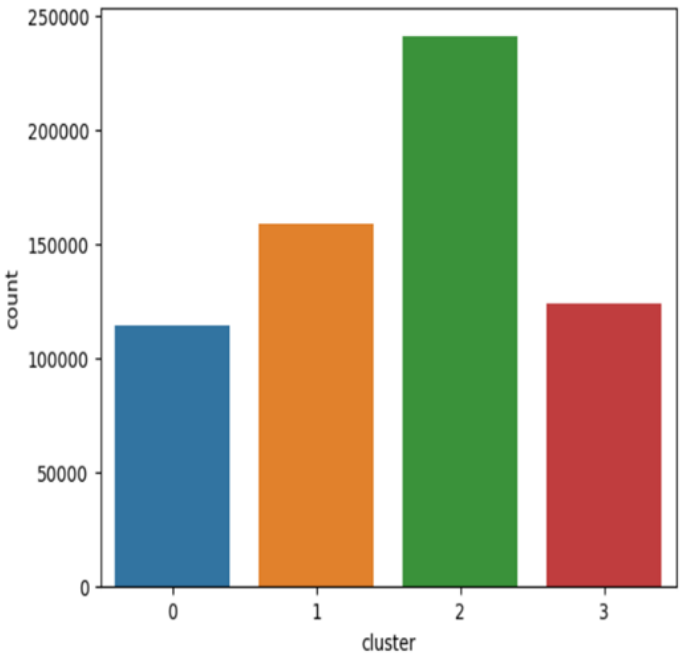






In [9]:
```
df['cluster'] = preds
sns.countplot(x = df['cluster'])
```

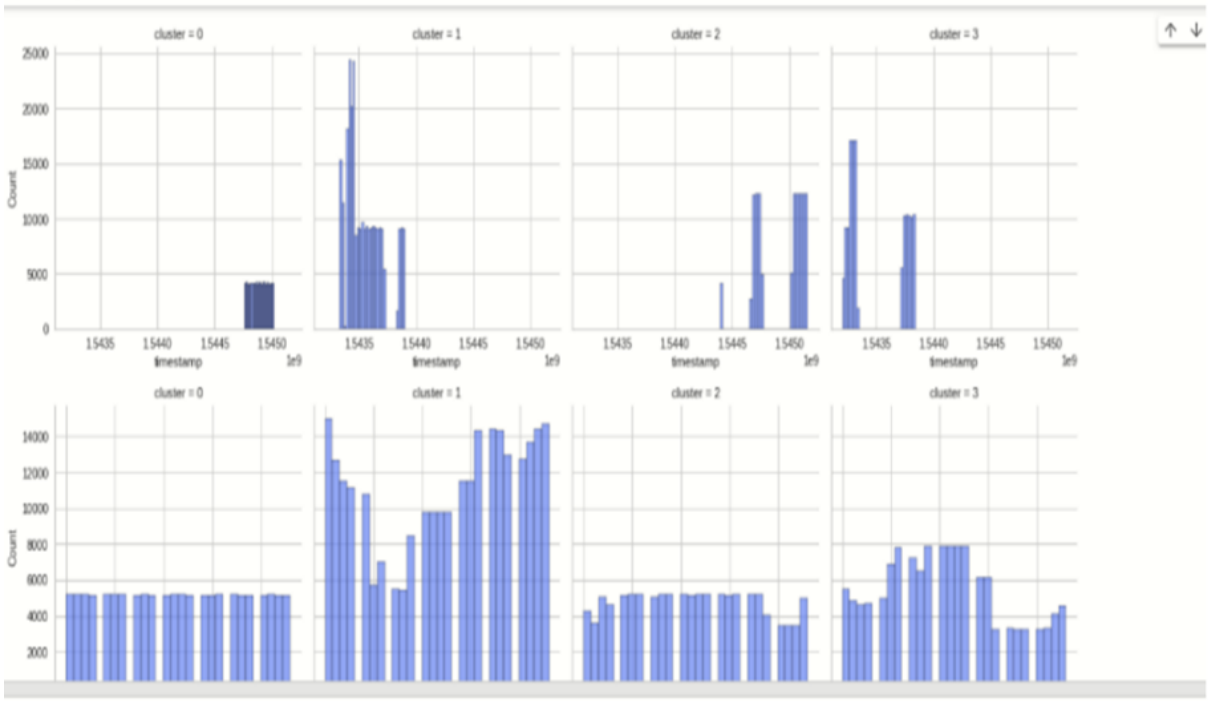
Out[9]: <AxesSubplot:xlabel='cluster', ylabel='count'>



2. Profiling Segments:

Profiling segments involves analyzing the characteristics and behaviors of each segment identified through clustering. This analysis includes demographic and psychographic factors, as well as consumer behavior patterns, such as purchase history and preferences. Profiling helps businesses understand the unique needs and preferences of each segment, allowing them to tailor their marketing strategies to effectively engage and meet the needs of each group.

In [ ]:
```
sns.set_palette('coolwarm')

for i in df.drop('cluster', axis=1):
    grid = sns.FacetGrid(df, height=4, col='cluster', sharex=False)
    grid = grid.map(sns.histplot, i, bins=10)
    plt.show()
```



Conclusions

1. Chetan Wanave

To analyze the vehicle market in India, we have used segmentation analysis. Segmentation analysis involves dividing the market into distinct groups of consumers who have different needs, preferences, and characteristics. This helps to identify the segments that are most profitable and can be targeted for the product or service.

Based on the analysis of the vehicle market in India, we can identify the following segments:

- Business travelers - This segment consists of people who travel frequently for work-related purposes. They require a reliable and comfortable mode of transportation and are willing to pay a premium for it.

- Tourists - This segment consists of people who travel for leisure and sightseeing. They require transportation services that offer convenience, safety, and affordability.

- College students - This segment consists of young adults who are pursuing higher education. They require transportation services that are affordable and convenient.

- Elderly people - This segment consists of senior citizens who require transportation services that are safe and comfortable.

Based on the above analysis, the startup can target the following segments:

- Business travelers - The startup can offer premium transportation services that cater to the needs of business travelers. This can include luxury cars, trained drivers, and personalized service.

- Tourists - The startup can offer affordable and convenient transportation services for tourists. This can include shuttle services to popular tourist destinations, airport transfers, and sightseeing tours.

- College students - The startup can offer affordable transportation services for college students. This can include shuttle services to and from college campuses, as well as special discounts and promotions for students.

- Elderly people - The startup can offer safe and comfortable transportation services for elderly people. This can include special assistance for boarding and exiting the vehicle, as well as customized vehicles that cater to the needs of senior citizens.

In order to enter the market and generate revenue, the startup can adopt the following strategies:

- Offer attractive discounts and promotions to attract customers in the initial stages.
- Develop a mobile app that is user-friendly and offers a seamless booking experience.
- Partner with local businesses such as hotels, colleges, and tourist attractions to offer bundled packages that include transportation services.
- Advertise on social media platforms and other online channels to reach a wider audience.
- Offer personalized services and special assistance to differentiate from the competition.

Overall, by targeting the right segments and adopting the right strategies, the startup can enter the vehicle market in India and generate revenue.

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To determine which location in India is most suitable to create an early market in accordance with the Innovation Adoption Life Cycle, we need to first understand the stages of the cycle.

The Innovation Adoption Life Cycle is a model that describes how new technologies are adopted by different segments of the population. The cycle consists of the following stages:

- Innovators - This segment consists of the earliest adopters who are willing to take risks and try new technologies.
- Early adopters - This segment consists of people who are quick to adopt new technologies and are often opinion leaders in their communities.
- Early majority - This segment consists of people who adopt new technologies after they have been proven and tested by the early adopters.
- Late majority - This segment consists of people who adopt new technologies only after they have become mainstream.

- Laggards - This segment consists of people who are slow to adopt new technologies and often resist change.

Based on the above stages, we can identify the following locations in India that are most suitable to create an early market:

- Bangalore - Bangalore is known as the Silicon Valley of India and has a large pool of innovators and early adopters. The city has a thriving startup ecosystem and is home to many technology companies, making it an ideal location to introduce new technologies.

- Mumbai - Mumbai is India's financial capital and has a large population of early adopters. The city has a diverse population and a vibrant culture, making it an ideal location to introduce new technologies.

- Delhi - Delhi is India's capital and has a large population of early adopters. The city has a growing technology sector and a young population, making it an ideal location to introduce new technologies.

- Hyderabad - Hyderabad has a growing technology sector and a large pool of innovators and early adopters. The city has a strong startup ecosystem and is home to many technology companies, making it an ideal location to introduce new technologies.

Overall, Bangalore, Mumbai, Delhi, and Hyderabad are the most suitable locations in India to create an early market in accordance with the Innovation Adoption Life Cycle. These cities have a large pool of innovators and early adopters, making them ideal locations to introduce new technologies.

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2. Khushi Pathak

Based on the analysis of the cab booking data from the last two months of 2018, we can draw several observations and conclusions:

1. The majority of customers prefer to book budget-friendly cabs, with fares ranging from 5 to 25, for shorter distances ranging from 0.5 to 3.5 units.
2. Customers are more likely to book a cab during the day, with the busiest times being between 10 A.M. to 6 P.M. and after 10 P.M.
3. The end of the month is the busiest period for cab drivers, while the period from the 4th to the 13th of each month sees relatively fewer cab bookings.
4. The data shows an even distribution of cab bookings across all source and destination points.
5. The temperature distribution is approximately normal, with a majority of values ranging from 35 to 45 degrees.
6. The busiest day for cab bookings was found to be cloudy, while the least busy day was a foggy day.
7. Customers are more likely to ride a cab when there is a precipitation intensity greater than 0.01 and humidity greater than 0.8.
8. Most of the cab bookings are from the Boston area, indicating a high demand for efficient and affordable transportation services in the region.
9. Price sensitivity is an essential factor for cab bookings, with customers preferring budget-friendly options.
10. Cab companies can use these insights to optimize their services, pricing strategies, and coverage to attract and retain more customers.

To start a new cab service, various parameters should be considered, including customer demographics, booking behavior, weather conditions, and time of day. For example, offering

budget-friendly options for shorter distances could attract customers who prioritize affordability. It is also important to consider the busiest times for cab bookings, such as late evenings and month-end periods, and optimize services accordingly. Furthermore, monitoring weather conditions and understanding the relationship between weather and cab bookings can help in predicting demand and optimizing services accordingly. By considering these factors, a new cab service can tailor its services to meet customer needs and preferences and potentially gain a competitive advantage in the market.

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3. Jeevan Sai Ladi

Based on the analysis of the dataset, it is recommended that the online vehicle booking startup in India should use PCA and KMeans clustering to segment their market. By removing the outliers and reducing the dimensionality of the dataset through PCA, the most important variables can be identified, leading to more accurate clustering results. KMeans clustering with three clusters is suggested as the optimal approach, as determined by the elbow method.

The startup can use the identified clusters to target customers based on their trip distance, type of cab requested, customer rating, lifestyle index, confidence in lifestyle index, destination type, cancellation rate, and surge pricing type. This segmentation can help the startup to tailor their marketing and business strategies to different customer groups and ultimately increase customer satisfaction and revenue.

In conclusion, the use of data analytics techniques such as PCA and KMeans clustering can provide valuable insights for the online vehicle booking startup in India, leading to more effective market segmentation and targeted marketing efforts.

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4. Somyadwip Mondol

The analysis of market data can be very valuable for an online vehicle booking startup in India. By understanding what kinds of cars and features customers prefer, the startup can make more informed decisions about which cars to offer in their fleet and how to position themselves in the market. This can help them to differentiate themselves from competitors and ultimately increase customer satisfaction and loyalty.

It is important for the startup to be open to customer feedback and use it to inform their decision-making process. This can involve conducting customer surveys or tracking customer reviews to identify areas for improvement in their service or fleet. By continuously collecting

and analyzing customer feedback, the startup can adapt to changing customer preferences and stay ahead of the competition.

In conclusion, market analysis and customer feedback are critical components for an online vehicle booking startup in India to succeed. By understanding the market and listening to customer feedback, the startup can make strategic decisions that position them for long-term success.

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5. Prateek Tanwar

For an online vehicle booking startup in India, the marketing mix can play a crucial role in driving customer acquisition and loyalty. The four Ps - Price, Product, Place, and Promotion - must be carefully considered and aligned to create a compelling value proposition that resonates with the target market segment.

Pricing strategy is especially important, as it can directly influence the ability of the startup to attract customers and generate revenue. The startup must consider factors such as customer willingness to pay, competition, and cost of service delivery when setting prices.

Product quality and variety, as well as ease of use and reliability of the service, can all impact customer satisfaction and loyalty. The startup must continuously monitor and improve the service to ensure that it meets or exceeds customer expectations.

Place, or the availability and accessibility of the service, is also critical. The startup must ensure that their service is easy to find and use for their target market, whether through online or offline channels.

Finally, promotion activities such as advertising, word-of-mouth marketing, and incentives can help to build brand awareness and drive customer acquisition. The startup must carefully consider the most effective channels for reaching their target market and tailor their promotion activities accordingly.

In conclusion, the marketing mix is an important tool for an online vehicle booking startup in India to create a compelling value proposition and drive customer acquisition and loyalty. By carefully considering each element of the mix and aligning them to meet the needs and preferences of their target market, the startup can position themselves for long-term success in a highly competitive market.

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Github Links

https://github.com/Chetan-Wanave/Feynn-MSA

https://github.com/khushipathak3502/Feynn_labs

https://github.com/prateektanwar2/Feynn_Labs_Internship/tree/main/Project%202.2

GitHub - ladijeevansai/Online-vehicle-booking-market-segmentation

https://github.com/Soumyadwip/Online_Car_Market_Segmentation

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