Project-02

Question:- The above mentioned map showcases the various seasons that are experienced across states in India. A key focus of the map is on the onset and retreat of the South West Monsoons in the country across various states and regions.

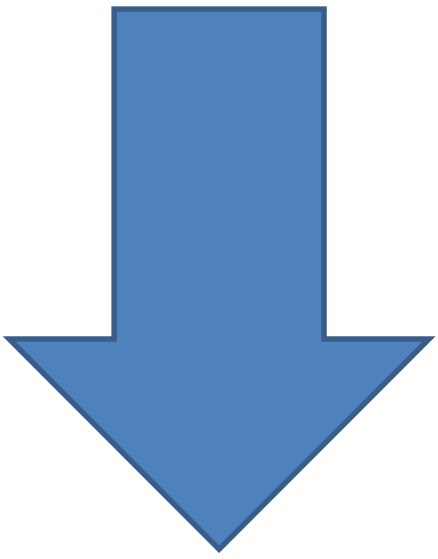
The climates of India are mainly divided into four different groups. The classification of these groups is based on the Koppen climate classification system.

- **Tropical Wet (Humid):** The tropical wet (humid) climate group in India is separated into two subparts: the tropical wet and dry climate, often known as the savannah climate, and the tropical monsoon climate. A tropical monsoon climate prevails in the Western Ghats, the Malabar Coast, southern Assam, Lakshadweep, and the Andaman & Nicobar Islands. It has seasonally significant rain and moderate to high temperatures. The wettest months are May through November, and the rain that falls during this time is more than enough for vegetation to grow all year. The most typical climate in the nation is the savannah climate or a tropical wet and dry climate. Except for some areas of the Western Ghats, it is most prevalent throughout the country's inland peninsula. The humid summer months last from June to September, and they are extremely hot.
- **Tropical Dry:** There are three subgroups of the tropical dry climate group: (a) tropical semi-arid (steppe), (b) subtropical arid (desert), and (c) subtropical semi-arid (steppe). The tropical semi-arid (steppe) climate is found in Karnataka, central Maharashtra, some regions of Tamil Nadu, and Andhra Pradesh. In this type of environment, rainfall is quite unpredictable, and the hot, dry summers last from March through May. Western Rajasthan experiences a subtropical arid (desert) climate with irregular and sparse rainfall. The sub-tropical semi-arid (steppe) climate is present in the tropical desert regions that stretch from Punjab and Haryana to Kathiawar. In this environment, the summertime high temperature can reach 40°C, while rains are unpredictable and typically fall during the summer monsoon season.
- **Subtropical Humid Climate:**The majority of northern and northeastern India experiences this climate. Summers are quite hot, and winters can see temperatures as low as 0°C. The majority of the time, rain falls in the summer, however certain places also have snowfall or sporadic rain throughout the winter. The hottest months are May and June, while frost can sometimes be found in the winter for a few months.
- **Mountain Climate:**: In the Himalayas, the temperature drops by 0.6°C for every 100 m of elevation gain, resulting in a variety of climates, from tropical

to tundra. The northern side of the western Himalayas, known as the trans-Himalayan region, is chilly, dry, and windswept. In contrast to the well-exposed slopes, the leeward side of the mountains experiences less rain. The months of December through February saw the most snowfall.

Answer the following questions based on data collection and visualization of data, using MS-Excel.

Solution is from Next Page



1. **Which state has the highest number of hotels? Depict this via a bar graph that compares all states.**

Ans. Kerala has the highest number of hotels- 672000

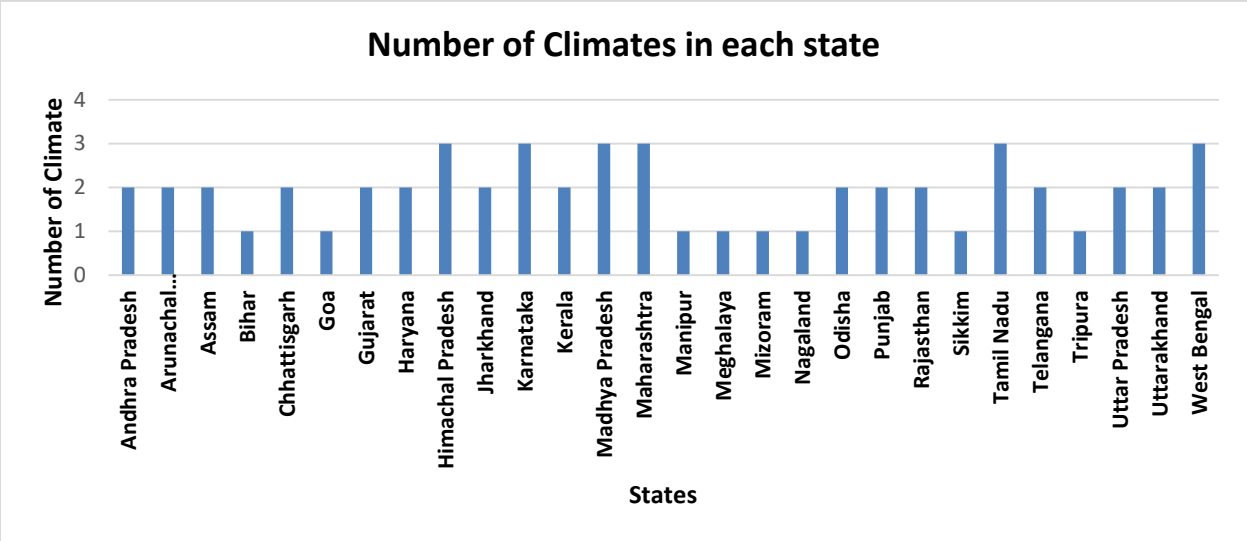
2. **Which states have three types of climatic conditions? (convert the map, an unstructured data, to an Excel file in a structured format and mention the number of climates along with the state)**

Ans.- According to the map given below there are following states in each there are 3 types of climatic conditions: -

Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, West Bengal

States	Number of climates
Andhra Pradesh	2
Arunachal Pradesh	2
Assam	2
Bihar	1
Chhattisgarh	2
Goa	1
Gujarat	2
Haryana	2
Himachal Pradesh	3
Jharkhand	2

Karnataka	3
Kerala	2
Madhya Pradesh	3
Maharashtra	3
Manipur	1
Meghalaya	1
Mizoram	1
Nagaland	1
Odisha	2
Punjab	2
Rajasthan	2
Sikkim	1
Tamil Nadu	3
Telangana	2
Tripura	1
Uttar Pradesh	2
Uttarakhand	2
West Bengal	3

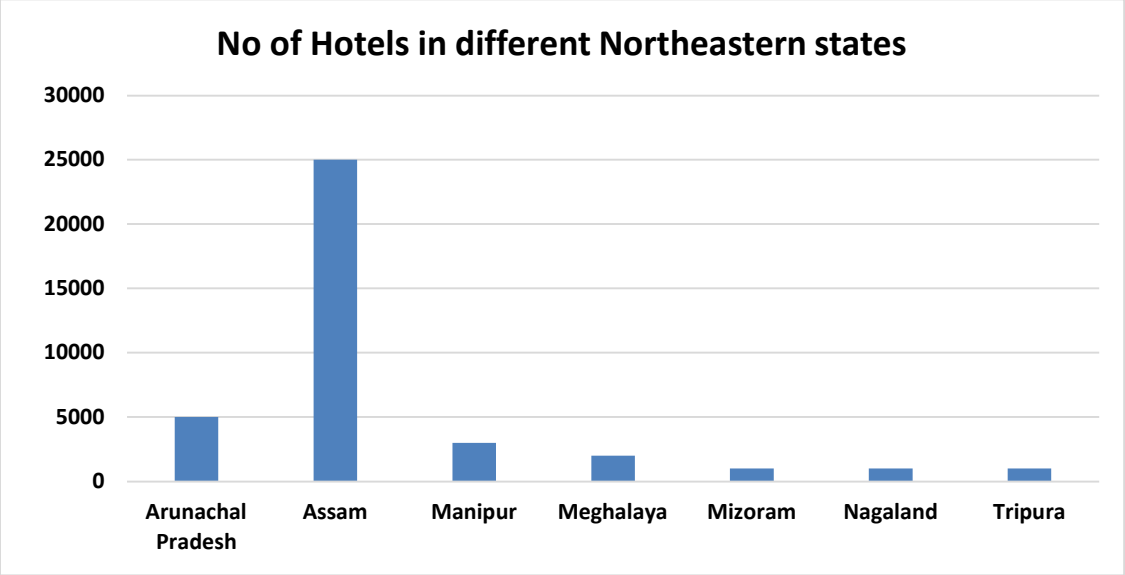


3. Among the northeastern states which are best to set up a hotel? Use Clustered Column Chart and give recommendations for hotel industry investors.

Ans. The northeastern states and number of hotels in those states are as follows:-

Sr. No.	States	No of Hotels
1	Arunachal Pradesh	5000

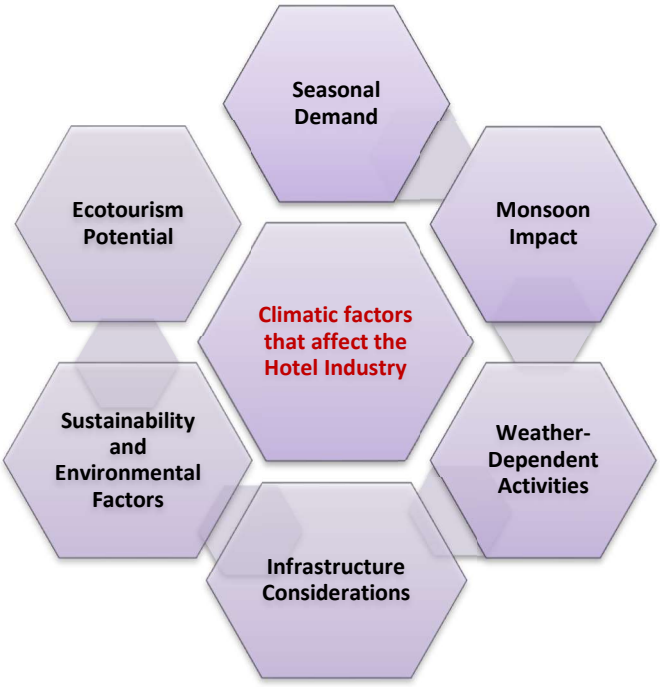
2	Assam	25000
3	Manipur	3000
4	Meghalaya	2000
5	Mizoram	1000
6	Nagaland	1000
7	Tripura	1000



With the help of Clustered Column Chart, we can see that Assam has the highest number of hotels among northeastern states. So, Assam indicate a relatively mature hotel industry and potential competition. However, it's important to note that a higher number of hotels does not necessarily mean it's the best option for setting up a new hotel. Factors such as market demand, tourism potential, infrastructure, and growth prospects should also be considered.

Considering the specific dataset provided, some northeastern states with relatively lower numbers of hotels may have untapped potential for the hotel industry. States like Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura have

fewer existing hotels, indicating potential opportunities for new investments in the hotel sector.



So, based on the provided dataset, states like Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura can be considered as potential options for setting up hotels in the northeastern region due to their relatively lower number of existing hotels.

Recommendations for hotel industry investors:

- Conduct a detailed market analysis, considering factors beyond hotel count, such as tourism potential, infrastructure, and growth prospects.
- Focus on eco-tourism opportunities, leveraging the region's natural beauty and biodiversity.
- Implement sustainable practices and offer unique experiences aligned with the preferences of eco-conscious travelers

5. Which is the best state for setting up a hotel? Why?

Ans. To determine the best state for setting up a hotel in India, we can consider various factors such as tourism potential, demand for accommodation, infrastructure and the number of hotels already present. Additionally, the number of hotels listed in the given data can provide some insight into the existing hotel industry in each state. However, the number of hotels alone may not be the sole determining factor for identifying the best state for setting up a hotel. Other factors such as location, target market, and investment opportunities should also be considered.

Based on the data provided, here are a few states that could be considered for setting up a hotel:

Kerala (672,000 hotels):

Kerala offers a thriving tourism industry with diverse attractions like backwaters and hill stations, resulting in a high demand for accommodation. With a staggering number of 672,000 hotels listed, setting up a hotel in Kerala can tap into the state's well-established tourism infrastructure and cater to the steady flow of domestic and international tourists.

Tamil Nadu (116,000 hotels):

Tamil Nadu's rich cultural heritage and historical sites attract a significant number of tourists. With 116,000 hotels listed, setting up a hotel in Tamil Nadu can cater to the demand for accommodation from travelers eager to explore the state's

architectural marvels, cultural treasures, and coastal areas offering beach tourism opportunities.

Gujarat (107,000 hotels):

Gujarat's vibrant culture, historical landmarks like the Rann of Kutch and Gir Forest National Park, and the presence of industrial and commercial centers attract a diverse range of tourists. With 107,000 hotels listed, setting up a hotel in Gujarat presents an opportunity to tap into the potential demand for accommodation and cater to the varied needs of visitors exploring the state's attractions.

Maharashtra (102,000 hotels):

Maharashtra, with its capital city Mumbai as the financial and entertainment capital of India, offers a vast market for setting up hotels. The state's diverse attractions, including UNESCO World Heritage Sites, hill stations, and beaches, contribute to the high demand for accommodation. With 102,000 hotels listed, setting up a hotel in Maharashtra can tap into the well-established hospitality industry and infrastructure, catering to the needs of travelers exploring the state's vibrant culture, history, and natural beauty.

West Bengal (87,000 hotels):

West Bengal, with Kolkata as a major cultural and business hub, attracts both domestic and international tourists. The state's rich history, art, literature, and the famous Sundarbans, the world's largest mangrove forest, contribute to its tourism appeal. With 87,000 hotels listed, setting up a hotel in West Bengal can cater to the demand for accommodation from visitors eager to explore Kolkata's cultural offerings and venture into the diverse attractions that the state has to offer.

Himachal Pradesh (83,000 hotels):

Himachal Pradesh's picturesque landscapes, captivating hill stations, and adventure tourism opportunities attract a considerable number of tourists. With 83,000 hotels listed, setting up a hotel in Himachal Pradesh can tap into the existing demand for accommodation from travelers seeking mountain retreats and outdoor activities. The presence of a substantial number of hotels indicates the potential to attract visitors to experience the state's natural beauty and pleasant weather.

Rajasthan (72,000 hotels):

Rajasthan's rich cultural heritage, magnificent palaces, forts, and enchanting desert landscapes make it a major attraction for tourists. The state's hospitality industry is well-established, with 72,000 hotels listed, catering to a range of budgets and preferences. Setting up a hotel in Rajasthan allows for the opportunity to provide accommodations to visitors exploring the state's iconic attractions, such as desert safaris and traditional Rajasthani experiences.

6. What is the average number of days the rainy season lasts in Indian states?

Ans.- In the map, date of onset of monsoon and date of retreat of monsoon is given if we assume that it is for the year 2022, then by using Excel we can calculate average number of days of rainy season in India which is calculated as **approximately 119 days.**

Serial No.	States	No of Hotels	Date of onset	Date of retreat	No. of days
1	Andhra Pradesh	34000	6/1/2022	10/15/2022	136
2	Arunachal Pradesh	5000	6/5/2022	10/15/2022	132
3	Assam	25000	6/1/2022	10/15/2022	136
4	Bihar	4000	6/10/2022	10/1/2022	113
5	Chhattisgarh	25000	6/10/2022	10/1/2022	113
6	Goa	44000	6/5/2022	10/15/2022	132
7	Gujarat	107000	6/15/2022	9/15/2022	92
8	Haryana	48000	7/1/2022	9/15/2022	76
9	Himachal Pradesh	83000	7/1/2022	9/15/2022	76
10	Jharkhand	4000	6/10/2022	10/1/2022	113
11	Karnataka	40000	6/5/2022	10/15/2022	132
12	Kerala	672000	6/1/2022	10/15/2022	136
13	Madhya Pradesh	14000	6/10/2022	10/1/2022	113
14	Maharashtra	102000	6/10/2022	10/1/2022	113
15	Manipur	3000	6/1/2022	10/15/2022	136
16	Meghalaya	2000	6/1/2022	10/15/2022	136
17	Mizoram	1000	6/1/2022	10/15/2022	136
18	Nagaland	1000	6/1/2022	10/15/2022	136
19	Odisha	20000	6/10/2022	10/15/2022	127
20	Punjab	11000	7/1/2022	9/15/2022	76
21	Rajasthan	72000	7/1/2022	9/15/2022	76
22	Sikkim	12000	6/5/2022	10/15/2022	132

23	Tamil Nadu	116000	6/1/2022	10/15/2022	136
24	Telangana	34000	6/5/2022	10/15/2022	132
25	Tripura	1000	6/1/2022	10/15/2022	136
26	Uttar Pradesh	58000	6/15/2022	10/1/2022	108
27	Uttarakhand	50000	6/15/2022	10/1/2022	108
28	West Bengal	87000	6/5/2022	10/15/2022	132
				Average days=	**118.571429**

1. **Study the map and draw out key indicating parameters in a list format. Also, think about other parameters that indirectly affect our goal.**

Ans. The key indicating parameters which can be drawn from map are-

- Date of onset of Monsoon
- Date of retreat of Monsoon
- Types of Monsoon in every State
- Number of hotels in every State

Parameters that indirectly affect our goal-

- Seasonal Demand
- Ecotourism Potential
- Infrastructure Considerations
- Weather-Dependent Activities
- Monsoon Impact

2. Do descriptive and diagnostic analysis to fill the missing data points and scan the outliers.

Descriptive statistics for number of hotels	
Mean	59821.42857
Standard Error	23641.22563
Median	29500
Mode	1000
Standard Deviation	125097.6074
Sample Variance	15649411376
Kurtosis	23.19289424
Skewness	4.641070382
Range	671000
Minimum	1000
Maximum	672000
Sum	1675000
Count	28
Confidence Level(95.0%)	48507.78819