# ANALYSIS OF HOTEL ROOM PRICING IN

# INDIAN MARKET

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# STRATEGIC STUDY OF HOTEL ROOM PRICE

**INTRODUCTION**

The analysis is based on the statistics which is concerned about the price of a hotel room which is affected by various factors that can be external or internal.

In the following analysis, all the factors have been visualised independently with the help of visualising tools such as boxplot, barplot, histogram . Also the visualisation has been done with the affected factor ‘Room Rent’, like :

* Plots between Room Rent and Hotel Capacity, for analysing the impact of hotel capacity on room rent.
* Plots between Room Rent and Airport, for analysing the impact of distance between the hotel and airport on room rent.
* Plot between Room Rent and city rank, for analysig the impact of city rank on room rent. And many more.

The Hotel Pricing data is collected from 42 cities of India. The recorded data is from the end of December 2016 to initials of January 2017and contains 18 factors excluding Room Rent. Statistical tools supported by R studio helps in this analysis.

**Data**

The aim of the project is to analiyse the Hotel pricing and the strategeies that impact the hotel industry . Many factors drive hotel room prices. The objective is to identify the factors that impacts the Room Rent in best possible way.

For this project, our dataset is based on hotels located in fourty two Indian cities (Mumbai, Delhi, Bangalore, Chennai, Hyderabad, Ahmedabad, Kolkata, Surat, Pune, Jaipur, Thrissur, Lucknow, Kanpur, Amritsar, Indore, Kanyakumari, Agra, Madurai, Goa, Rajkot, Varanasi, Srinagar, Jodhpur, Chandigarh, Thiruvathipuram, Guwahati, Mysore, Bhubaneswar, Kochi, Mangalore, Udaipur, Pondicherry, Haridwar, Puri, Shimla, Panchkula, Darjeeling, Rishikesh, Gangtok, Ooty, Jaisalmer, Bodh Gaya, Nainital, Munnar, Manali) India. The data is recorded for 8 specific dates that is 21 Dec’16, 24 Dec’16, 25 Dec’16, 28 Dec’16, 31 Dec,16, 4 Jan’17, 8 Jan’17.The data has been collected from website [www.hotels.in](http://www.hotels.in) that aggregates the hotel prices on 8 different dates at different hotels across different cities.

**ROOM RENT:**

We used RoomRent to denote the average price of a room at a hotel. We measured Room Rent, rent for the cheapest room, double occupancy, in Indian Rupees. we picked the cheapest room with double occupancy at hotel k in city j.

**Star Rating**:

The hotels has been classified as 5 stars, 4 stars ,3 stars , 2 stars or 1 star according to Indian Ministry of Tourism. Star Rating has been a criteria in our data set. This ratting has been done because Star Rating is strongly correlated with the pricing of a room. More the stars rating more the price. In the data set StarRating has been used to denote star rating of a hotel.

**Swimming Pool:**

More the number of additional facilities more will be the rent offered by hotel. The amenities and facilities provided within a hotel can also potentially influence the price of a room. The greater the amenities, the higher should be the price of the hotel room. To partially control for such factors, we recorded whether a hotel had a Swimming Pool or not. We used HasSwimmingPool to denote the presence or absence of a Swimming Pool at hotel k in city j.

**Hotel Capacity:**

The number of rooms in a hotel denotes the Hotel capacity .The accommodation for n number of people is expected to influence the price that a hotel will set. Accordingly, we used HotelCapacity as a control variable to account for the possibility that the room price set by a hotel may depend upon the supply of available rooms. We recorded the total number of rooms in hotel k in city j as HotelCapacity.

# ANALYSING DATA USING STATISTICAL TOOLS

The technique followed in this analyses of Hotel Pricing data is :

1) Removing the Redundant factors.

2) Identify the factors according to their importance.

3) Select highly correlated factors.

4) Predict multiple regression models

5) Select the best fitting model.

**HYPOTHESIS**

It is observed that 3 factors that is Date, IsWeekend and IsNewYearEvel are redundant and the remaining factors are relevant to the Room Rent. Further analysis shows the highly correlation between RoomRent and ISSwimmingPool , HotelCapacity and StarRating. Out of 18 factors, 3 most influencing factors have been selected ISSwimmingPool , HotelCapacity and StarRating due to the strong correlation shown by them . On the basis of that following hypothesis are given.

H1:

The average Room rent of a Hotel that have swimming pool is more than the hotels that do not have swimming pool.

H2:

The average Room Rent of hotels with high star rating is high as compared to one which has less star rating.

H3:

The average Room Rent in hotels with more capacity is lower than the Room Rent with low hotel capacity.

H4:

The average room rent in hotels with minimum distance from airport is more than those have more distance .

H5:

The average Room Rent in hotels providing Free Breakfast is more than that which don’t provide breakfast.

H6:

The average Room Rent in hotels in metro cities is more than that of hotel in non metro cities.

# REGRESSION MODELS

Effect of swimming pool, hotel capacity and star rating has been done with respect to room rent. Hence, based on that a regression models are proposed that justifies their impact. We regressed the room rent on StarRating, IswwimmingPool and HotelCapacity along with other factors that can impact the roomrent like distance from airport.

**Model1:**

*bo+b1\*HasSwimmingPool+b2\*StarRating+b3\*HotelCapacity*

**Model2:**

*bo+b1\*HasSwimmingPool+b2\*StarRating+b3\*HotelCapacity+b4\*Airport*

**Model3:**

*bo+b1\*HasSwimmingPool+b2\*StarRating+b3\*HotelCapacity+b4\*IsWeekend+ b5\*Date*

**Model4:**

*bo+b1\*HasSwimmingPool+b2\*StarRating+b3\*HotelCapacity+b4\*IsTouristDestination*

we predicted four different regression model. Because more regression model helps us to rule out some alternate explanations.

# RESULTS

Results offered by model 1:

* On increase of star rating, the average hotel room rent increases by 3597.22 ruppess.
* On availability of swimming pool, the average hotel room increases by 2528.885 ruppess.
* On increase in Hotel capacity that is the increase in number of rooms, the average room price decreases by 15.558 ruppees.

Following are results observed by model2:

* On increase of star rating, the average hotel room rent increases by 3522 ruppess.
* On availability of swimming pool, the average hotel room increases by 2708.400 ruppess.
* On increase in Hotel capacity that is the increase in number of rooms, the average room price decreases by 14.178 ruppees.
* On increasing the distance from Airport (1km), the average room rent increases by 25.67 ruppess.

Following results are observed from model 3:

* On increase of star rating, the average hotel room rent increases by 3616.82 ruppess.
* On availability of swimming pool, the average hotel room increases by 2498.705 ruppess.
* On increase in Hotel capacity that is the increase in number of rooms, the average room price decreases by 15.558 ruppees.
* On increase in Hotel capacity that is the increase in number of rooms, the average room price decreases by 15.558 ruppees.
* On weekend the price is decreased by 97 ruppess.

Following results are observed from model 4:

* On increase of star rating, the average hotel room rent increases by 3635.96 ruppess.
* On availability of swimming pool, the average hotel room increases by 2285.337 ruppess.
* On increase in Hotel capacity that is the increase in number of rooms, the average room price decreases by 13.958 ruppees.
* Being the tourist destination, the average room price increases by 1877.258 ruppees.

# CONCLUSION

The model predicted help in identifying the internal as well as the external factors that are affecting the price of a hotel room. Through the data set provided, we were able to analyse the Room Rent asked by Hotel Industry and how these factor impact the pricing. However, the models offered do not gaurentee only the factors considered since it is mere data of some cities. Data is just a tool to relly on. We completely can not neglect the factors that effect the hotel Room rent like The View from the Room, it’s location and many more.

But this data anyhow helps the Hotel Industry Managers to consider few factors in the hike of their hotel price and also improve the quality of factors that lead to better amount of capital.