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MANAGEMENT REPORT FOR Las Vegas Visitors

Executive Summary

Dumitru Mironescu runs a Limousine service in Las Vegas, but the recession in recent years has taken its toll on the business and Dumitru is not sure if the demand will rise in the coming year or not. He wants to do an analysis with the help of his son to see if the demand is showing any upward turn and how the demand pattern looks like in the next year. Then he will be able to go ahead with his decision of buying two new cars.

After reviewing the historical data his son has found out that the overall demand for Las Vegas visitors is on a rise. May be it got a hit during 2008-2009 but now again the number of visitors are rising steadily. The overall number of visitors for Las Vegas may increase from 39 million to almost 43 million in 2013. Also he has gone one step ahead and has done the month wise analysis to forecast monthly data with lot of accuracy that would be helpful to his father.

Background

Dumitru Mironescu runs a Limousine service in Las Vegas. It provides pick and drop from hotels, casinos and airport to various locations in and around Las Vegas. The company is in business for few years and currently facing

some struggling times in business due to recession in the market. During 2012, Dumitru decided that the time had come to replace three of his oldest vehicles and expand the fleet with two new vehicles. He approached his bank to finance the new purchases and submitted a business plan which his son, Denis, had helped him write.

However, he wanted to show bank proof that the demand for visitors was on the rise and the business would continue to do well in Las Vegas. For that he with the help of his son analyzed the data to see the visitor pattern in Las Vegas.

Problem

Data analysis is required to find out that the total number of visitors in Las Vegas is growing and not showing any signs of recession and also it will be good for the business to know what will the monthly demand for the coming year.

Analysis

The data used by Dumitru and Denis was taken from the Las Vegas tourist site

<http://www.lvcva.com/stats-and-facts/visitor-statistics/>

The data was available monthly from 2005 to 2012. Yearly data was available from 1970 to 2012.

First we tried to see what is the overall pattern of the data by drawing line graphs of both monthly and Yearly data .

Yearly Data

Monthly data

- 1) From the Number of Visitor Monthly Graph can be seen that every year there is a seasonal pattern in the number of visitors in Las Vegas.
- 2) From the yearly graph we don't see any seasonality which means that it is steadily going upwards and the number of tourists in Las Vegas is increasing every year.
- 3) Firstly for yearly visitor forecasting we can use a linear regression model to forecast yearly data.
- 4) However, for capturing seasonality we need to look at various models and find out the best suited one which will be able to give us best seasonal model.

Further Analysis of Yearly Data

Denis did further analysis of yearly data to see if the trend seen in the graph is actually supported by the regression test as well or not.

Secondly, we can see that almost 95.7% of the total variation of the number of visitors is explained by Year so it is a very good fitted linear relationship between the two.

Thirdly, the slope of the coefficient is positive (918430) which implies that as Dumitru and his son go ahead in future years they are likely to see an increase in the number of visitors.

The relationship between number of visitors vs. Year is as shown in the scatter plot above.

Using the linear model of the forecast for the year 2013 will increase the visitor number by 4 million, making it to 43 million.

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Holt and Winter Model for Monthly Forecast Model

Denis also wanted to see if there is any seasonal pattern in the data and looking at the monthly data it was very clear that there was a seasonal pattern. For his analysis Denis took 12 Month repeatable seasonal pattern for the data.

The Actual vs. Forecast are so closely following each other in the graph that you can't even distinguish between the two.

For achieving this result Denis used Holt Winter method of modeling followed by minimization of U-Stat using Excel Solver by changing Alpha, Beta and Gamma.

After Solver minimization the values found are as below:

Optimum Alpha Value found = 0. 1286

Optimum Beta Value found = 0. 0

Optimum Gamma Value Found = 1. 0

Forecast for 2013 using Holt-Winter Technique

Summary Basic stat for the data is as below

For Details see the embedded excel in the appendix.

Conclusions & Recommendations

Based upon the data collected, we discovered that the overall number of visitors is on the rise in Las Vegas and the business seems promising. Denis can approach the bank with this data to get a loan for two new cars for his father's business. The total number of visitors is all set to go up from 39 million to almost 43 million next year.

Bibliography

William, Boris (2006). The FORECAST Procedure, Chapter 12, retrieved from <http://www.okstate.edu/sas/v8/saspdf/ets/chap12.pdf>

Microsoft Office Excel. (2010). Redmond, WA: Microsoft Corporation.

Appendix:

For detailed calculation please refer the attached excel.