# Guided Capstone Project Report - Archana Robin

**Introduction**

This is the data analysis summary for the Big mountain Resort project. The aim of the program is to evaluate options to increase ticket price and/or cut down cost to cover the additional expenses incurred for installing new chair lifts. Also, the resort is concentrating on the development of effective management strategies for the resort's facility. Big Mountain Resort has been reviewing potential scenarios for either cutting costs or increasing revenue.

**Step 1:**

The project utilized a case-study approach using prior ski resorts data and population data from across the United States. Data obtained from approximately 300 ski resorts cleansed/transposed to create a base dataframe. Then analysed data to remove empty values, remove non essential data, duplicate rows etc and executed a high level summary of the data. At data exploratory analysis stage, did compare ski resort data against state population, state area, resorts per state etc and scaled data state wise for all the features.

**Step two:**

At this stage data has been put through Linear Regression and Random forest regressor model to assess the performance and compared Mean Absolute error, Mean standard error , r2 value of each model to identify the best model for the solution. The random forest regression model gives a better result and it stays within the large data set range.

**Model Findings and recommendations**

1. Big Mountain can close one run without impacting revenue. If big Mountain choose to close 3 runs, it can very well close 4 or 5 runs with no further loss in ticket price
2. Closure of more than 6 runs will have severe impact to the revenue
3. Adding one more run with additional 2 acres of snow making support ticket price increase of $0.07 which bring $119565 over the season

4. In addition, Big Mountain could increase their longest run by .2 miles with additional 4 acres of snow making without any impact to the overall cost

Big Mountain Resort modelled price is $87.52, actual price is $81.00. Even with the expected mean absolute error of $6.61, this suggests there is room for an increase.