

# Capstone 1 Project Report

One of the objective of this project is to come up with recommendations so that Big Mountain Resort can maintain there annual profit of 9.2 % even after increased operating cost due to installation of additional chair lift.

To maintain same level of profit one of the possibilities is to increase revenue by increasing price of tickets. Therefore, using the data available from other skiing resorts, I designed a Linear-regression model to predict the price of tickets in the weekend for Big Mountain Resort. Based on the linear regression model my recommendation is to increase the price of ticket in weekend from 81 \$ to 92.25 \$.

One of the questions is that in comparison to other resorts whether our recommendation to increase the ticket price in the weekend is feasible or not. Therefore, we further analyzed the given market data.

First thing we do is to run k-mean clustering algorithm and observe that most of the data are concentrated in two clusters. In Figure 1, I created a scatter plot for vertical\_drop against summit\_elev with every point representing the cluster it belong to. vertical\_drop represents vertical change in elevation from the summit to the base in feet. summit\_elev represents elevation in feet of the summit mountain at the resort. In Figure 1, green dots correspond to cluster 1 and purple dots correspond to cluster 0 and yellow dots correspond to cluster 2. We observe that summit\_elev increases with vertical\_drop. The red color dot corresponds to Big Mountain resort. Clearly, Big Mountain resort belong to cluster 0.

Figures 1b to 1d represent scatter plots for vertical\_drop, Snow Making\_ac, fastSixes against AdultWeekend price with every point representing cluster it belongs to. Here Snow Making\_ac represents total area covered by snow in acres and fastSixes represents number of fast Six person chairs. AdultWeekend represents the ticket price for adults in the weekend. We observe from these scatter plots that resorts belonging to same cluster and with similar attributes have higher ticket prices in the weekend. This clearly justifies my recommendation to increase ticket prices from 81 \$ to 92.25 \$.

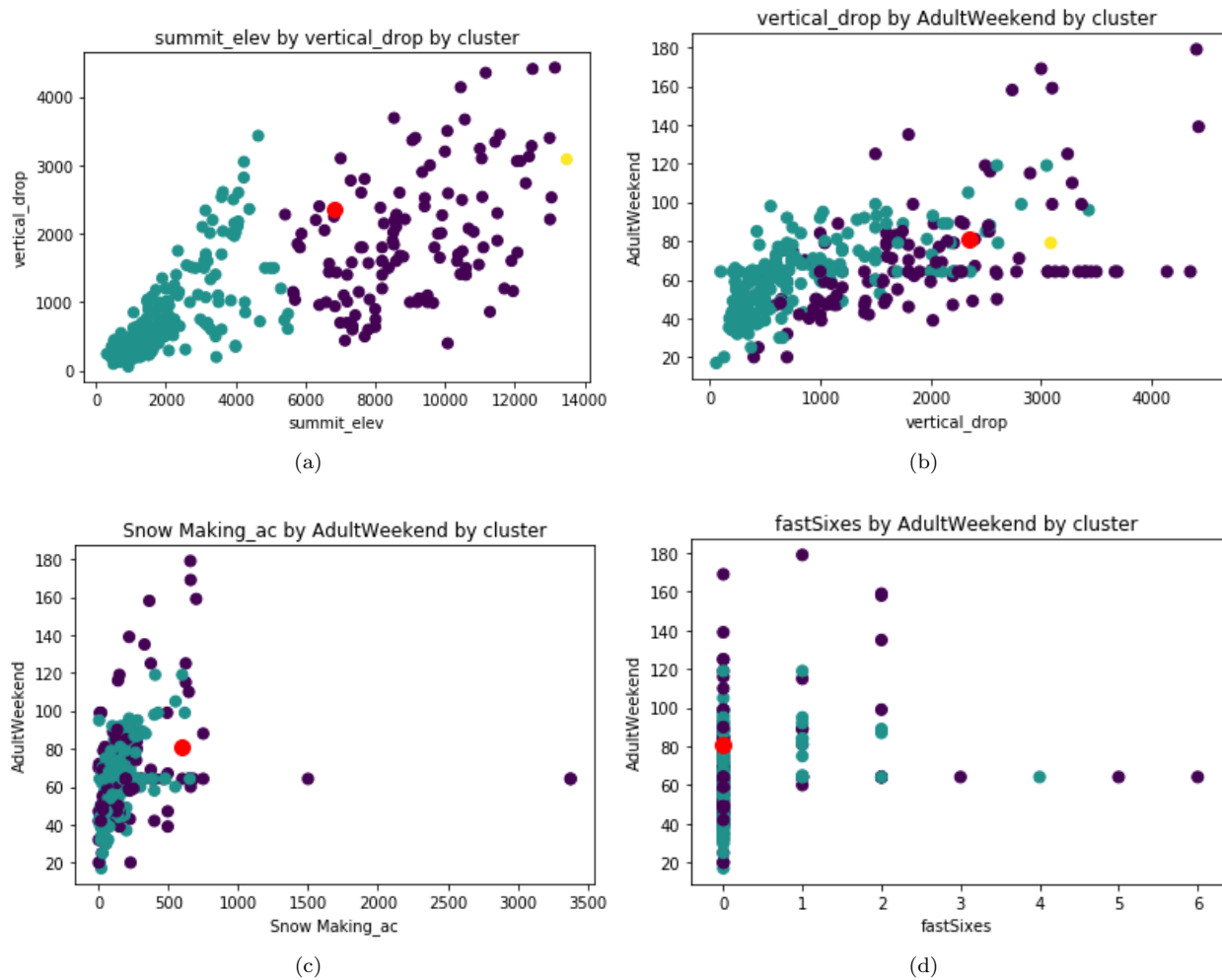


Figure 1: scatter plot for (a) summit\_elev vs vertical\_drop, (b) vertical\_drop vs AdultWeekend, (c) Snow making\_ac vs AdultWeekend and (d) fastSixes vs AdultWeekend