REPORT

Whitefish Mountain Resort, located in north-western Montana. Big Mountain Resort offers spectacular views of Glacier National Park and Flathead National Forest. The resort originally opened in 1947 with an annual snowfall of 333 inches and 3,000 acres of skier and rider accessible terrain. Whitefish Mountain Resort has recently installed an additional chair lift to help increase the distribution of visitors across the mountain. This additional chair increases their operating costs by $1,540,000 this season. Every year about 350,000 people ski or snowboard at Whitefish Mountain. This business profit margin is 9.2% and the investors would like to keep it there.

The model chosen to predict the Adult Weekend Price is using the follow columns from the dataset: 'vertical\_drop', 'trams', 'fastEight', 'fastSixes', 'fastQuads', 'quad', 'triple', 'double', 'surface', 'total\_chairs', 'Runs', 'TerrainParks', 'LongestRun\_mi', 'SkiableTerrain\_ac', 'Snow Making\_ac', 'daysOpenLastYear', 'yearsOpen', 'averageSnowfall', 'AdultWeekday', 'AdultWeekend', 'projectedDaysOpen', 'NightSkiing\_ac', 'clusters'. The below graph shows Whitefish Mountain Resort (black dot) with respect to other resorts.

A close up of a piece of paper

Description automatically generated

Figure 1

Based on the model, the recommended price for Adult Weekend is 76 dollars, compared to the current 81 dollars. The reduced price tag should attract more people to visit the resort. The extra profit should offset the operating costs increase and maintain profit margin at 9.2%.

n the capstone project, unsupervised machine-learning model K-mean clustering was  
implemented to find the count of clusters and analyze by the cluster group. Figure 1 scatter plot represents the relationship between variable “vertical\_drop” and “summit\_elev” by cluster group. There are three cluster groups and the groups are separated by “summit\_elev.” The cluster 0: purple is plotted below “summit\_elev” 3,000, the cluster 2: yellow is plotted between “summit\_elev” 2,000 and 6,000, and the group 1: green is plotted over 6,000 in “summit\_elev.”.