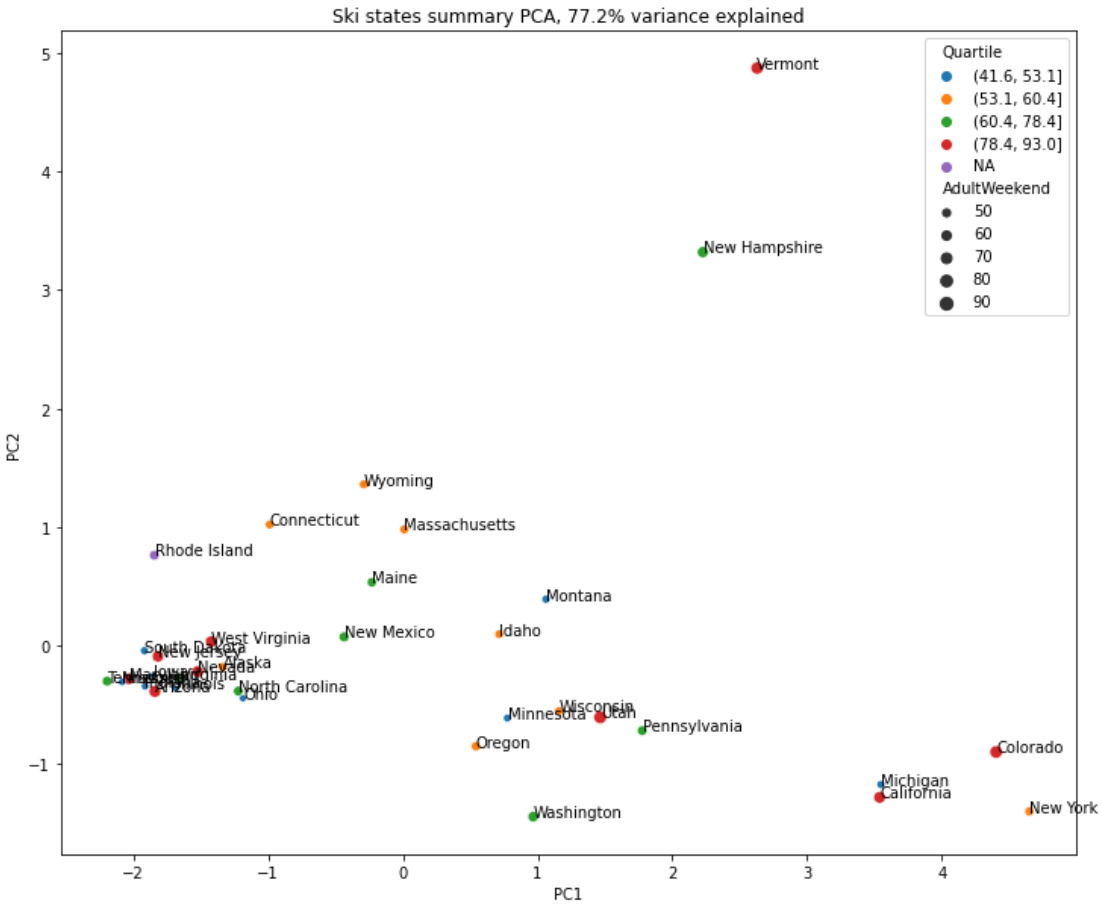
Julia Chapman -- Guided Capstone:

# Can Big Mountain Ski Resort increase this season's profits by $1,540,000 by increasing ticket prices and capitalizing on facilities it has to offer that the competing resorts within its market segment do not?

Big Mountain Ski Resort, located in northern Montana, has recently installed an additional chair lift to aid in the distribution of visitors across the mountain. The additional lift increases the operating costs by $1,540,000 this season alone. The resort's previous pricing strategy has been to charge a premium price above the average price of resorts in its market segment. This strategy presented pricing limitations and contributed to the failure of capitalizing on the resort's facilities. Utilizing data provided by the resort's database manager, a model was built to predict ticket prices for resorts based on the facilities they offer.

The dataset included values from 330 resorts such as adult weekend ticket prices, adult weekday ticket prices, number of lifts -- including a column for fast quad lifts, number of runs, area covered by snow making equipment, and the vertical drop distance for each resort. The ticket pricing focus remained on the value of adult weekend ticket prices because it presented as the most relevant and was the most data containing column between the two.

Using scaled data, a principal component analysis was run to gain a visualization of the state summary data. The produced figure (see "Ski states summary PCA, 77.2% variance explained") offered justification for treating all of the states equally as there was no visual sign of grouping.

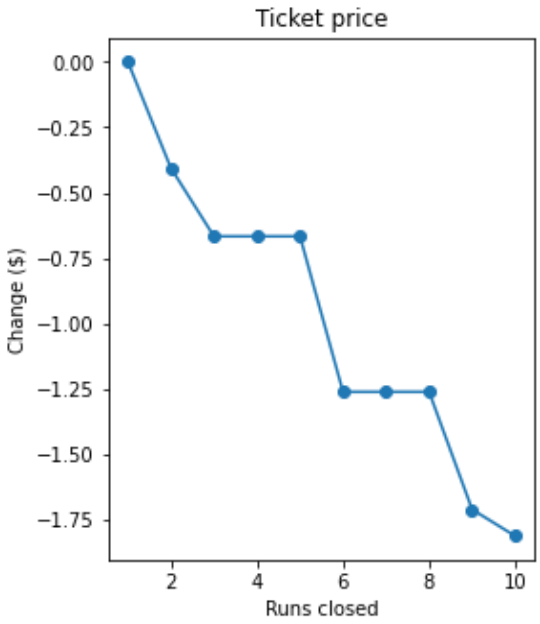


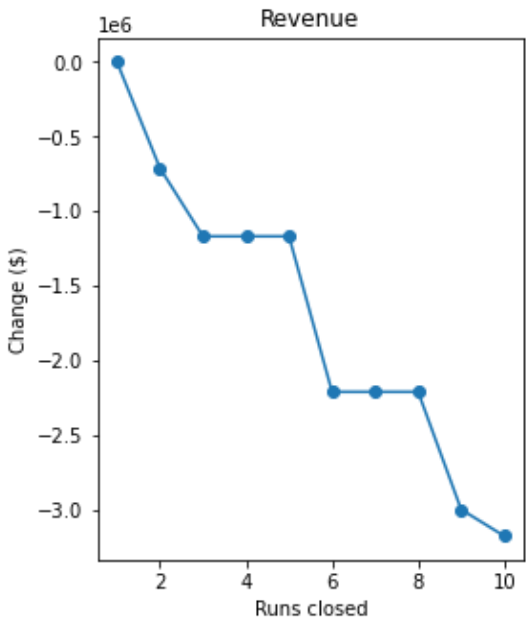

From here, a deeper dive into the importance of each facility was performed. The results outlined below showed that the value of the vertical drop distance was the biggest contributor to ticket price while acres of skiable terrain was the smallest.

| **Facility** | **Coefficient** |
|---|---|
| vertical_drop | 10.767857 |
| Snow Making_ac | 6.290074 |
| total_chairs | 5.794156 |
| fastQuads | 5.745626 |
| Runs | 5.370555 |
| LongestRun_mi | 0.181814 |
| trams | -4.142024 |
| SkiableTerrain_ac | -5.249780 |

Using this information and the model built to predict ticket prices, four different scenarios were run to determine how a change in facilities could affect the ticket price. The scenario that required the least amount of change to the facilities and presented the greatest price increase was one in which the resort increased the vertical drop by 150ft and installed an additional chair lift. This scenario supported a price increase of $1.99 per ticket; furthermore, after taking into consideration that guests buy on average 5 tickets at the time of purchase, this scenario would bring in an expected revenue of $3,474,638 over the season. The ticket price increase would cover the $1,540,000 in operational costs for the new lift and then some.

Additional predictions showed that the closure of a single run would not affect the ticket price -- this scenario could also potentially decrease the resort's operational costs.




The adoption of these scenarios could support the financial requirements for the addition of a new lift at Big Mountain Ski Resort.