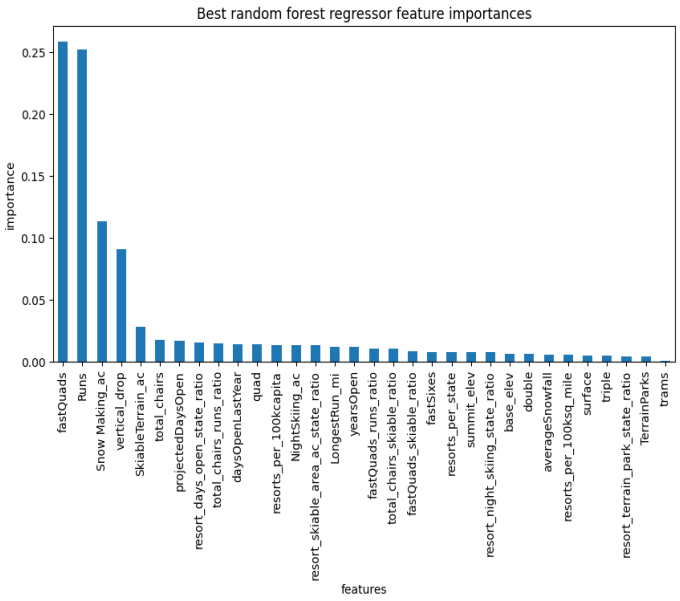
**Guided Capstone Project Report [Ryan Mennemeier]**

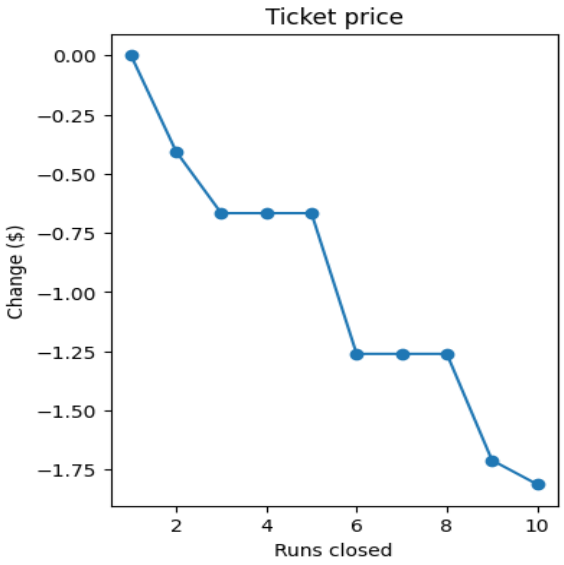
Throughout this project we set out to see how the client, Big Mountain Resort, would be able to either increase their overall ticket prices or cut their costs noticeably to cover the expenditures of the new chair lift that was recently installed at their resort. Data was provided at the beginning of this project and this data was used for the entirety. It is recommended, however, that if the clients want to pursue further discovery and analysis that more data should be acquired in order to obtain optimized results.

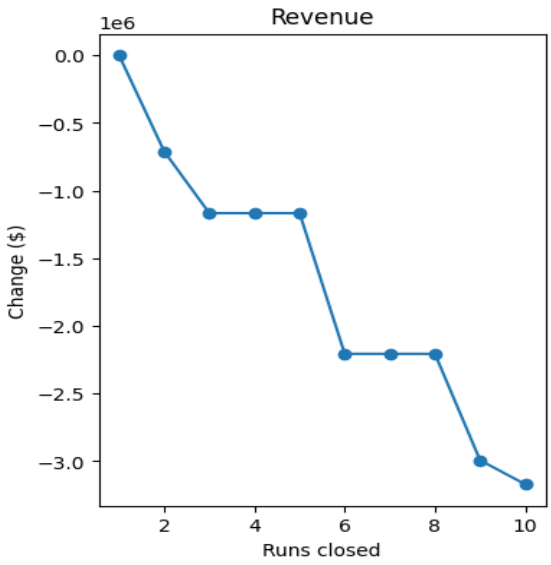



As the data was compared to other resorts not only within the state of Montana but also in other states, correlations started to show. We were able to path down and see, based on these correlations, what features were of import to Big Mountain Resort based on and compared to the ticket price and what drives them (read effects). Per graph to the right you can read that the two most important drivers for ticket price are the fastQuads and Runs feature for this resort.

Once the key features were identified we were able to model our specified dataset that we had cleaned and set aside based on this feature data. We used several different methods to train and test the data to see what the best outcome would be, with varying results. As we started to get closer to a desired outcome (and method) with a Random Forest Regressor method, we were able to come up with four separate scenarios for Big Mountain Resort to test.

Out of the four scenarios we looked at using our desired model, only one stood out as having an acceptable result, while two others had no effect and the other had little to no effect. The scenario that had the chosen effect would be where Big Mountain Resort would increase their prices by $1.99/tkt. In order to achieve this Big Mountain Resort would need to add a run, increase the vertical drop by 150 ft, and install another chair lift. The only other scenario that offered a semi-interesting outcome involved closing a set amount of Runs. See graph below. Ticket price and Runs closed are tied together, so while you can see that Big Mountain Resort could feasibly get away with shutting down 1 Run without seeing any major effects, there are sharp declines in Revenue and ticket prices afterwards. This is why the other option is chosen after much testing as, based on expected visitors Big Mountain Resort stands to see an increase of $3.5M in revenue through this decision.




Should Big Mountain Resort wish to continue further discovery and analysis I would recommend the following: acquire more data so that better and a more diverse array of results can be obtained. Also increase the scope of the variables desired to not only ticket pricing. Limiting the scope in such a way ignores many other key variables to the business that could be extremely helpful in discovering potentially impactful insights to the entirety of their business.