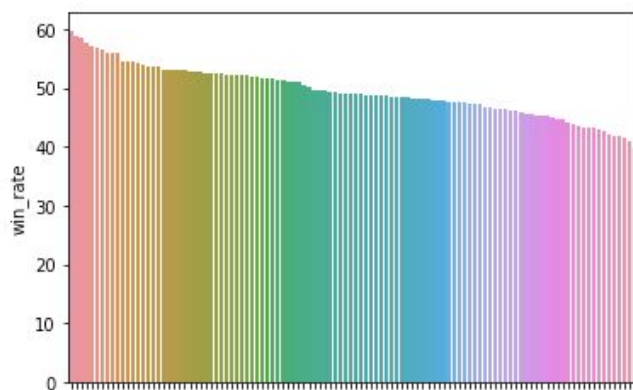


Capstone Project 1: Data Storytelling

My capstone project contains some unique and interesting opportunities to communicate with players of the game DOTA 2, the product the data relates to. With the end result of the project being to successfully predict match outcomes, I'm inherently also able to help players develop and identify successful strategies that will improve win rates. These two areas comprise the storytelling elements of the project, which I'll outline further in this report.

During my analysis, I came across an interesting discovery while calculating the individual hero win rates. The hero, *Omniknight*, had a win rate of nearly 60%. Given that the game should be as balanced as possible, I was surprised to see that forty seven of the one hundred and ten total heroes had a win-rate greater than 50%.

The chart below represents a barchart with each hero's win rate from the match data used in my project:

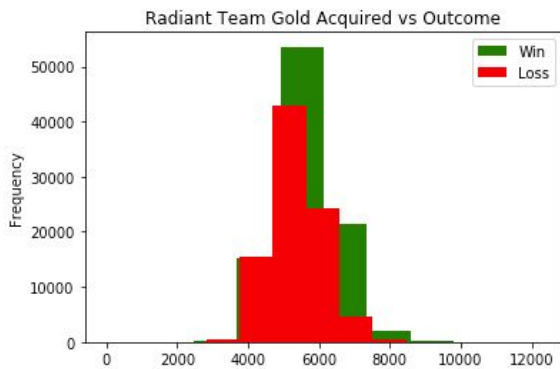


I also analyzed a cumulative value by summing the gold acquired by each player

during each match and created two new features representing the total gold acquired by each team. I was then able to find a very interesting correlation to these features and match outcome. Winning teams acquired nearly 6% more gold on average, which is represented below by a histogram depicting the total gold acquired in winning match vs. a losing match for the Radiant team:

```
ax = radGoldWin.plot(kind='hist', bins=10,color='g')
ax2 = radGoldLoss.plot(kind='hist', bins=10, color='r', title="Radiant Team Gold Acquired vs Outcome")
ax.legend(["Win", "Loss"])
```

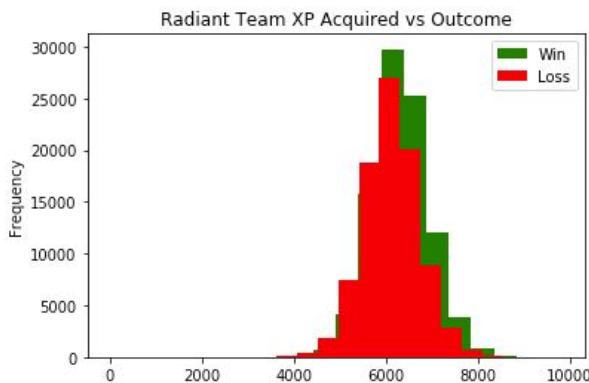
<matplotlib.legend.Legend at 0x1a23debf98>



Similarly, I compared the total “XP” or experience acquired by each team and found a consistent correlation to higher team xp and favorable outcomes:

```
ax3 = radXpWin.plot(kind='hist', bins=20,color='g')
ax4 = radXpLoss.plot(kind='hist', bins=20, color='r', title="Radiant Team XP Acquired vs Outcome")
ax3.legend(["Win", "Loss"])
```

<matplotlib.legend.Legend at 0x1adb9cad68>



This alludes to a seemingly consistent strategic advantage in acquiring gold and xp as quickly and as often as possible. Given that my project objective is to predict match outcomes, total team gold and xp will most likely be a very important features in my model, along with the presence of heros with significantly higher win rates.

Based on the observations above, the final narrative of my project can now serve as a strategic guide for players to obtain unique advantages in matches, avoid detrimental mistakes and increase overall win rates, based on previous match behavior. It could also potentially benefit game developers in their constant work to achieve a truly balanced game experience.