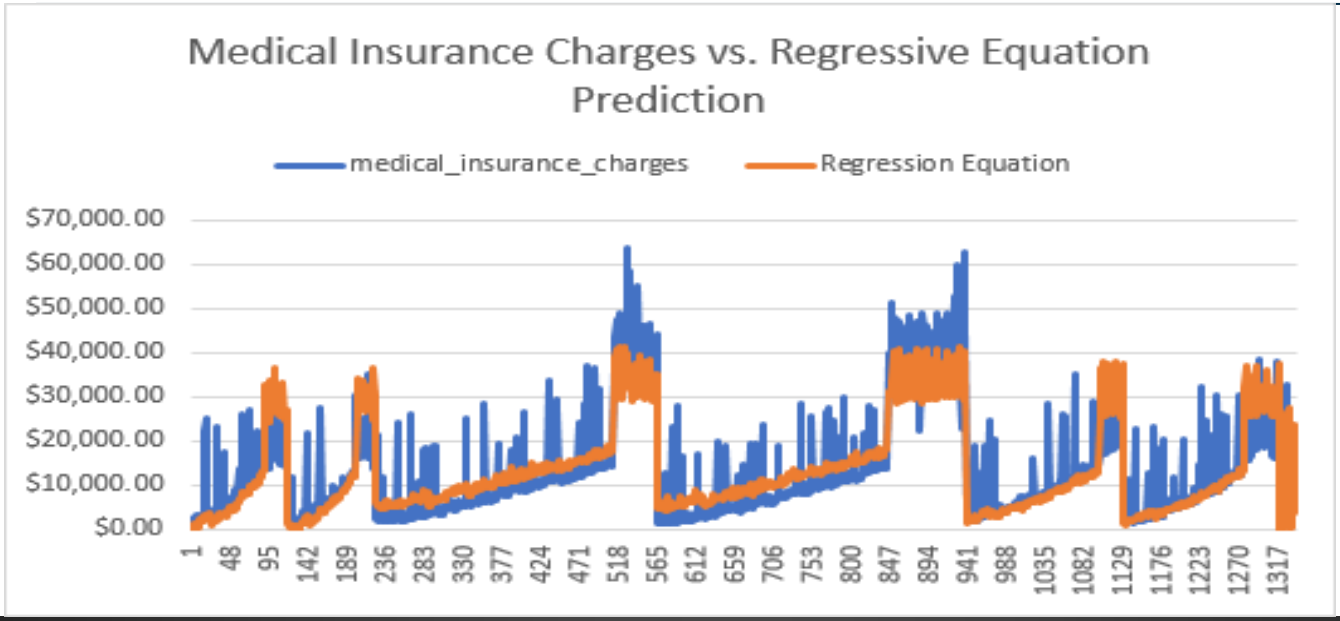
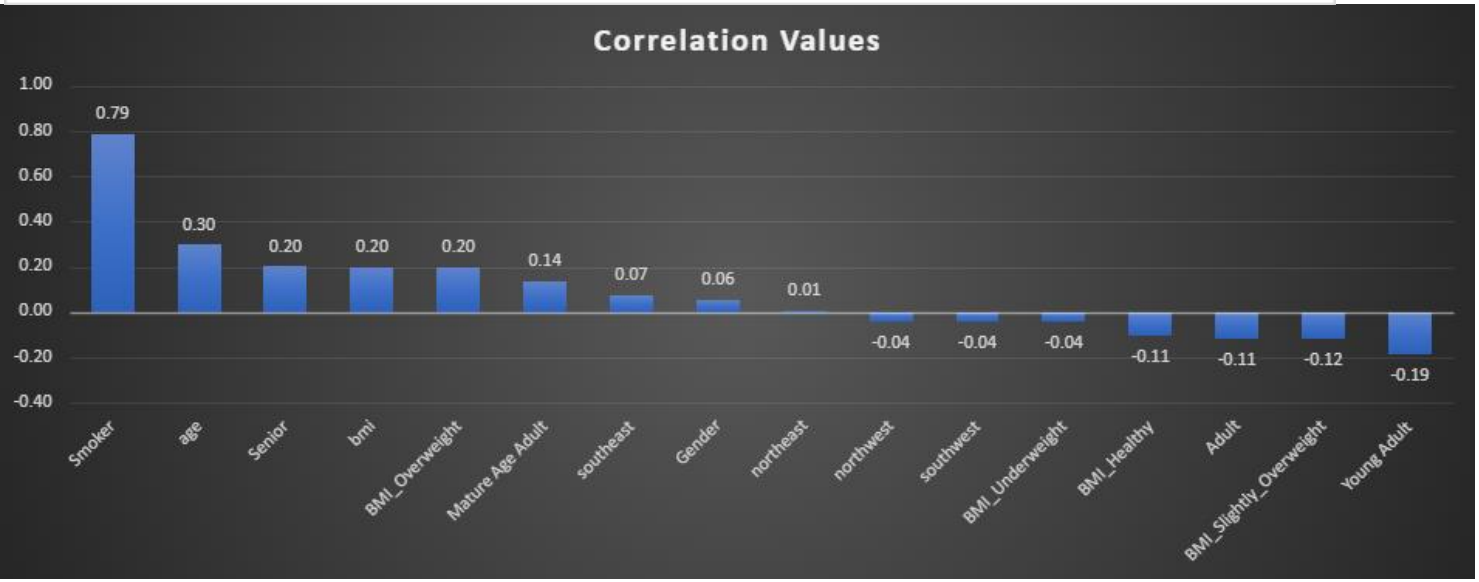
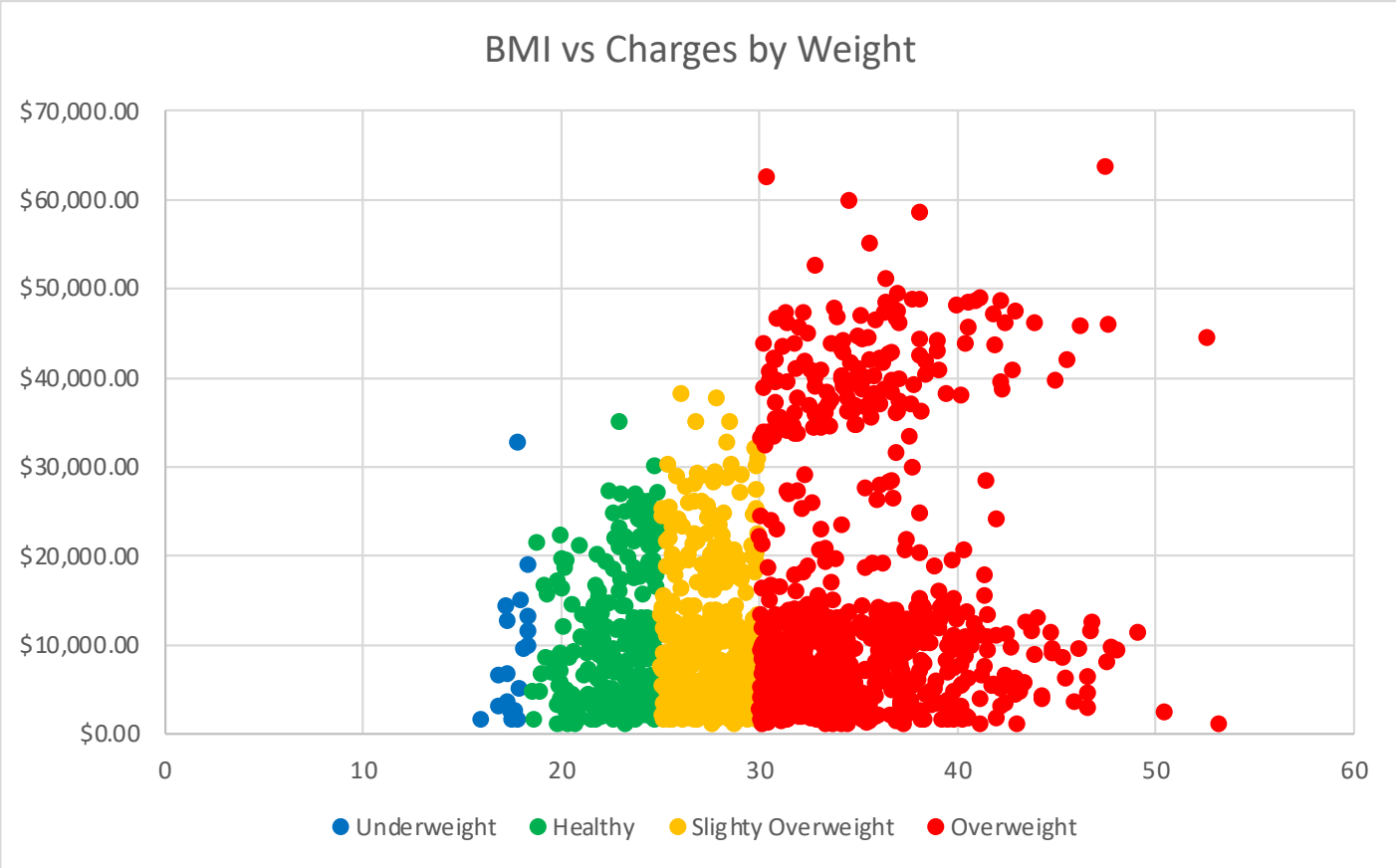
With a R Squared value of .75 our multiple regressive equation has a strong linear fit, with smoker age and BMI having the strongest correlations, enabling us to create a forecast within an 88% range.

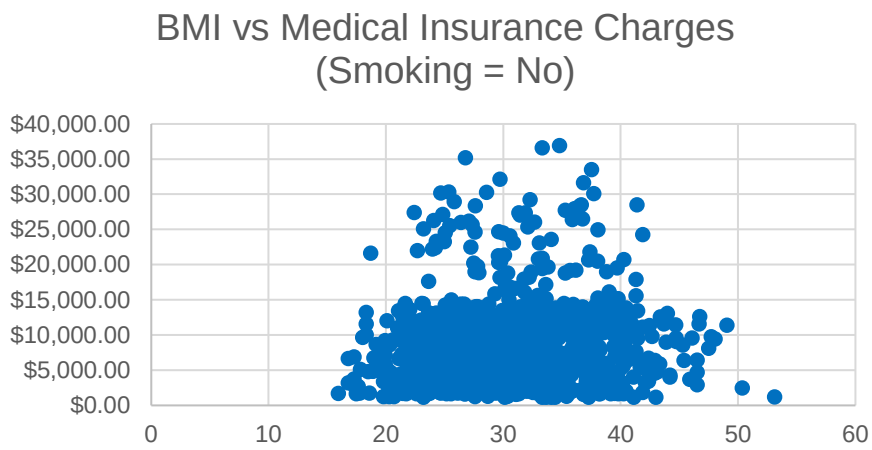


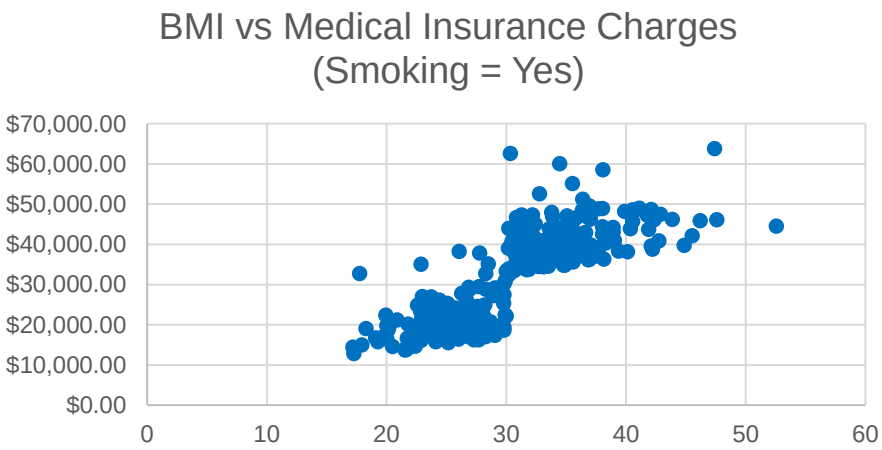


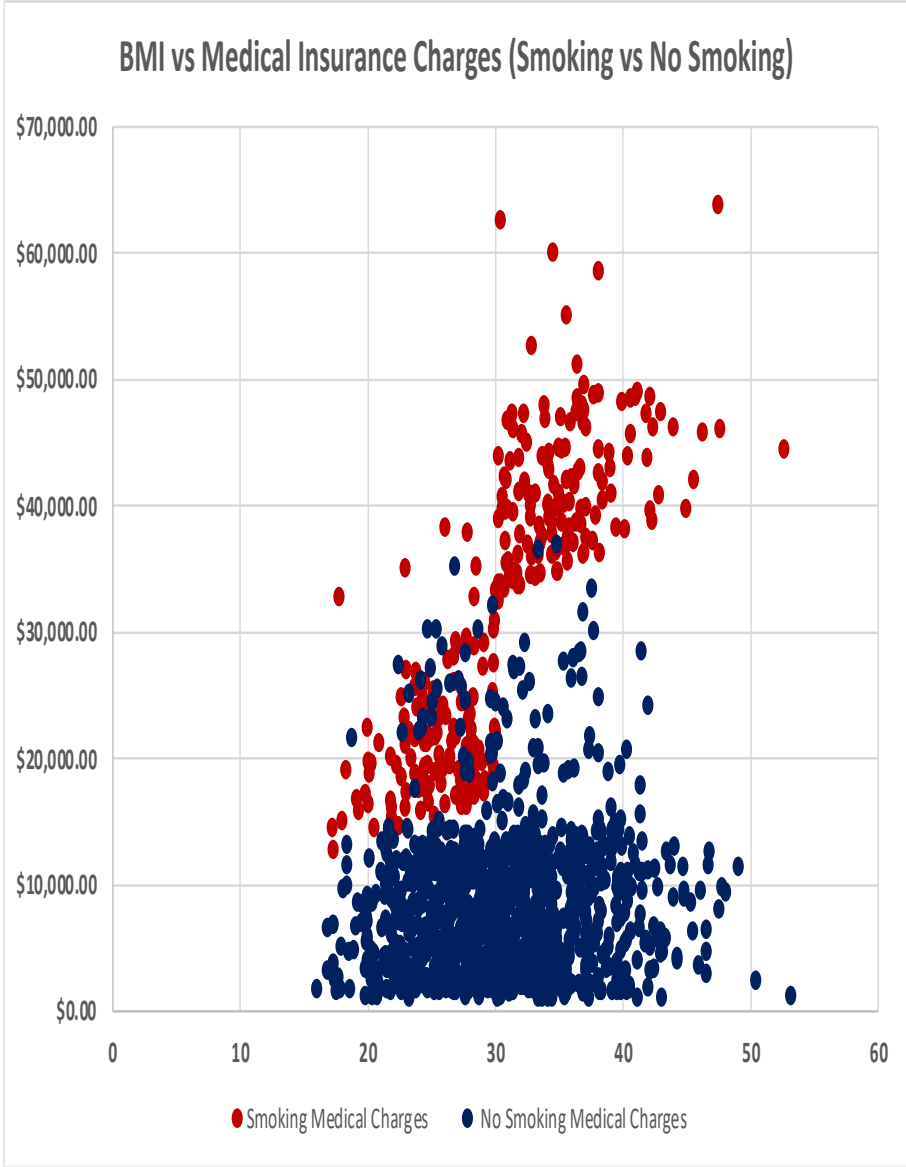
Analysis of medical insurance charges against BMI weight classification yields a weakly linear relationship, where costs increase as the BMI increases. However, we note there exists different pricing clusters, where high BMIs exist, but medical charges remain relatively low.



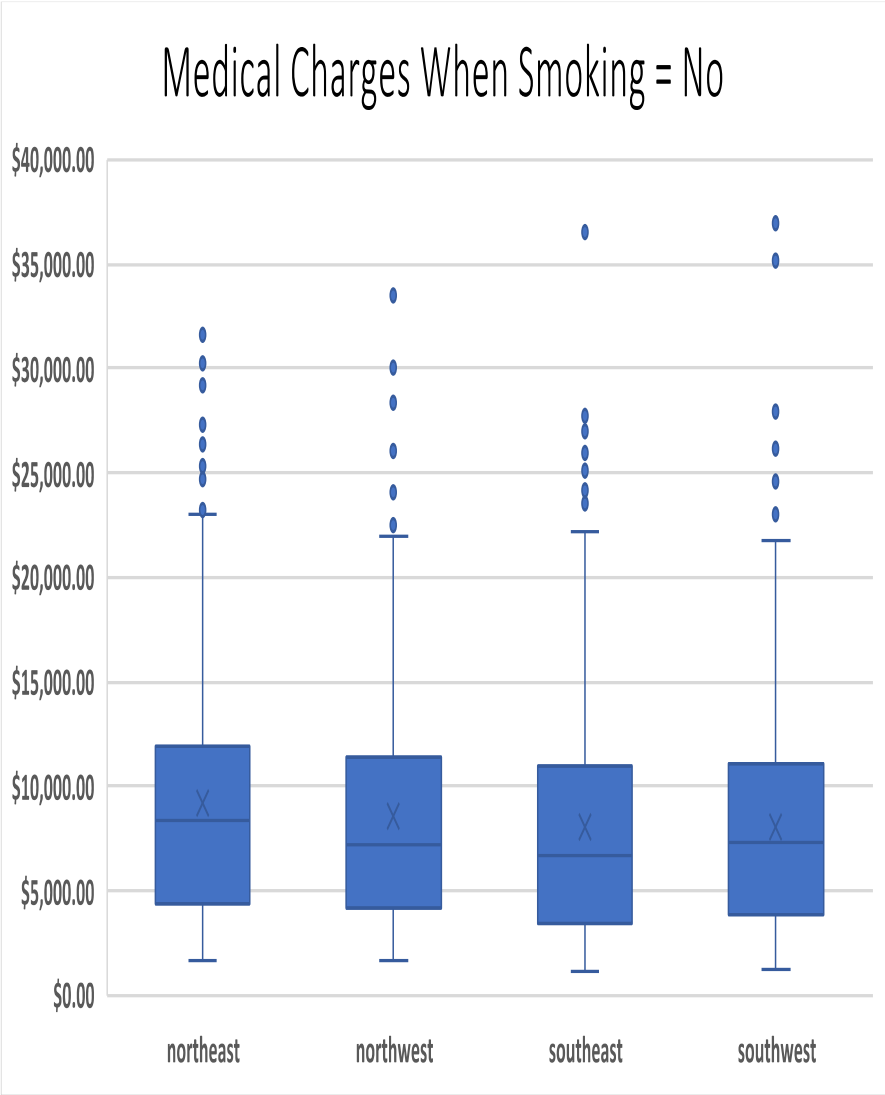
Further segmentation of the data, indicates the presence of smoking seems to be correlated towards higher medical charges, irrespective of BMI classification.

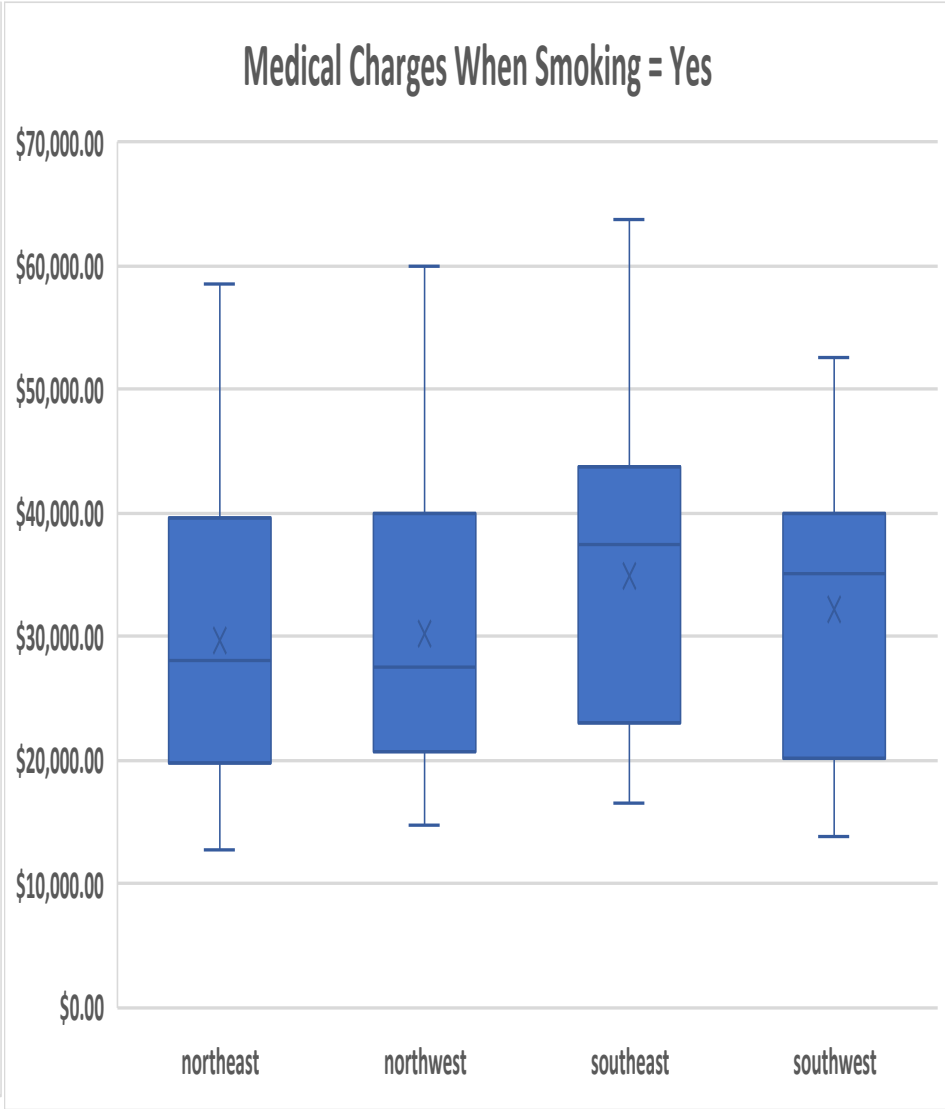




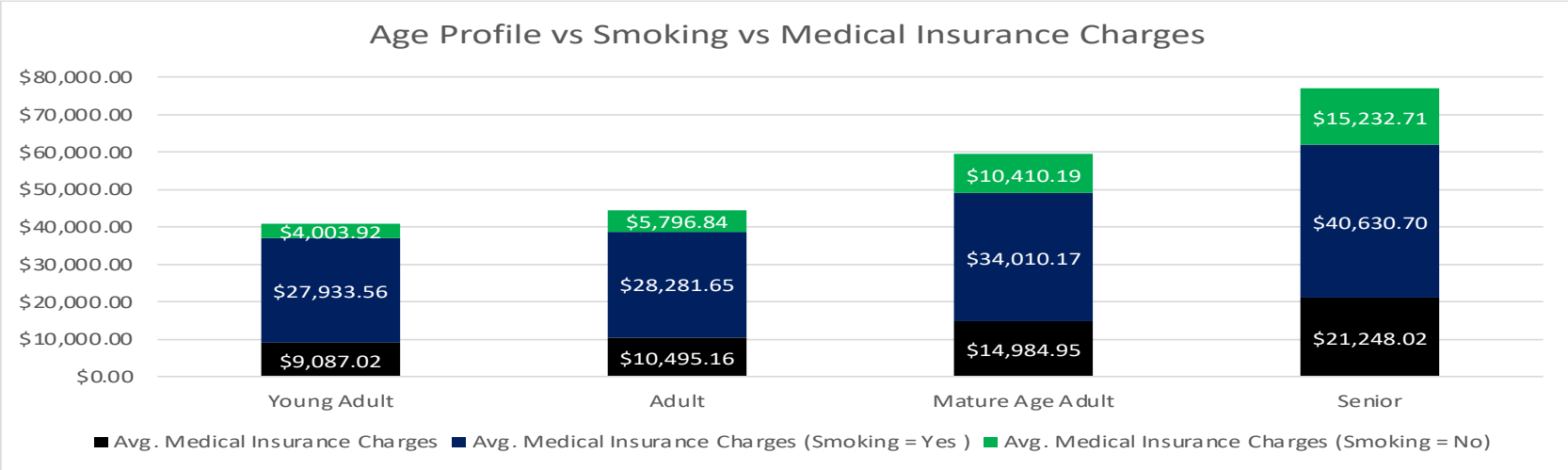


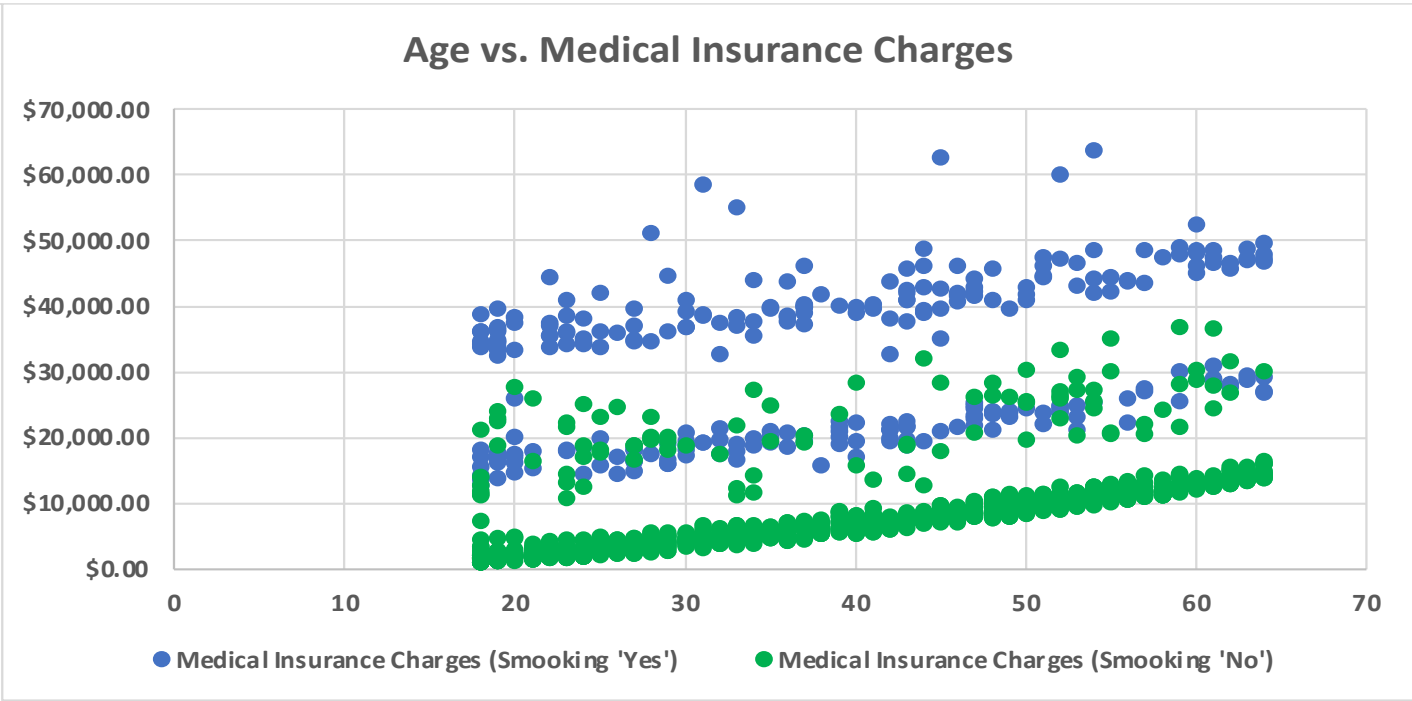
Building on our smoking theme, it is clear to see that this trend is again present as we analyse medical insurance charges by geographic segmentation. In the absence of smoking, the mean insurance charge is $8,434; however, with smoking, the mean charge is $32,050, 380% higher.





From an ageing lens, those who don't smoke tend to have 2 – 3x lower costs, than those that do smoke. Specifically, the insurance charges for smokers increase by $23,599 (327%) and $25,397 (267%) for those between the Mature Age and Senior Age Groupings, respectively.





Lastly, segmentation of our data via gender, yields little difference, in the absence of smoking. However, in the presence of smoking, the average medical insurance charge increases by ~$25K (309%) for men versus females ($21K), a 250% increase.