**Executive Summary**

Objectives:

Based on the data wrangling and the dataset we have created in phase 1 for claims dataset, we use this dataset for phase 2 to generate predictive models. This phase concentrates on understanding various predictive models i.e. decision trees, linear regression and logistic regression for the claims dataset to understand the influence of various independent variables identified on total payouts and processing time. An initial hypothesis would be generated and we run the model to verify the hypothesis. The results will be analyzed and recommendations will be made to the claims company on how can they can improve on grounds of total payouts/processing time.

Initial hypotheses:

We propose five hypotheses. The first would be an attempt to establish a relationship between payouts received between payouts from claims opened before 2009 and claims opened after 2009 to see if a policy change was made. The second would be to see if claims opened on certain days or months would be more successful than others. The third examines whether processing time is positively associated with payouts. The fourth proposes a negative relationship between the number of days between when an incident occurs and a claim opened and payout size. The final hypothesis explores the determinants of processing time.

Key findings from the analytics modeling:

Results from a linear regression indicate many of our assumptions hold true. Fatal injuries lead to higher payouts and men receive higher payouts than women on average. However, some findings break our assumptions, such as older claimants receive higher payouts than younger claimants on average. We find very bizarre results when looking at the month and day a claim was opened. Claims opened in June and April and on Sundays are more likely to receive considerably higher payouts than those opened at other times.

Our recommendations:

The company needs to review their claim payout process and see if there is any unnecessary procedural overhead for larger payouts. Ideally, this does not need to be the case and the company can be more efficient by streamlining their process. The Company should determine if head injury claims or costs are dealt in a more efficient way than others. If this is so, this is an improvement opportunity for company to review the process for other injuries in other body parts. If company realizes customer behavior impact higher payouts or higher accidents happen during April and Sundays, company needs to look at opportunity to better educate or warn customers during these times.