The first goal of the member tasks involved finding linear and non-linear regression models for the state Oregon. For the new cases in Oregon, the linear model had the lowest RMSE value and the prediction path indicates the cases are rising. For the new deaths in Oregon, the polynomial 2 model had the lowest RMSE value and the prediction path indicates that the new deaths are rising.

Next, the goal was to model for the top 5 states with the highest number of cases, which were Malheur, Umatilla, Morrow, Jefferson, and Marion Counties. For Malheur County cases, the linear model had the lowest RMSE and indicated cases were increasing. For Malheur County deaths, the linear model had the lowest RMSE and indicated deaths were decreasing. For Umatilla County cases, the linear model had the lowest RMSE and indicated cases were increasing. For Umatilla County deaths, the linear model had the lowest RMSE and indicated deaths were increasing. For Morrow County cases, the linear model had the lowest RMSE and indicated cases were increasing. For Morrow County deaths, the polynomial 2 model had the lowest RMSE and indicated deaths were increasing. For Jefferson County cases, the linear model had the lowest RMSE and indicated cases were increasing. For Jefferson County deaths, the linear model had the lowest RMSE and indicated deaths were increasing. For Marion County cases, the linear model had the lowest RMSE and indicated cases were increasing. For Marion County deaths, the linear model and polynomial 2 model had the lowest RMSE and indicated deaths were increasing.

The point of no return in Oregon comes out to be 22562 days from the date of the first death in Oregon. This was determined by using the linear model predictions. The top five states(not territories) closest to the point of no return were Delaware, Maryland, Massachusetts, New Jersey, and New York.

For the hypotheses created in Stage II, one was changed due to it essentially being the same hypothesis as the other. The hypotheses were:

1.) Does a higher number of voters (normalized) for a certain party lead to a higher initial increase in COVID-19 cases?
2.) Does a higher number of voters overall(normalized) lead to a higher number of COVID-19 cases overall?
3.) Do counties with a certain party winner have a higher number of COVID-19 cases overall (normalized)?

Hypotheses 1 and 3 were found to have a p value greater than 0.5 when performing a two-sample, two-tailed t-test, meaning we failed to reject the null hypothesis. Hypothesis 2 had a p value less than 0.5 when performing a two-sample, two-tailed t-test, meaning we rejected the null hypothesis. Then a two-sample, one-tailed t-test was performed and since alpha = 0.05, p/2 is also less than alpha and the t-value is positive, we can say that the hypothesis is correct and that a higher number of normalized voters overall leads to a higher number of COVID_19 cases overall.