

**Module 7 Option #1: Career Development Criteria - Self Marketing**

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MIS581 - Capstone Business Intelligence and Data Analytics

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September 27, 2020

## Project Output

### Hypotheses

Ho: The frequency of commercial sex acts are decreasing in the State of Texas.

Ha: The frequency of commercial sex acts are the same or increasing in the State of Texas.

### Findings

Initial analysis included summary statistics on the entire Human Trafficking dataset to remove any missing data and gather a basic insight of the information. A line series was generated to visually see the number of actual cases per year in sum of all States in the US. This plot identified Year 2016 has the highest recorded number of cases in the US. The data was sorted to identified the actual count for each crime type, involuntary servitude and commercial sex act, per year. This graph shared commercial sex acts are recording higher than involuntary servitude ranging in mid two hundreds and upwards. Year 2016 had three hundred and seventy-nine commercial sex act cases recorded in the US. Next, a scatterplot was generated identify the actual case count in each States in the US. This scatterplot identified Texas, Nevada, and Florida obtaining the highest number of recorded cases.

After understanding the data in all states across the US, the data was sorted subsetting Texas into a separate dataset to performed needed analysis to test the hypothesis. A one sample t-test was performed on the filtered dataset, showing normal distribution. The t-value was 19.21 which indicated there is great confidence this is a strong dataset for building a prediction model. Summary statistics and bar graphs were created to see the sum of actual case count per year and sum of case count for each crime type in the state of Texas. The sum of actually case count per

year findings show Year 2017 is the highest recorded year, obtaining close to three-hundred cases. The sum of involuntary servitude showed a steady decreasing pattern as the years went by, however, commercial sex acts were showing teeter-totter behavior. Therefore, with this finding, a forecasting model was developed to predict the trend of commercial sex acts in Texas. Per the prediction model, it indicates the number of recorded cases will rise by thirty percent.

**Proven or Unproven Hypothesis**

Per the findings of the data analysis, the *alternate hypotheses* has been proven. This indicates the trend of the commercial sex acts are increasing in the state of Texas. With this finding, it shows that CAST needs to increase their presence in the state of Texas.