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DATA ANALYST

Collect, process, analyze and present data – from supporting everyday business decisions to fueling global change with the help of tools like Excel, SQL, Python and Tableau.

US Education Funding Analysis

Analyzing the financial performance of the education system

US EDUCATION FUNDING ANALYSIS

Business Problem: Every state across US receives funding for education every year. The objective of this analysis is to provide insights about the financial performance of the education system in the US and find the trends and patterns to budget for the upcoming year.

Limitation:

- The available dataset is from 1993-2016. If we had the most recent data effect on education funding after covid could have been understood.
- The dataset with naep test score had only average score for each state. The data with score of each school district would have been helpful in finding the influence of test score on revenue.

Tools : Python, Tableau

Skills:

- Geographical visualization
- Machine Learning - Regression Analysis
- Clustering Analysis
- Time Series Analysis
- Time Series Forecast Model

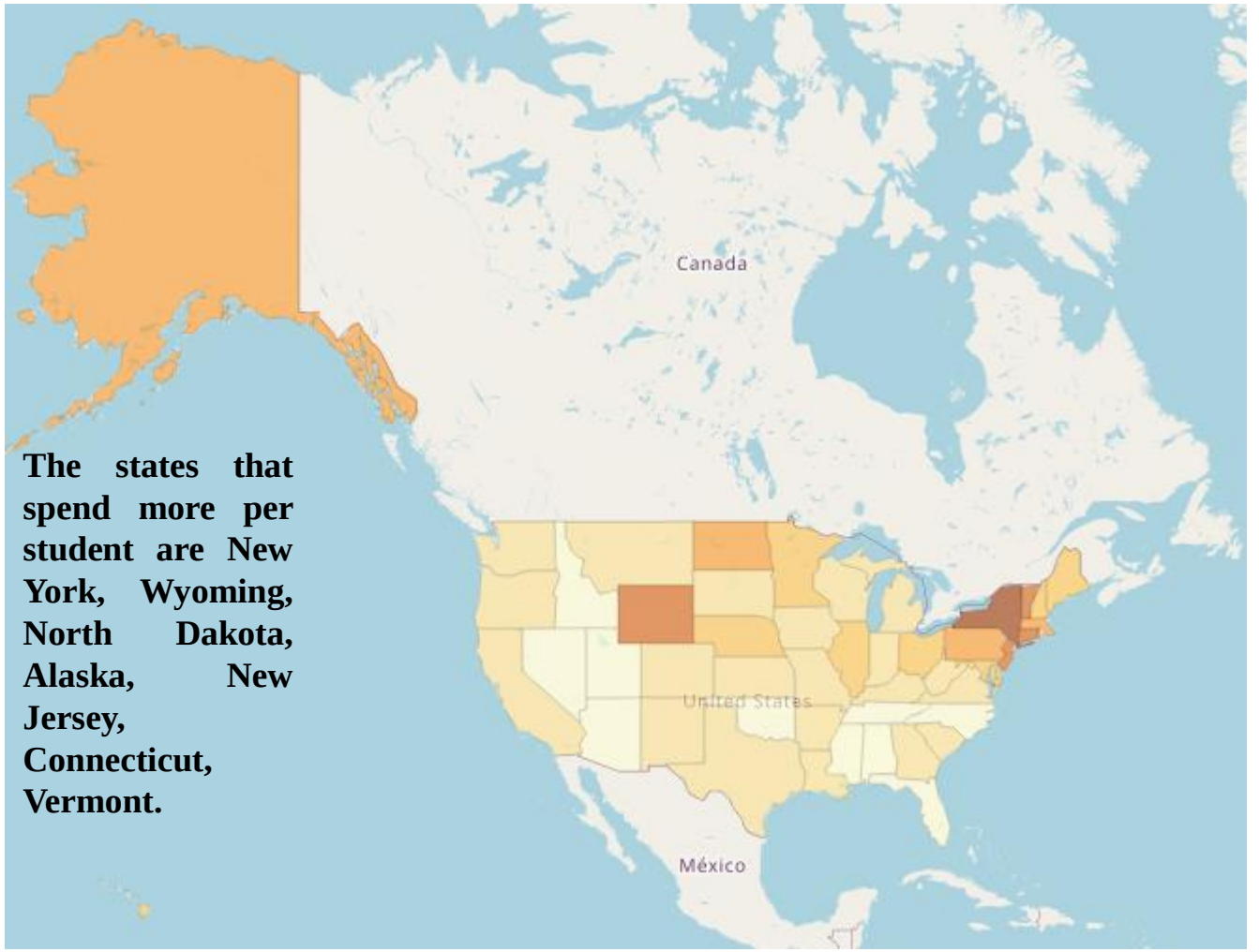
Source Code:

Storyboard:

Data Sourcing, Cleaning and Analysis

- Data was sourced from the open source for this analysis.
- Data was checked for any inconsistencies and data was cleaned, wrangled and derived new column for the analysis.
- The final dataset had 358293 rows and 13 columns

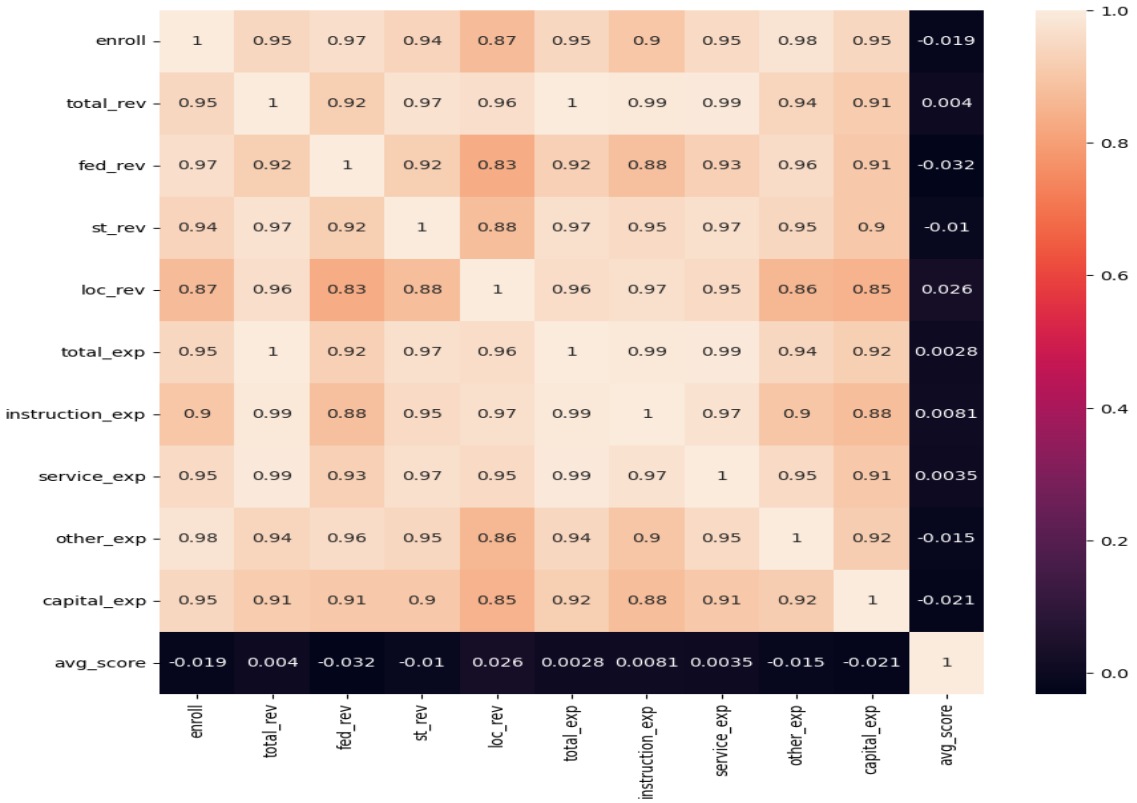
Year	2016
Total revenue	682,057,276
Total Expenditure	676, 526, 434
Enrollment Count	48,571,827

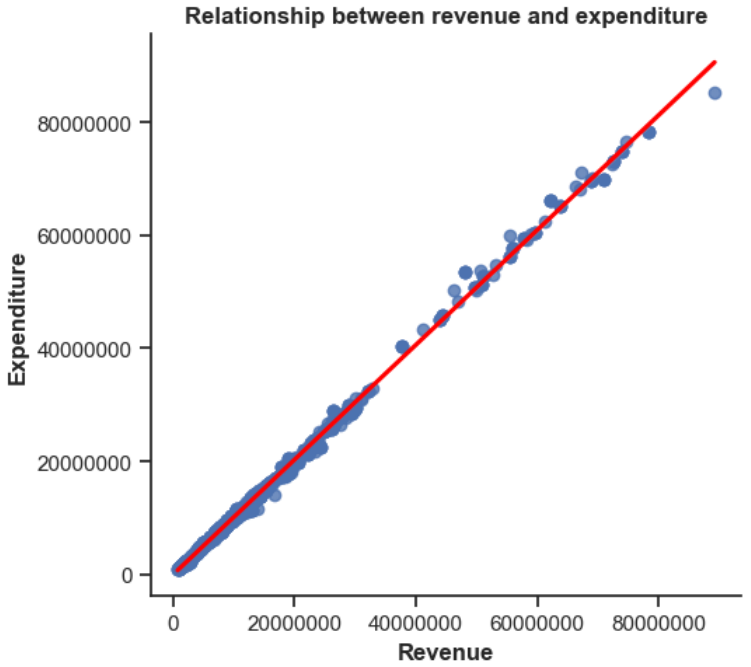


The states that spend more per student are New York, Wyoming, North Dakota, Alaska, New Jersey, Connecticut, Vermont.

Exploring Relationship

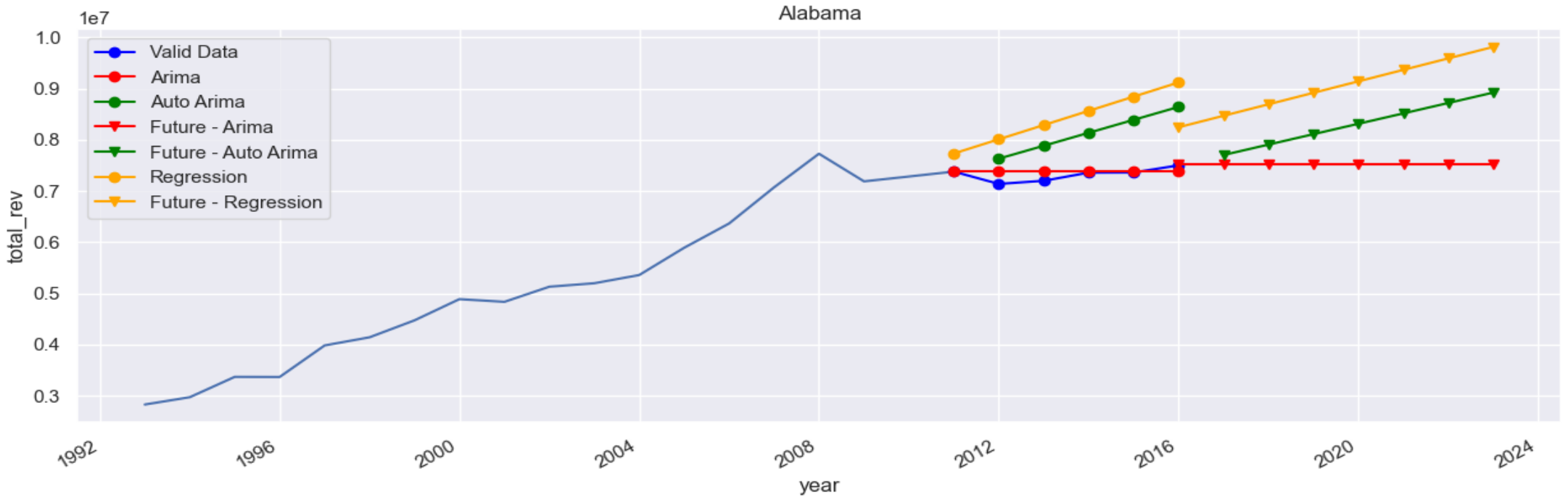
- There is a linear positive relationship between revenue and expenses.





- The revenue of the state is not dependent on the performance of the school based on the exploratory analysis.
- There is a positive trend between enroll and revenue and the correlation coefficient of 0.8. This means that with 1 unit increase in enrollment there is 0.8 unit increase in the revenue.

Forecast model



- Three models were tested on the data - ARIMA, Auto ARIMA and Regression models.

Alabama:

ARIMA model had the MSE of **133628**

Regression model had the MSE of **1178986**

Based on this score ARIMA performs better for Alabama state. This differs for each state.

Key Understanding

- There is positive relationship between enrollment count and revenue.
- 52% of the spending is done for the instruction expenses.
- The revenue is not dependent on the performance of the school.
- Big states like California, Texas, New York receive more funding but the states like Alaska, New Jersey, District of Columbia spend more per student.
- In the year 2016, California has received the high percentage of growth in revenue of 14% and Alaska with least percentage of -14%.