Diving Into the Impacts of Sea Level Rise

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Project Objectives

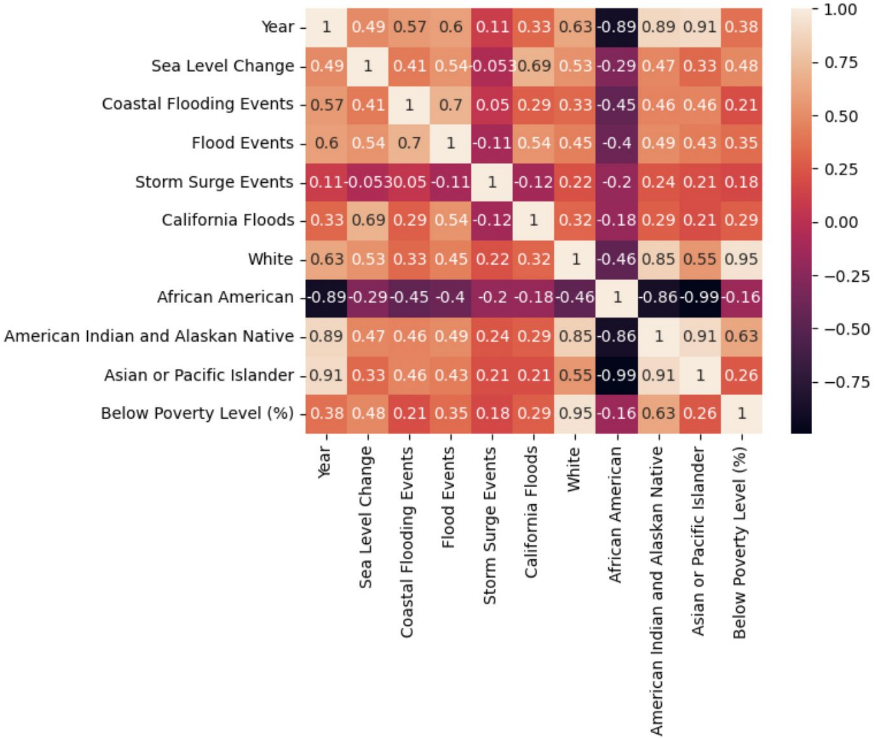
Data Visualization and Analysis

SLR Impact Predictor Algorithm

Communication with end users

Data Exploration

Year	Sea Level Change	Coastal
1996	-4	
1997	56	
1998	62	
1999	-50	
2000	-28	
2001	-27	
2002	-12	
2003	0	
2004	5	
2005	26	
2006	52	



erican Indian and	Asian or Pacific Islar	Below Poverty Level
3354	211000	12.4
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3354	211000	12.4
3354	211000	12.4
3458	243409	6.6
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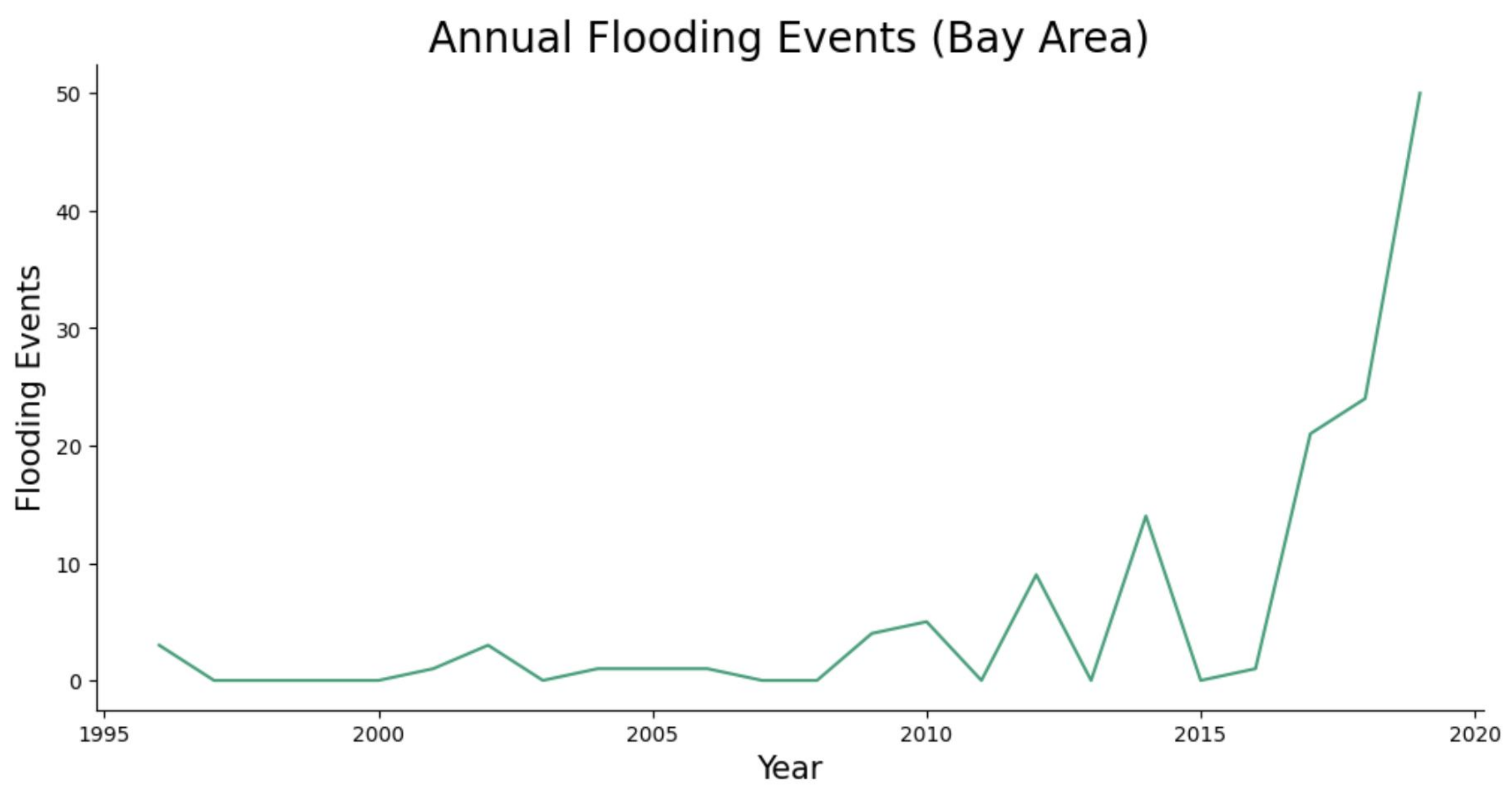
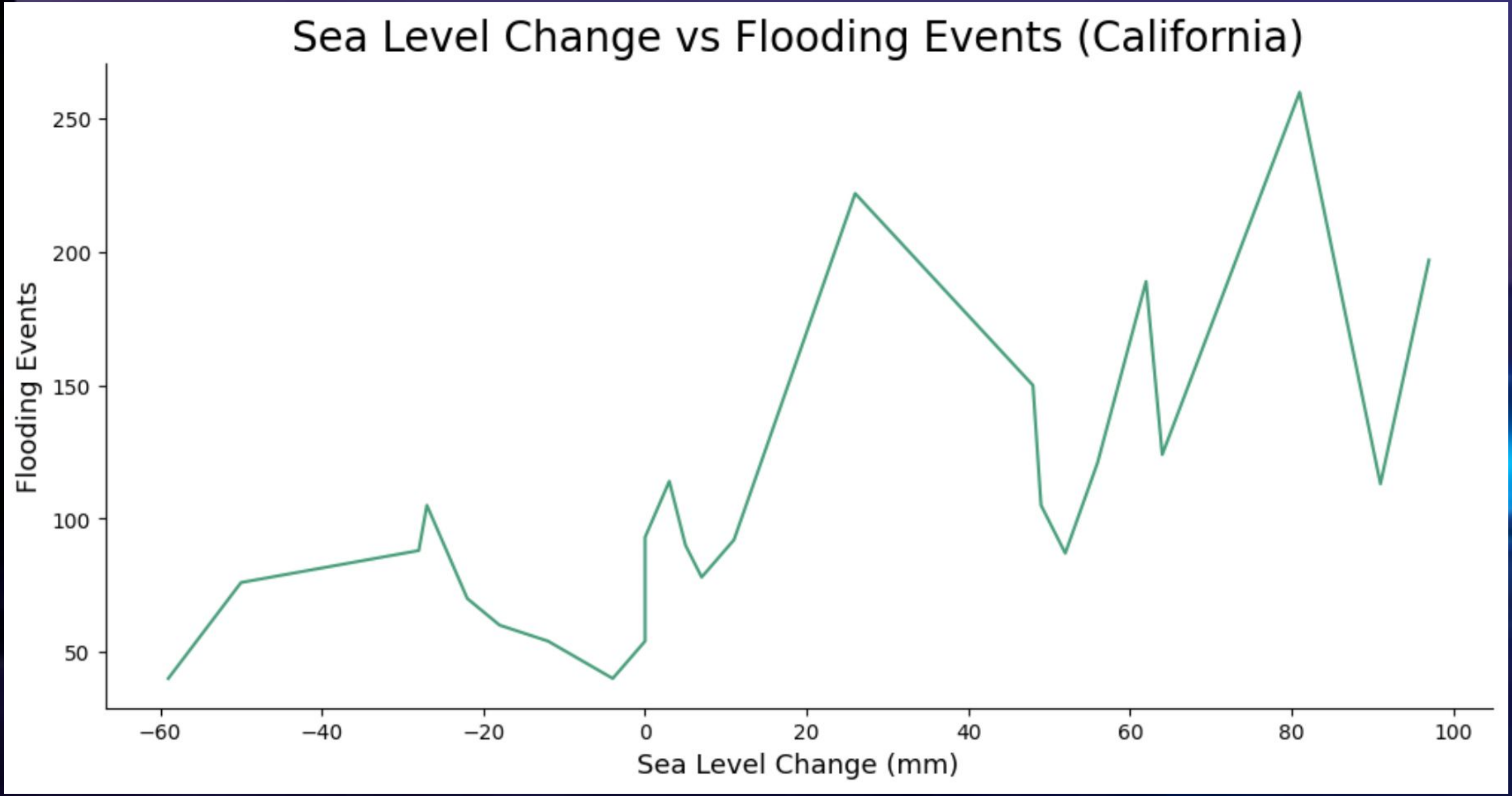
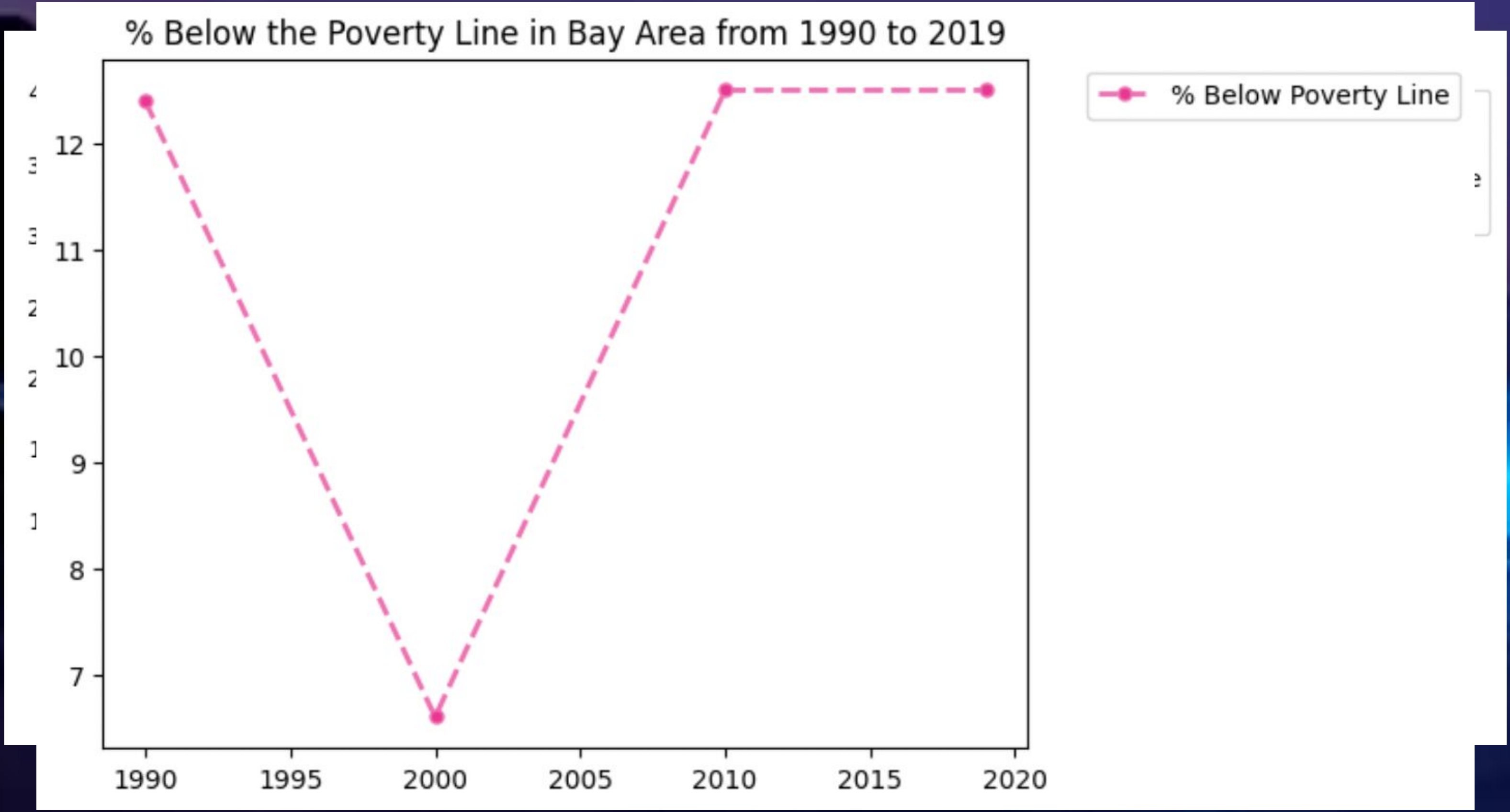
Data Visualizations



Data Visualizations



Data Visualizations



Some of the models we created….

Random forest models

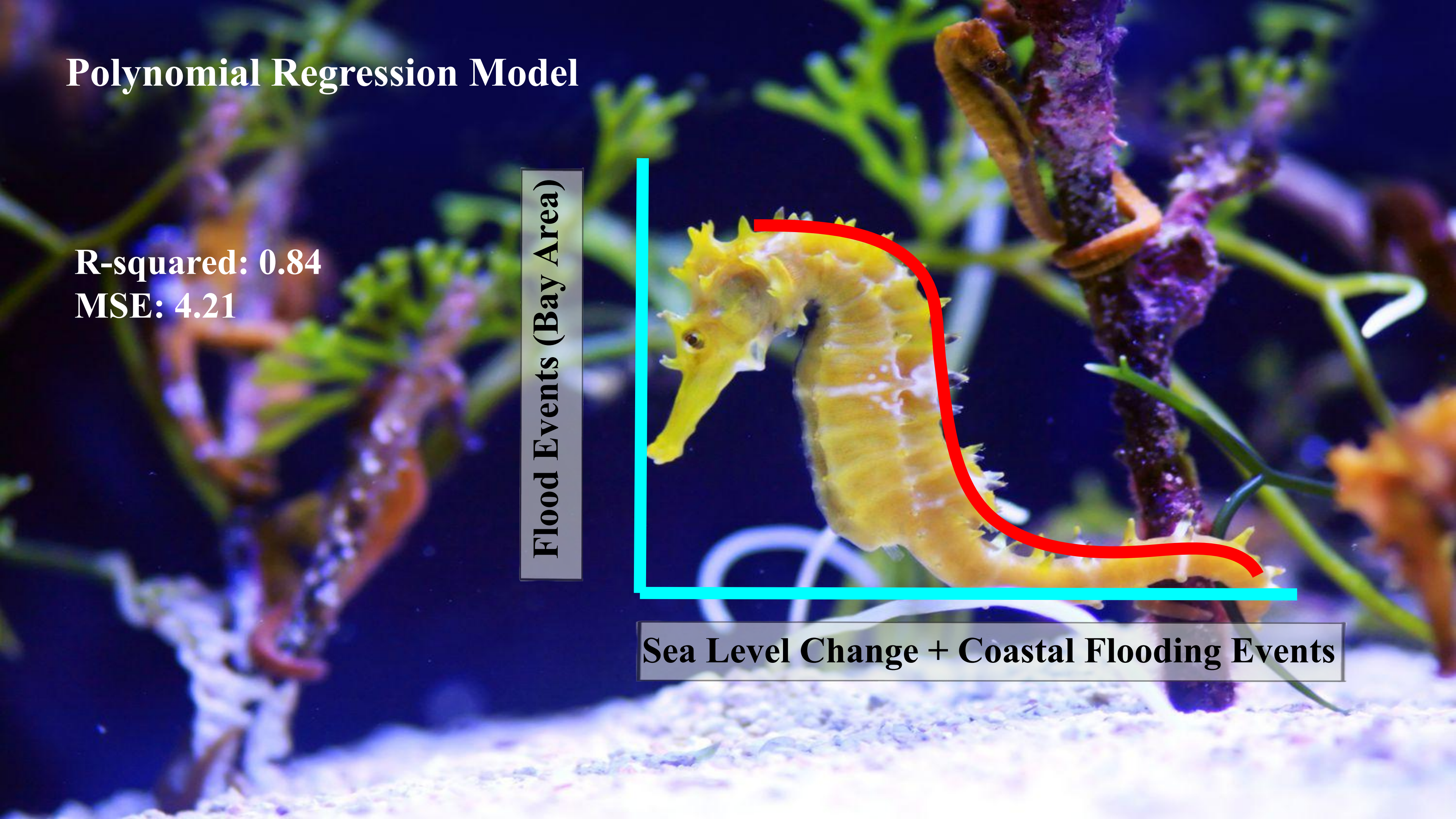
Decision tree models

Multivariate regression models

Multiple linear regression models

Simple linear regression models

Logistic regression models


Polynomial Regression Model
R-squared: 0.84
MSE: 4.21
Flood Events (Bay Area)
Sea Level Change + Coastal Flooding Events

Recommendations

Limitations

analytix

Home About Algorithm Data Exploration

Predicting Sea Level Rise Impacts

Optimizing data-driven conclusions to safeguard our future

The Machine-Learning Algorithm

The Dataset

For our analysis of the surrounding area of San Francisco, we used multiple datasets from various sources: the "Annual mean sea level trends" dataset from OEHHA (California Office of Environmental

Meet Team Penguins

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B.S. in Statistics
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B.S. in Statistics, Minor in Computer Science

Our Vision

Our project seeked to address the impact of sea level rise in San Francisco on the surrounding community and environment through machine-learning modeling and data visualizations.

Technology

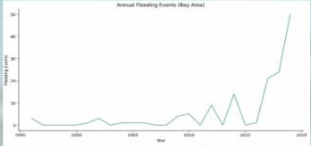
Our work was accomplished with Python and the following libraries: numpy, sklearn, matplotlib, pandas, and seaborn.

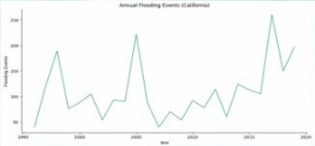
community. Action needs to be taken to mitigate the harm that will inevitably occur in the future by rising sea levels. We recommend protecting the coast of California with the following: building stormwater pumps, upgrading roads and bridges, constructing seawalls, and improving stormwater drainage systems.

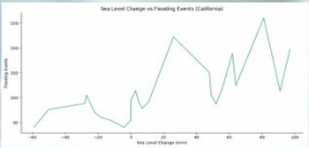
response variable. The model had a mean squared error of 4.21, indicating that the predicted values barely deviated from the actual values. The R-squared value of the model was 0.84. This means that 84% of the variability observed in the number of floods can be explained by the model.

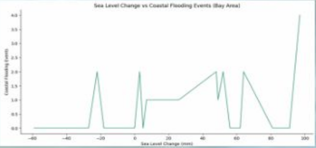
Data Visualizations

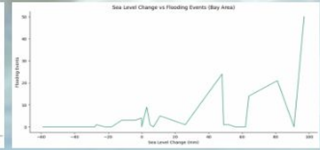
The following graphs were created to illustrate the relationship between sea level rise, coastal floods, and total floods. We, also, wanted to understand the community that is impacted by the rise in sea levels in San Francisco, thus graphs depicting demographic data are included. This exploration of data enables patterns to be identified that can be utilized for preventative measures to protect people and the environment.

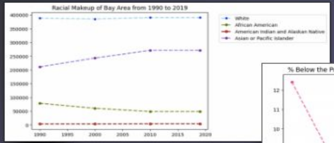


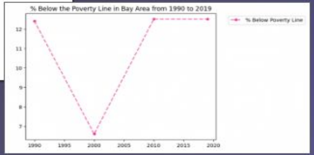












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Thank you!