**California Housing Dataset Analysis**

**Introduction**

This project aims to conduct an exploratory data analysis (EDA) on the California housing dataset. The dataset provides various features related to housing in California, such as median income, housing median age, total rooms, total bedrooms, population, households, median house value, and ocean proximity.

**Features Overview:**

* **Nominal:** ocean\_proximity
* **Ordinal:** None
* **Discrete:** housing\_median\_age
* **Continuous:** median\_income, median\_house\_value, total\_rooms, total\_bedrooms, population, households, latitude, longitude

**Objectives**

The main objectives of this analysis are:

1. Calculate the average median income and visualize its distribution.
2. Explore the distribution of housing median age.
3. Investigate the relationship between median income and median house value.
4. Handle missing values in the dataset.
5. Conduct spatial analysis by plotting latitude versus longitude.
6. Derive insights based on the proximity to the ocean.
7. Create a new feature based on total bedroom size categorization.

**Tools Used**

* **Python:** For data manipulation, analysis, and visualization.
* **Pandas:** For data handling and manipulation.
* **Matplotlib:** For data visualization.
* **NumPy:** For numerical operations.
* **GitHub:** For version control and project sharing.

**Project Structure**

* **Data Preprocessing:** Handling missing values and data cleaning.
* **Exploratory Data Analysis:** Visualizing distributions, relationships, and spatial analysis.
* **Insights and Conclusion:** Summarizing findings and deriving insights from the analysis.

**Dataset Source**

The dataset used in this analysis is publicly available and can be accessed [here](link to dataset source). It contains [mention any specific details about the dataset].

**Usage**

You can clone this repository to reproduce the analysis or further extend it for your own purposes. Feel free to explore, contribute, or use this analysis for educational or research purposes.