Predicting Abalone Age Using Shiny App

This project involves the development of an interactive Shiny app to predict the age of abalones based on their physical measurements. The app provides a comprehensive analysis of the data and includes functionalities for data summary, age calculation, and data visualization.

Features

- **Data Summary:** View detailed summaries of the dataset, including variable types, summary statistics, and descriptive data.
- **Age Calculator:** Calculate the approximate age of an abalone by entering specific physical measurements.
- **Data Visualization:** Explore the data with histograms, scatter plots, and box plots. Options to customize the number of bins for histograms and to toggle outliers in box plots.
- **Statistical Modeling:** Apply multiple linear regression models to predict abalone age and analyze relationships between variables.

Technologies Used

- **R:** Data analysis and statistical modeling.
- **Shiny:** Building interactive web applications.
- **magrittr:** For piping operations.
- **shinythemes:** To enhance the visual appeal of the app.
- **Hmisc:** For enhanced data summary and description.

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How to Run the App

1. Clone the repository.

   ```
   bash

   git clone https://github.com/yourusername/abalone-shiny-app.git
   ```

2. Open the R project in RStudio.
3. Install the required packages if they are not already installed.

   ```
   R

   install.packages(c("shiny", "shinythemes", "magrittr", "Hmisc"))
   ```

4. Run the Shiny app.

```
R

shiny::runApp()
```

Data Source

- The dataset used in this project is sourced from the UCI Machine Learning Repository.