

## **Problem Statement: Abalone Age Prediction**

**Description:-** Predicting the age of abalone from physical measurements. The age of abalone is determined by cutting the shell through the cone, staining it, and counting the number of rings through a microscope -- a boring and time-consuming task. Other measurements, which are easier to obtain, are used to predict age. Further information, such as weather patterns and location (hence food availability) may be required to solve the problem.

### **Attribute Information:**

Given is the attribute name, attribute type, measurement unit, and a brief description. The number of rings is the value to predict: either as a continuous value or as a classification problem.

### **Name / Data Type / Measurement Unit / Description**

- 1- Sex / nominal / -- / M, F, and I (infant)
- 2- Length / continuous / mm / Longest shell measurement
- 3- Diameter / continuous / mm / perpendicular to length
- 4- Height / continuous / mm / with meat in shell
- 5- Whole weight / continuous / grams / whole abalone
- 6- Shucked weight / continuous / grams / weight of meat
- 7- Viscera weight / continuous / grams / gut weight (after bleeding)
- 8- Shell weight / continuous / grams / after being dried
- 9- Rings / integer / -- / +1.5 gives the age in years

### **Building a Regression Model**

1. Download the dataset: [Dataset](#)
2. Load the dataset into the tool.
3. Perform Below Visualizations.
  - Univariate Analysis
  - Bi-Variate Analysis
  - Multi-Variate Analysis
4. Perform descriptive statistics on the dataset.
5. Check for Missing values and deal with them.
6. Find the outliers and replace them outliers
7. Check for Categorical columns and perform encoding.
8. Split the data into dependent and independent variables.
9. Scale the independent variables
10. Split the data into training and testing
11. Build the Model
12. Train the Model
13. Test the Model

14. Measure the performance using Metrics.