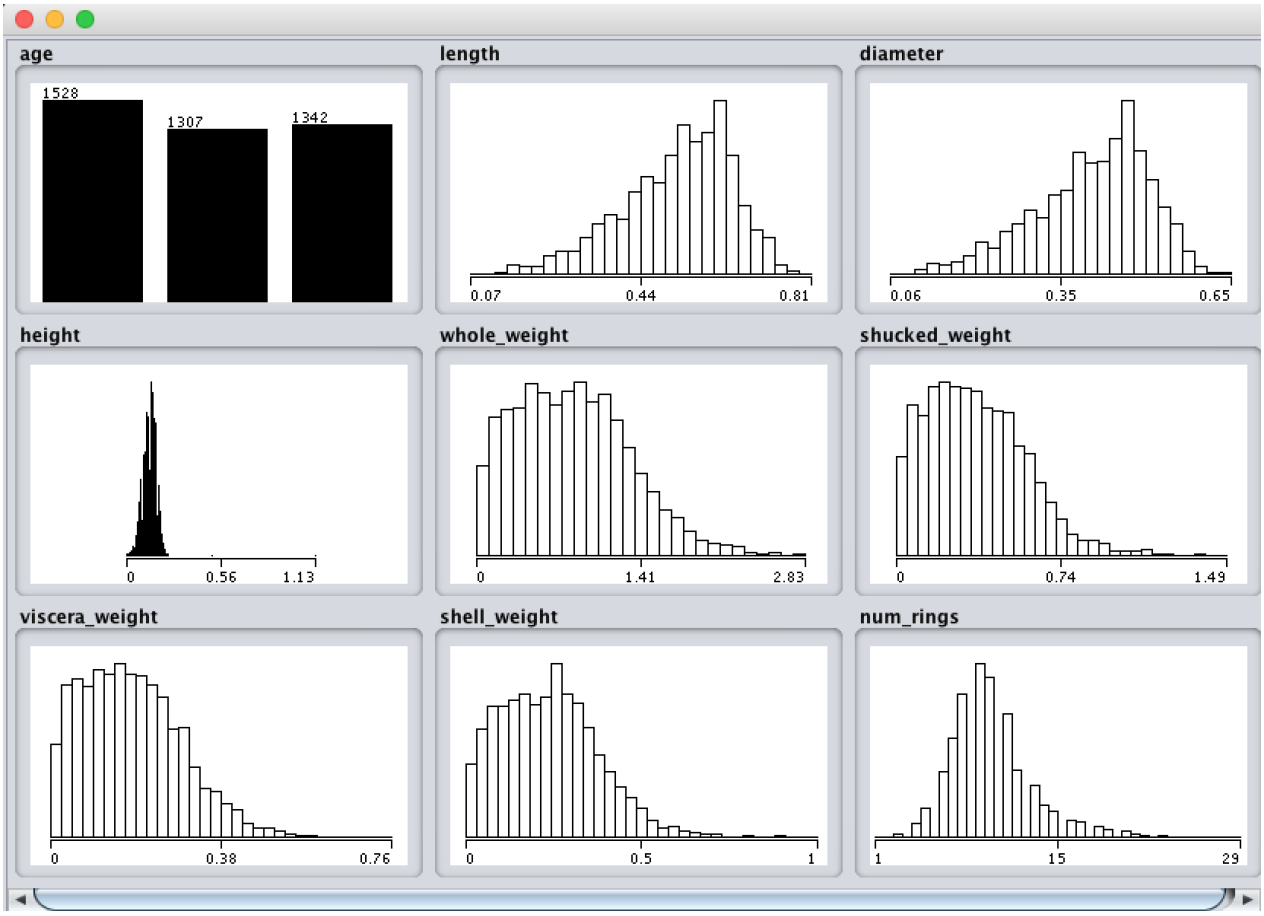
1.Weka:

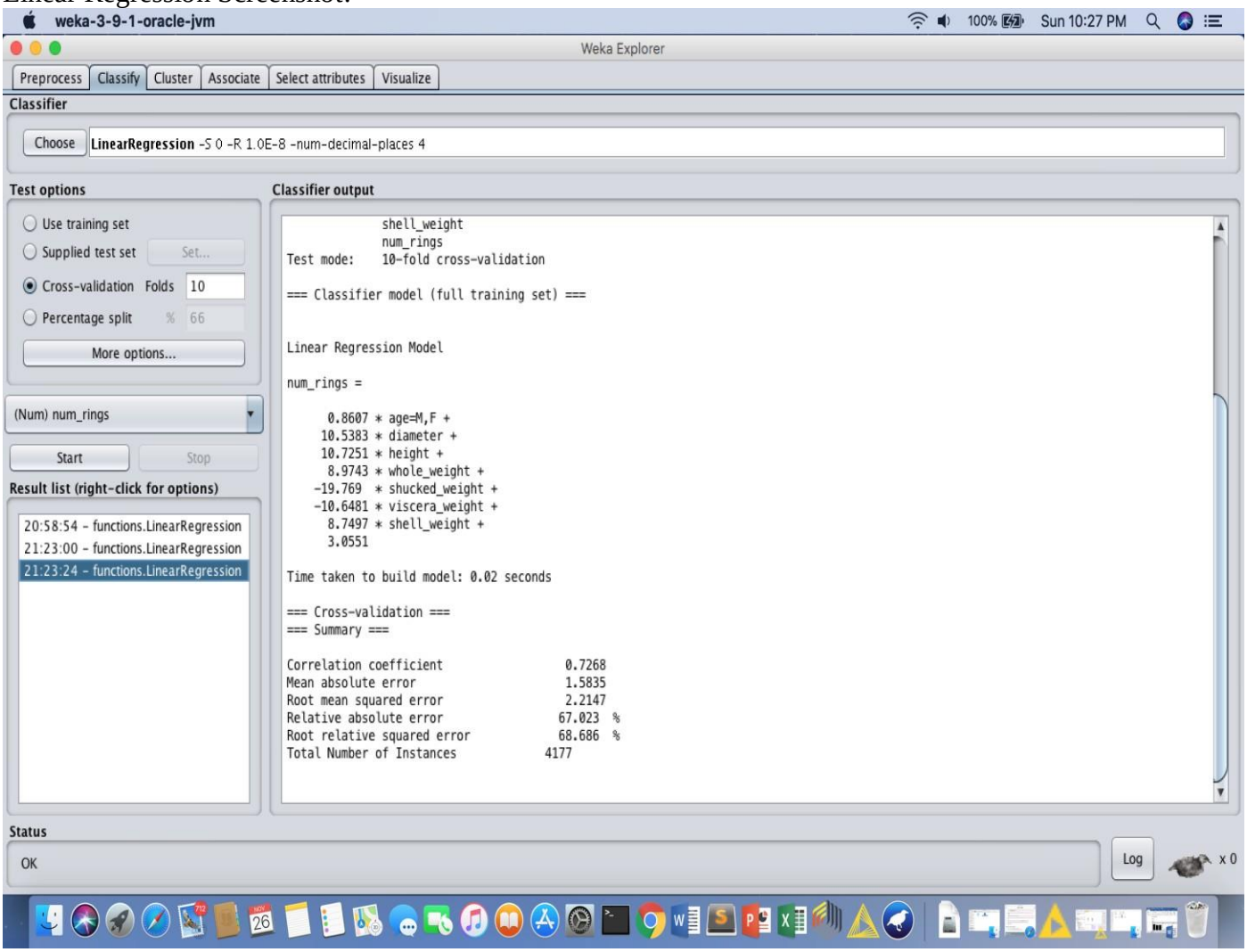
Distributions Screenshot:



1. Mean absolute error is 1.5835 (Which can be seen in Linear Regression Screenshot below).

Mean absolute error (MAE) is a measure of difference between two continuous variables.
As the name suggests, the mean absolute error is an average of the absolute errors $|e_i|=|y_i-x_i|$, where y_i is the prediction and x_i the true value. Note that alternative formulations may include relative frequencies as weight factors. The mean absolute error uses the same scale as the data being measured. This is known as a scale-dependent accuracy measure and therefore cannot be used to make comparisons between series using different scales

Linear Regression Screenshot:

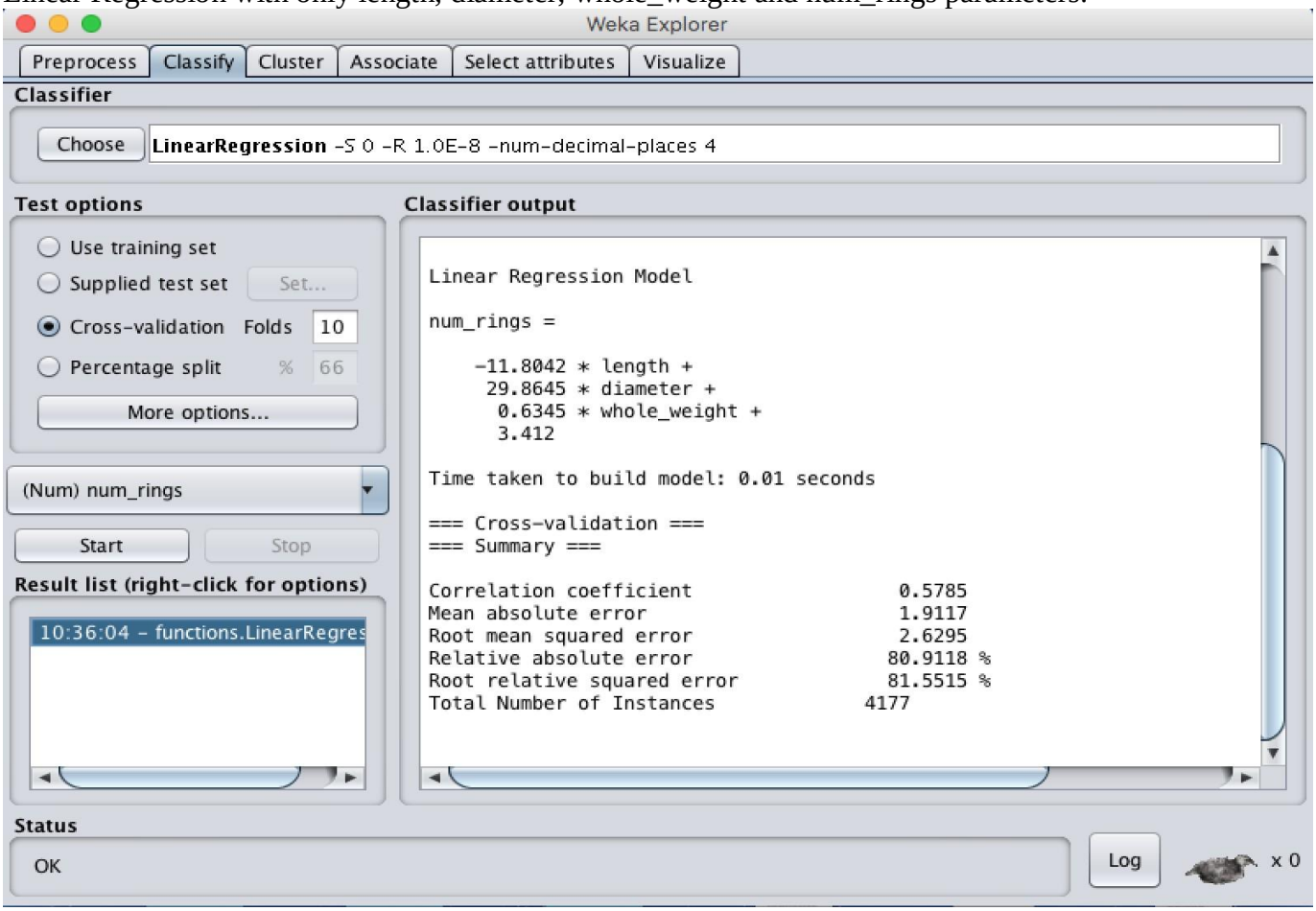


2. **Equation:** num_rings = f(age{M,F}, length, diameter, height, whole_weight, shucked_weight, viscera_weight, shell_weight) =

0.8607 * age=M,F +
10.5383 * diameter +
10.7251 * height +
8.9743 * whole_weight +
-19.769 * shucked_weight +
-10.6481 * viscera_weight +
8.7497 * shell_weight +
3.0551

3.0551 is the Intercept

Linear Regression with only length, diameter, whole_weight and num_rings parameters:



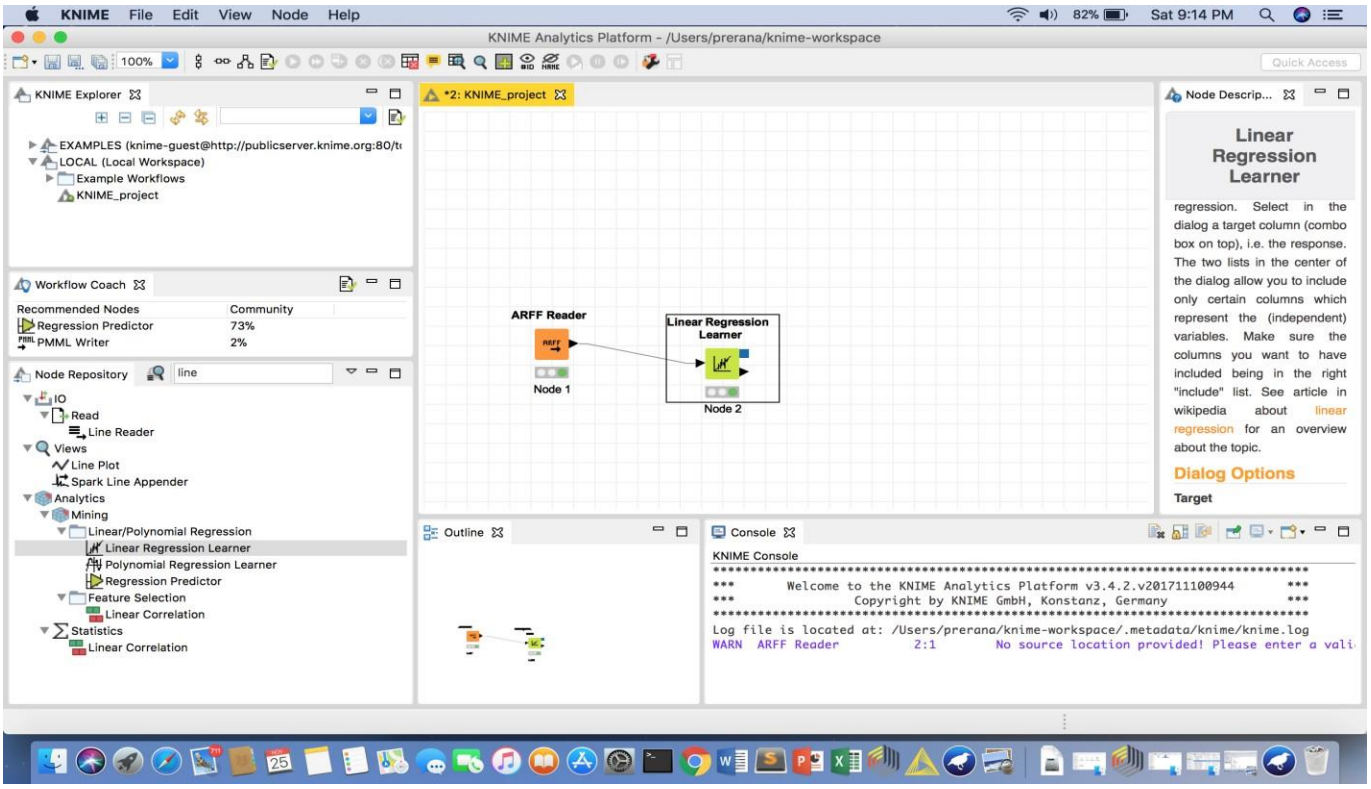
3. **Equation:** num_rings = f(length, diameter, whole_weight) =

-11.8042 * length +
29.8645 * diameter +
0.6345 * whole_weight +
3.412

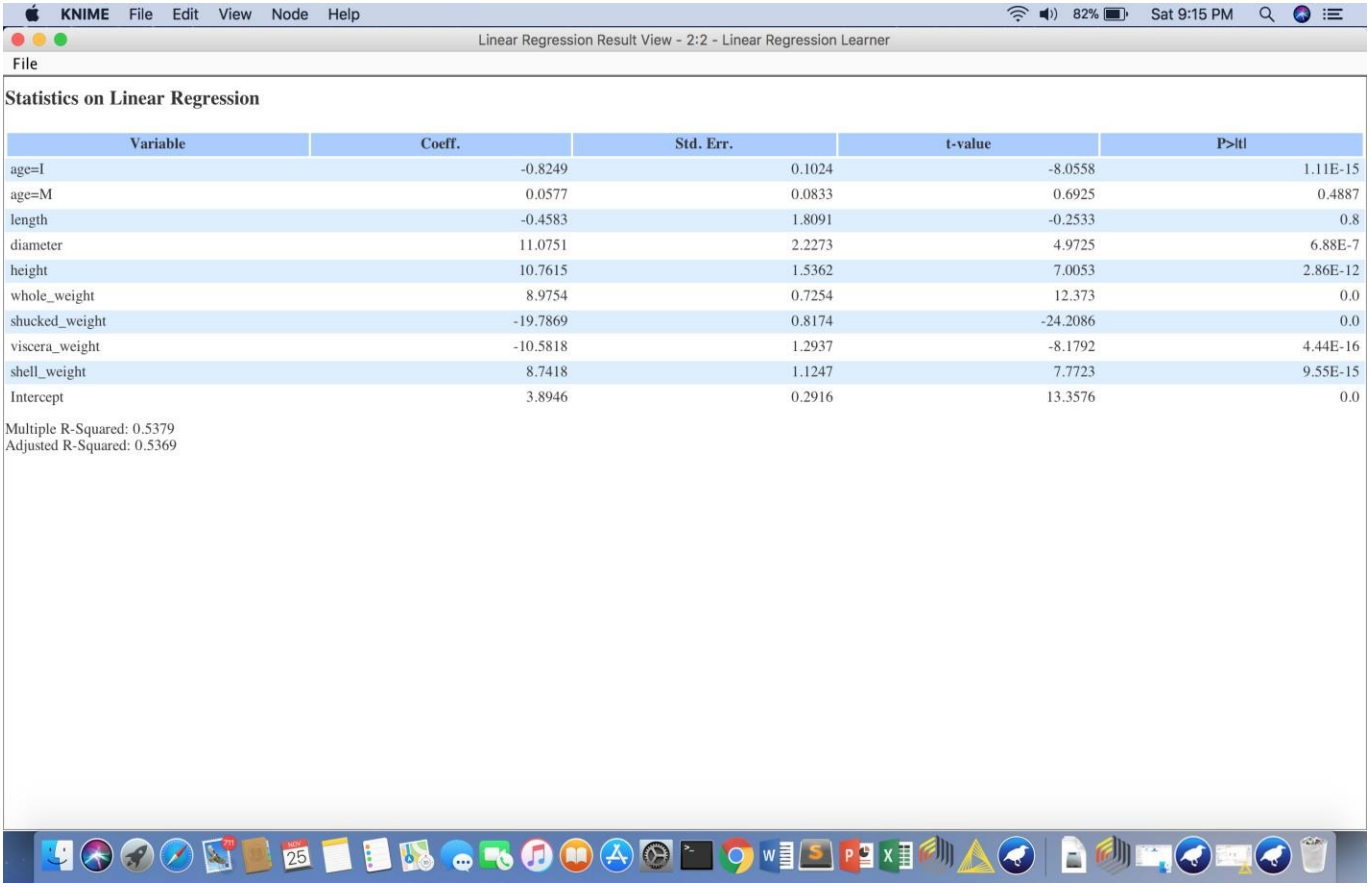
3.412 is the Intercept

2.Knime:

Linear Regression Screenshot:



Result:



Statistics on Linear Regression

Variable	Coeff.	Std. Err.	t-value	P>|t|
age=I	-0.8249	0.1024	-8.0558	1.11E-15
age=M	0.0577	0.0833	0.6925	0.4887
length	-0.4583	1.8091	-0.2533	0.8
diameter	11.0751	2.2273	4.9725	6.88E-7
height	10.7615	1.5362	7.0053	2.86E-12
whole_weight	8.9754	0.7254	12.373	0.0
shucked_weight	-19.7869	0.8174	-24.2086	0.0
viscera_weight	-10.5818	1.2937	-8.1792	4.44E-16
shell_weight	8.7418	1.1247	7.7723	9.55E-15
Intercept	3.8946	0.2916	13.3576	0.0

Multiple R-Squared: 0.5379
Adjusted R-Squared: 0.5369

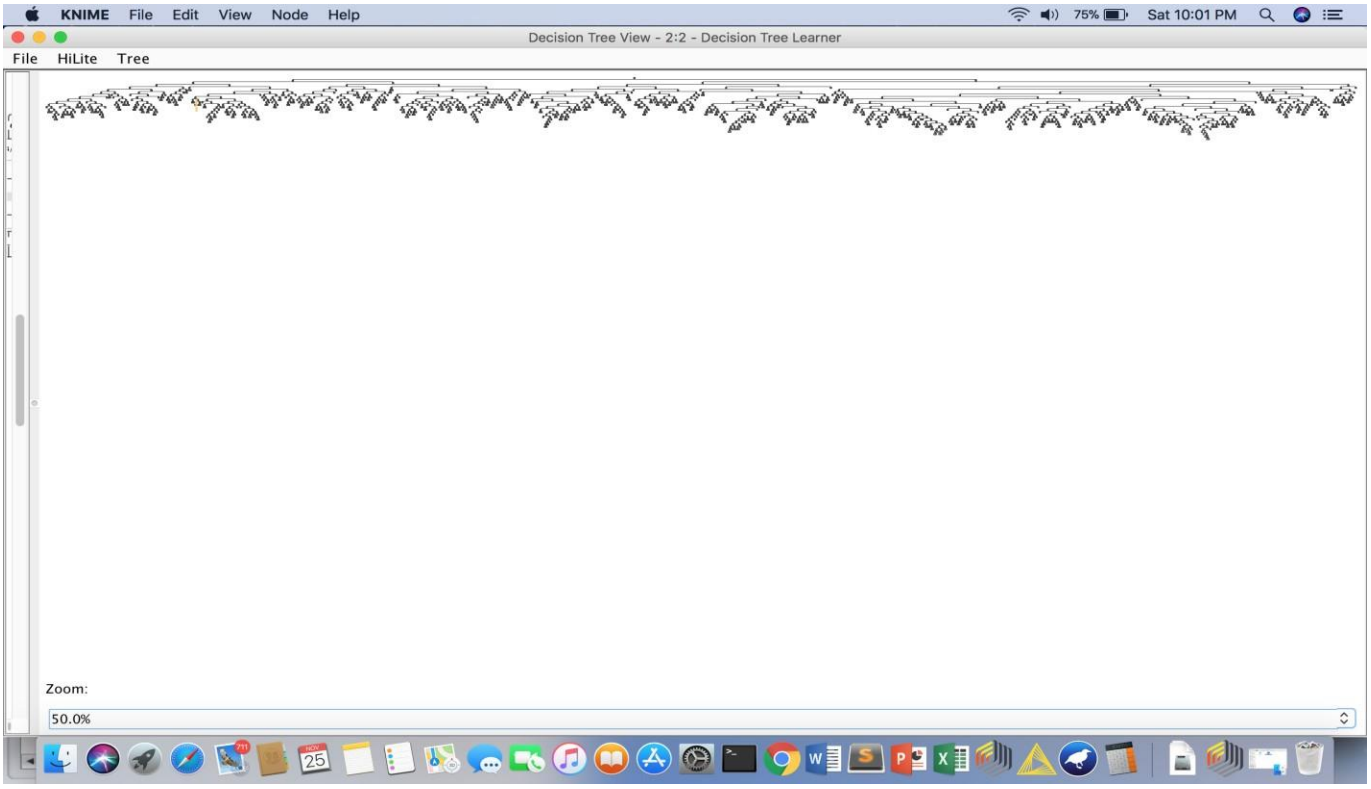
1. **Equation:** num_rings = f(age{I}, age{M}, length, diameter, height, whole_weight, shucked_weight, viscera_weight, shell_weight) =

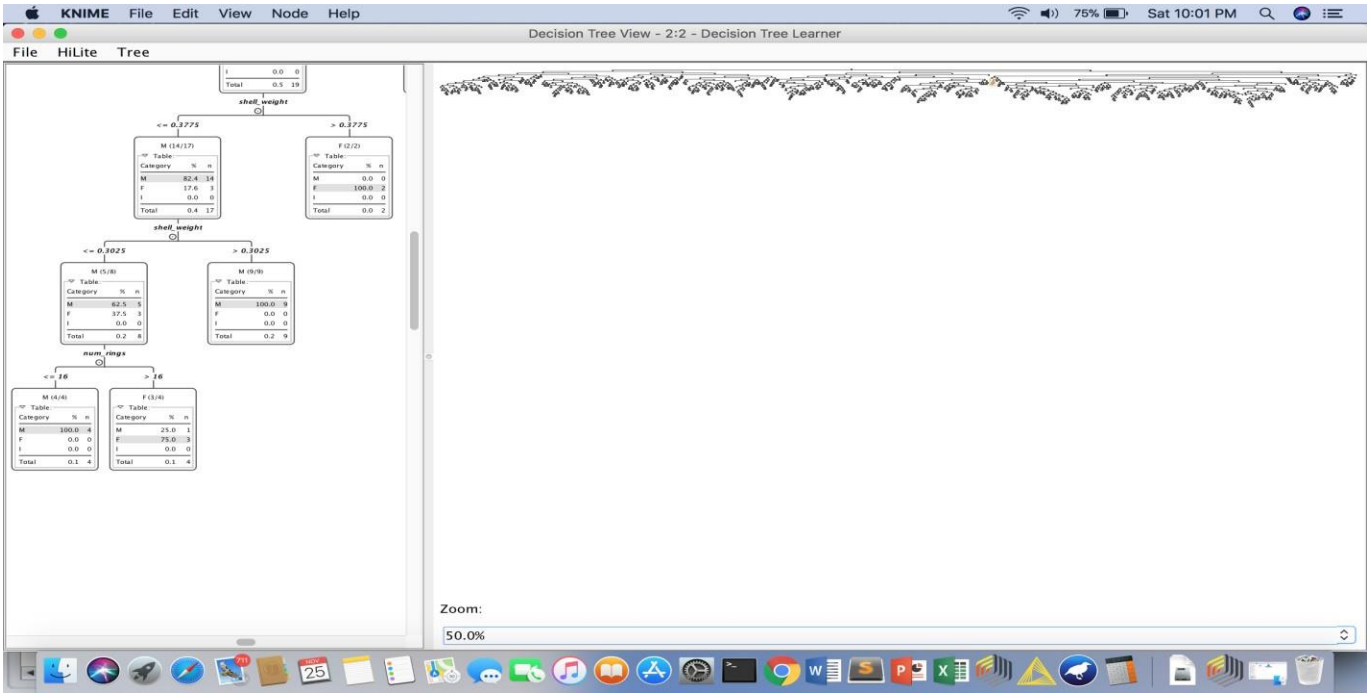
-0.8249 * age=I +
0.0577 * age=M+
-0.4583 * length +
11.0751 * diameter +
10.7615 * height +
8.9754 * whole_weight +
-19.7869 * shucked_weight +
-10.5818 * viscera_weight +
8.7418 * shell_weight +
3.8946

3.8946 is the Intercept

Parameters which have similar coefficients are: height, whole_weight, shucked_weight, viscera_weight, shell_weight. Length parameter is not shown in Weka.

2. Decision Tree Screenshots:

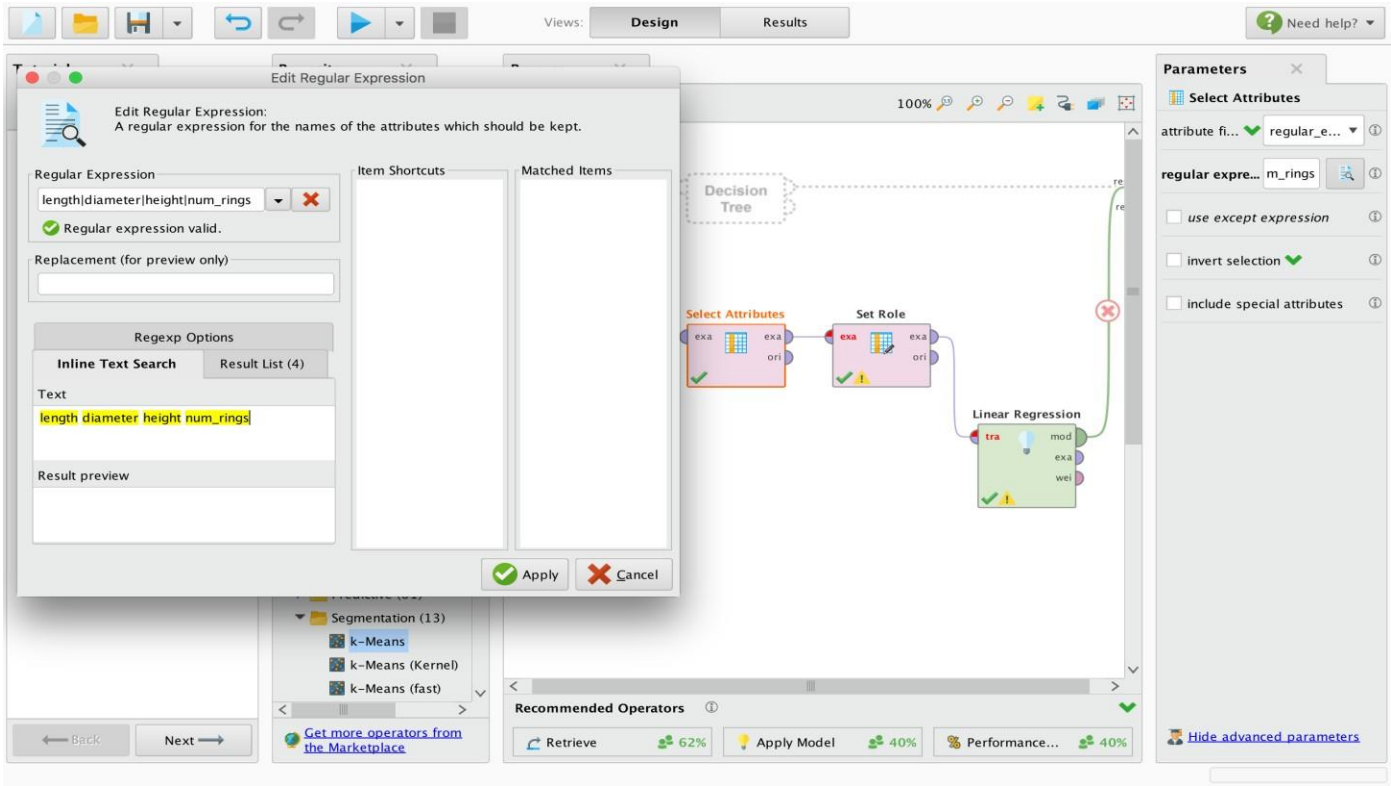




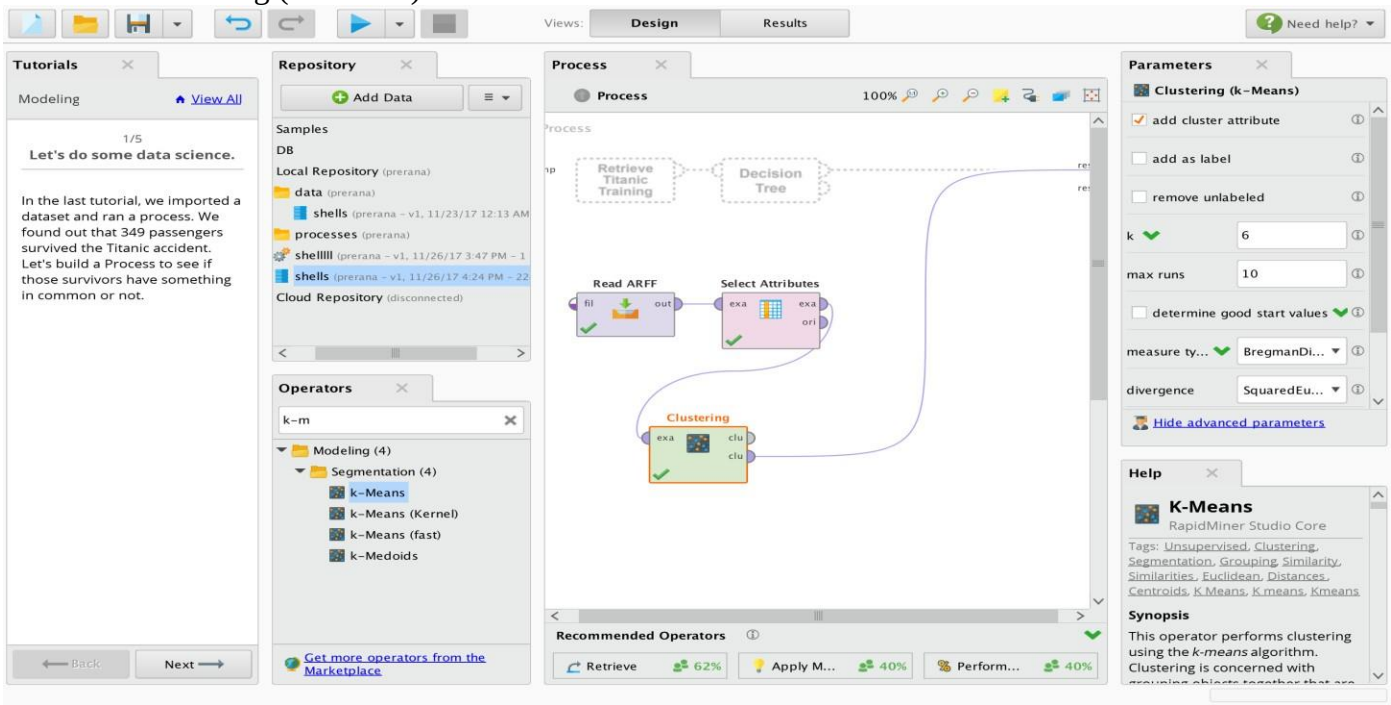
3.Rapid Miner:

Regular Expression: length|diameter|height|num_rings

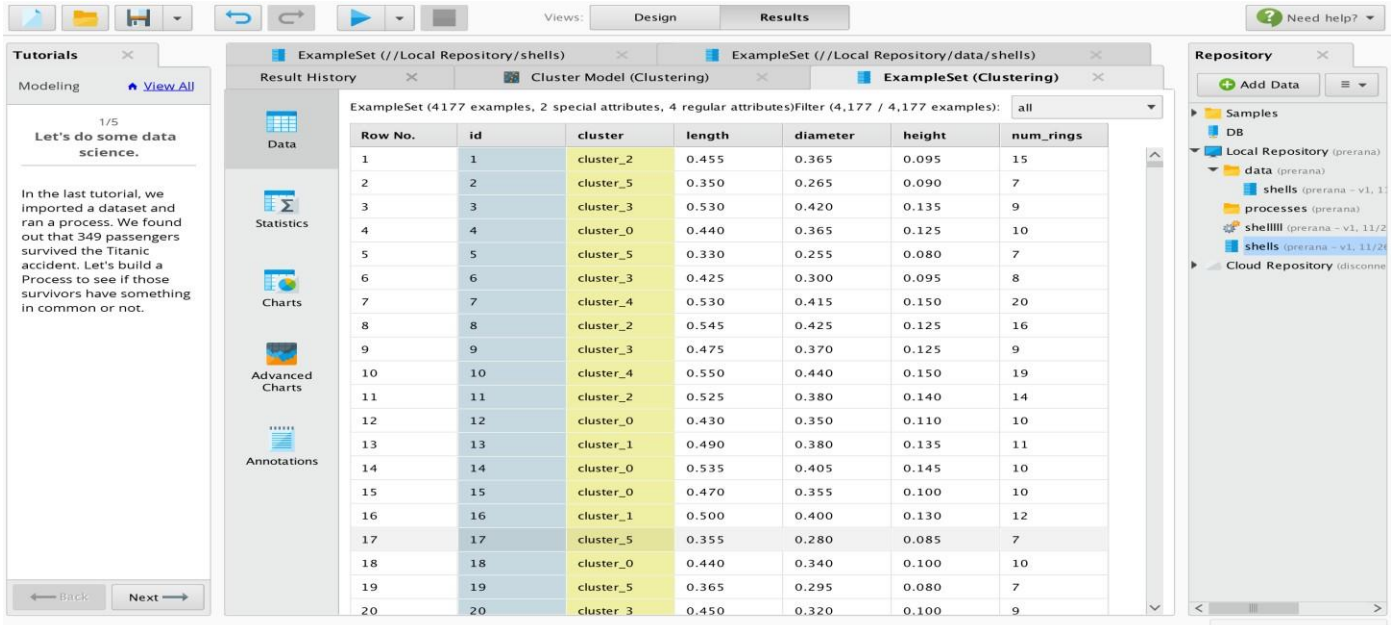
Screenshot:



1. kMeans clustering (6 clusters):

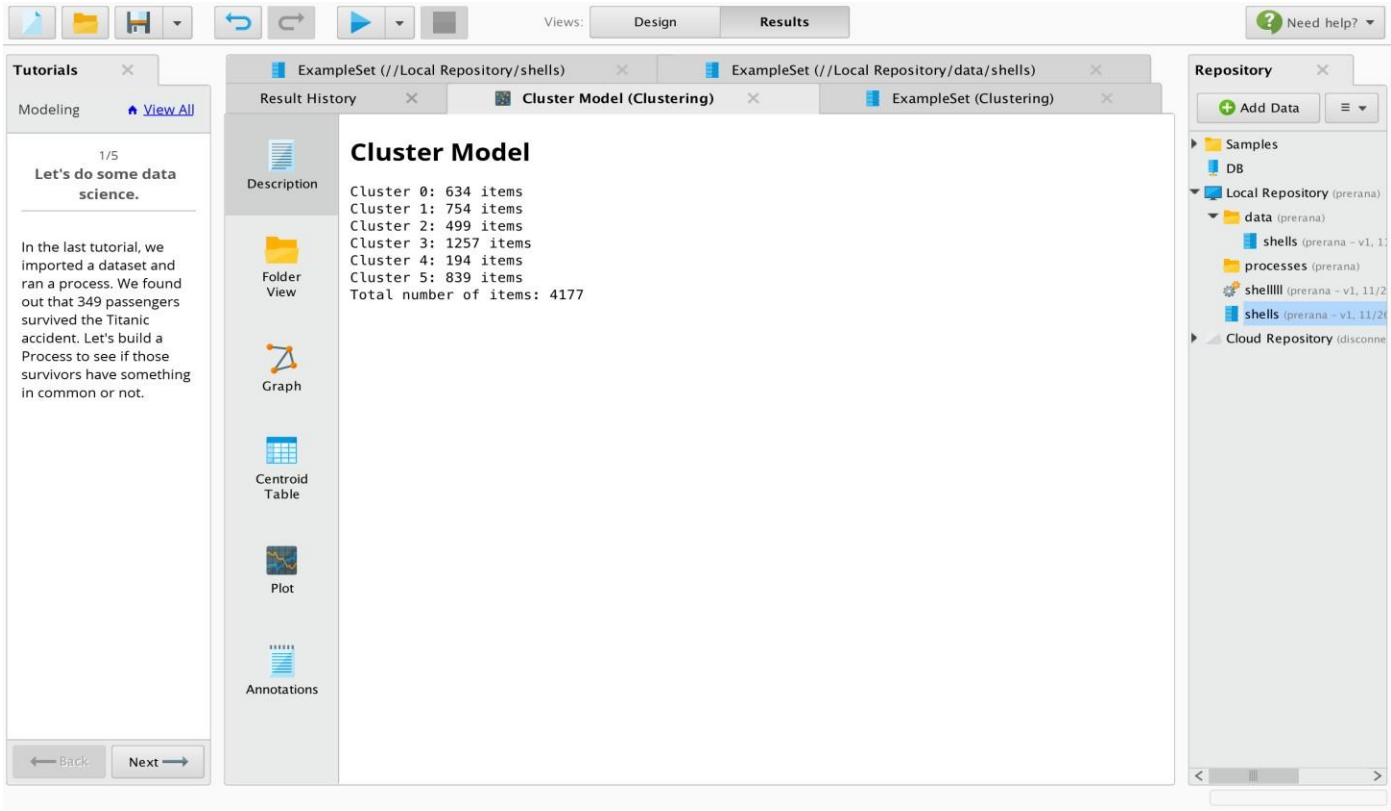


Result:

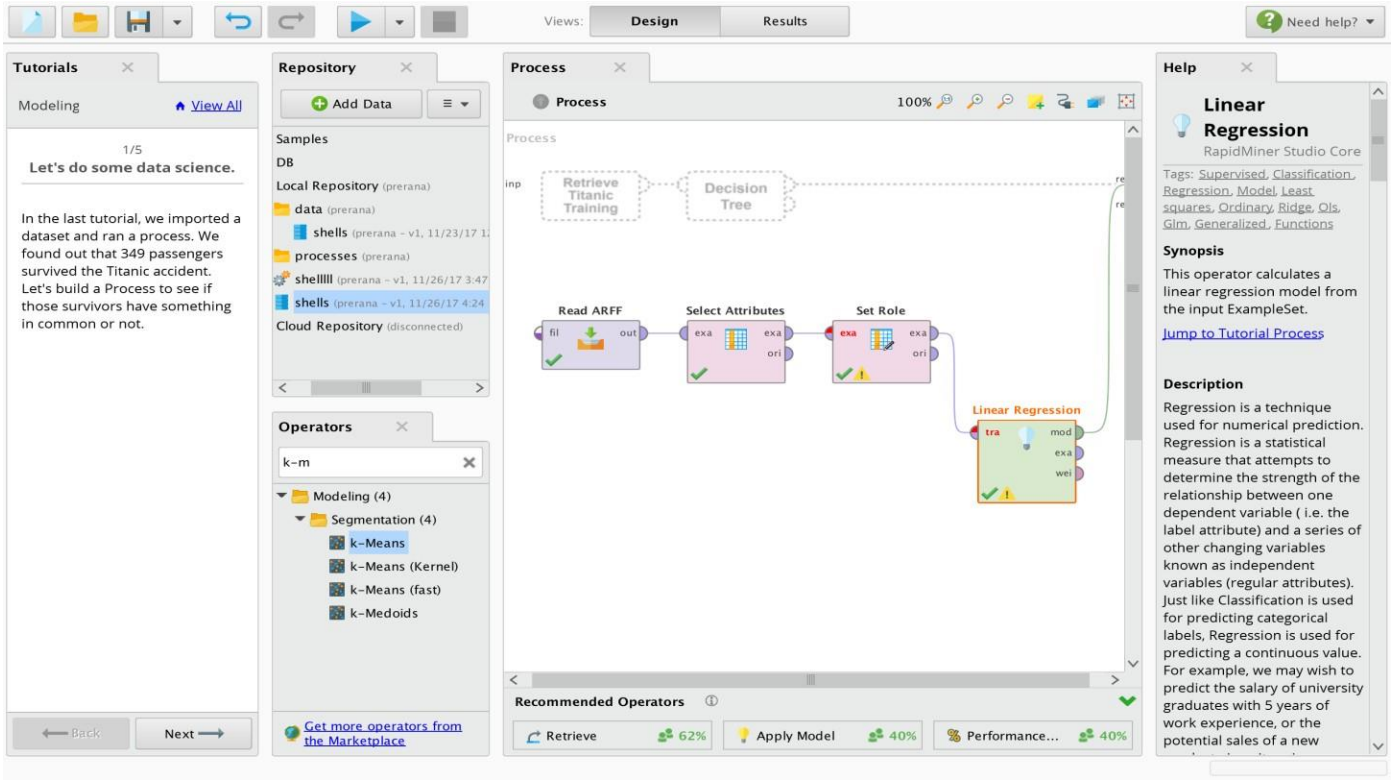


Number of data points in each cluster: Cluster 0: 634, Cluster 1: 754 Cluster 2: 499, Cluster 3: 1257, Cluster 4: 194, Cluster 5: 839. Total: 4177

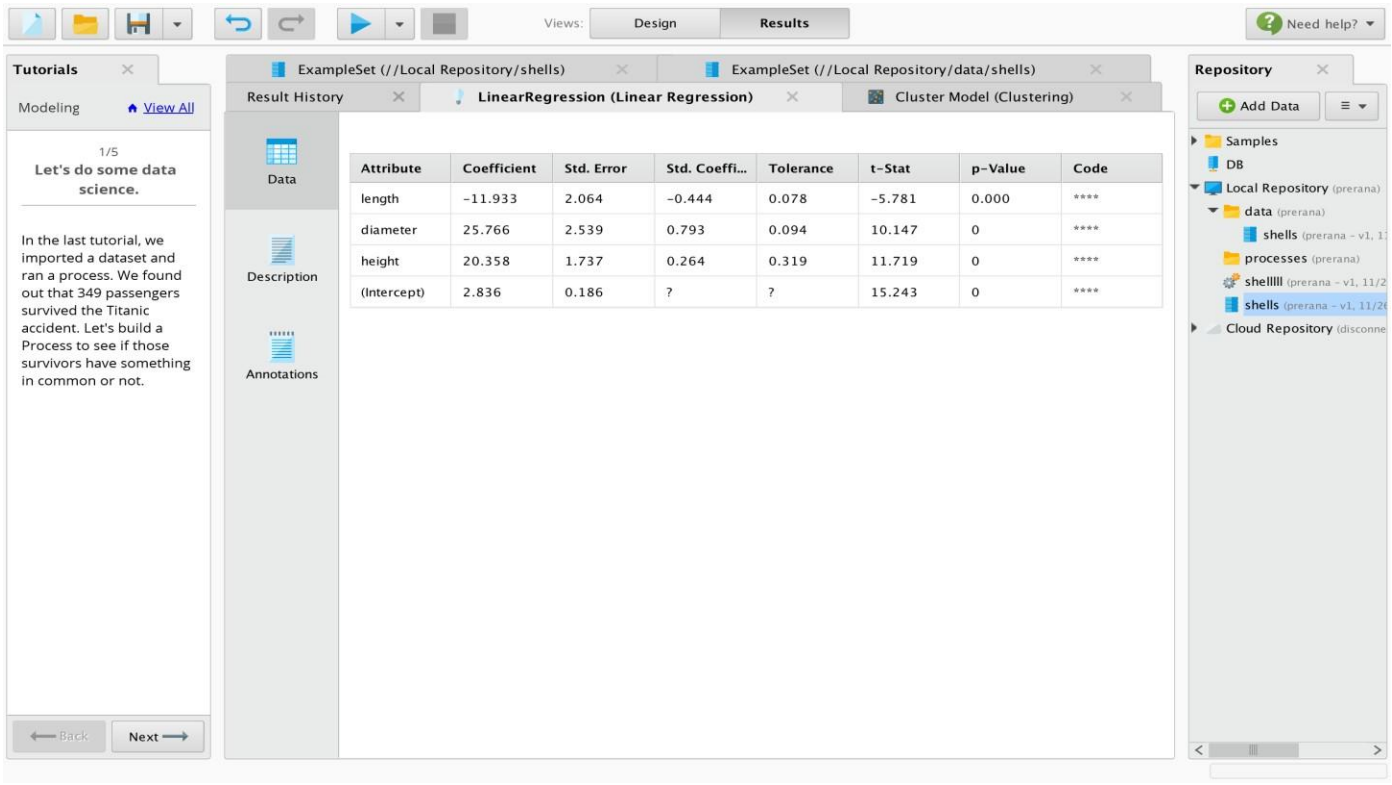
Screenshot:



2. Linear Regression



Result:



Attribute	Coefficient	Std. Error	Std. Coeffi...	Tolerance	t-Stat	p-Value	Code
length	-11.933	2.064	-0.444	0.078	-5.781	0.000	****
diameter	25.766	2.539	0.793	0.094	10.147	0	****
height	20.358	1.737	0.264	0.319	11.719	0	****
(Intercept)	2.836	0.186	?	?	15.243	0	****

Equation: Num_rings = f(length, diameter, height) =
-11.933 * length +
25.766 * diameter +
20.358 * height +
2.836

Intercept = 2.836