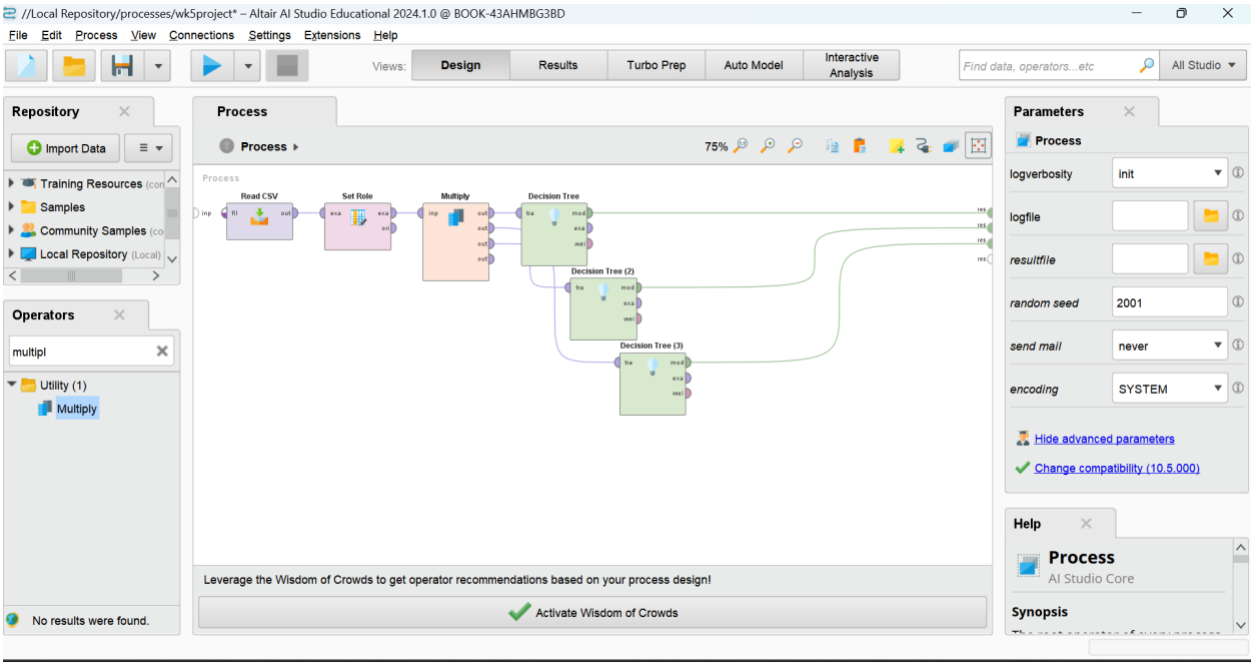
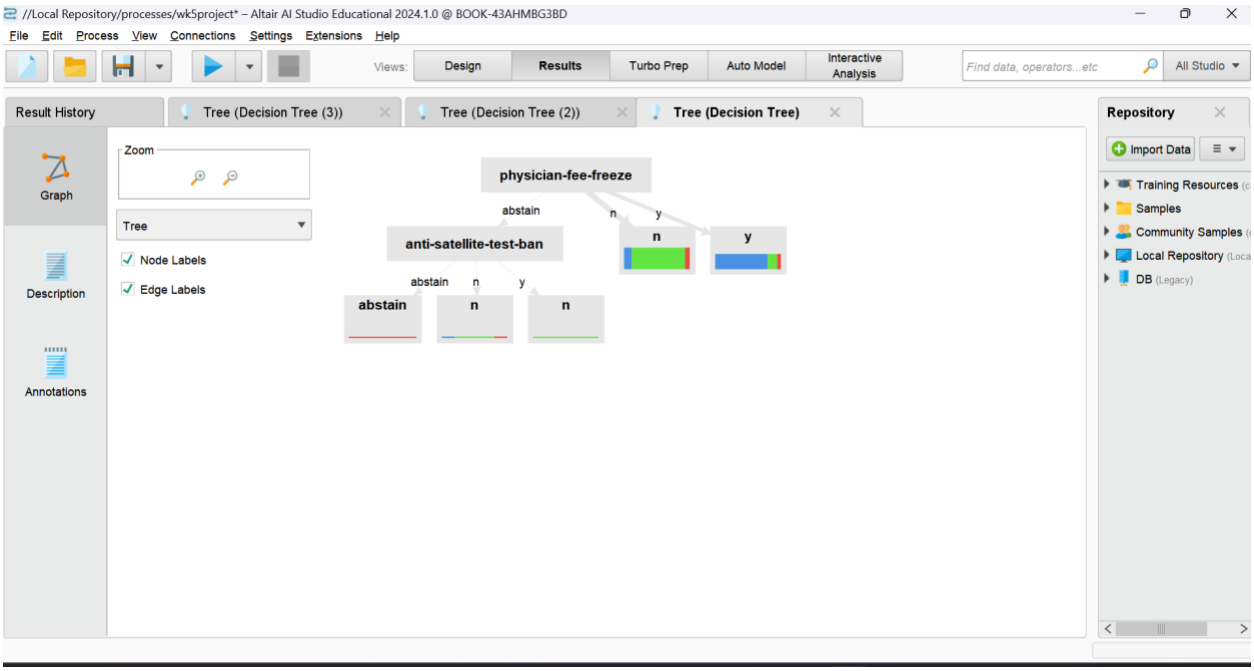
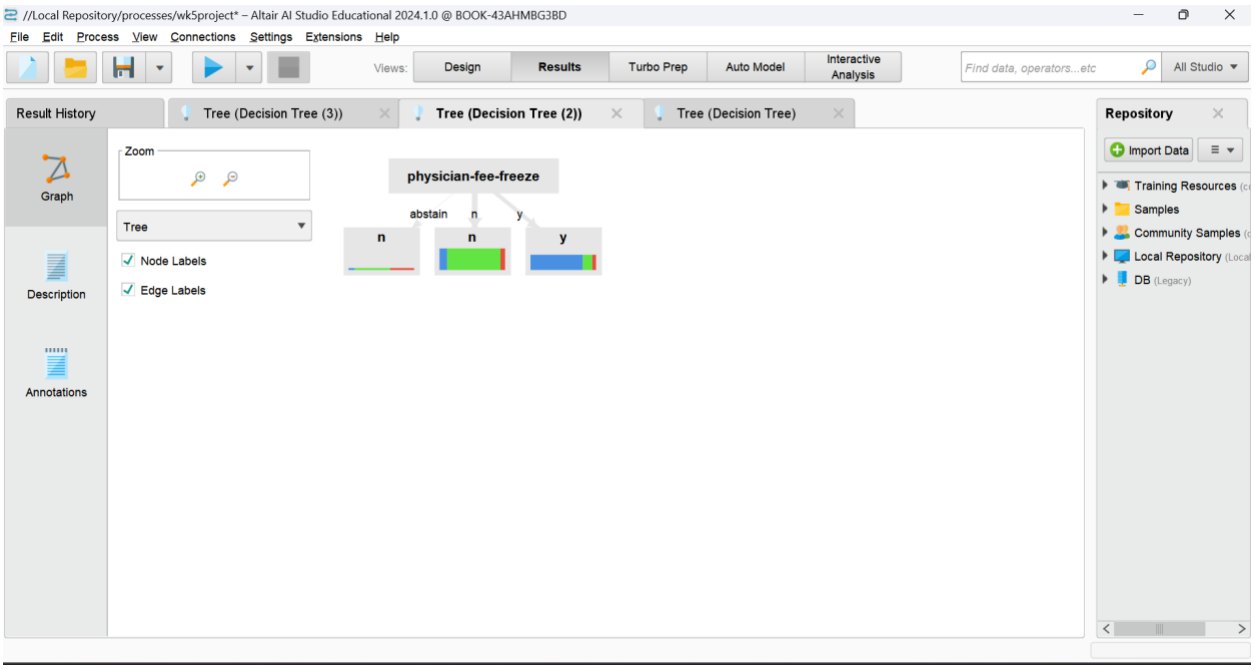
Step 1: Uploaded voter training data, using parameters in wk5 lab results for data prep and for all 3 decision trees. (This is essentially repeating the lab results so far but I used Multiply to make it faster to compare the three models) I've included screenshots of each tree's result.



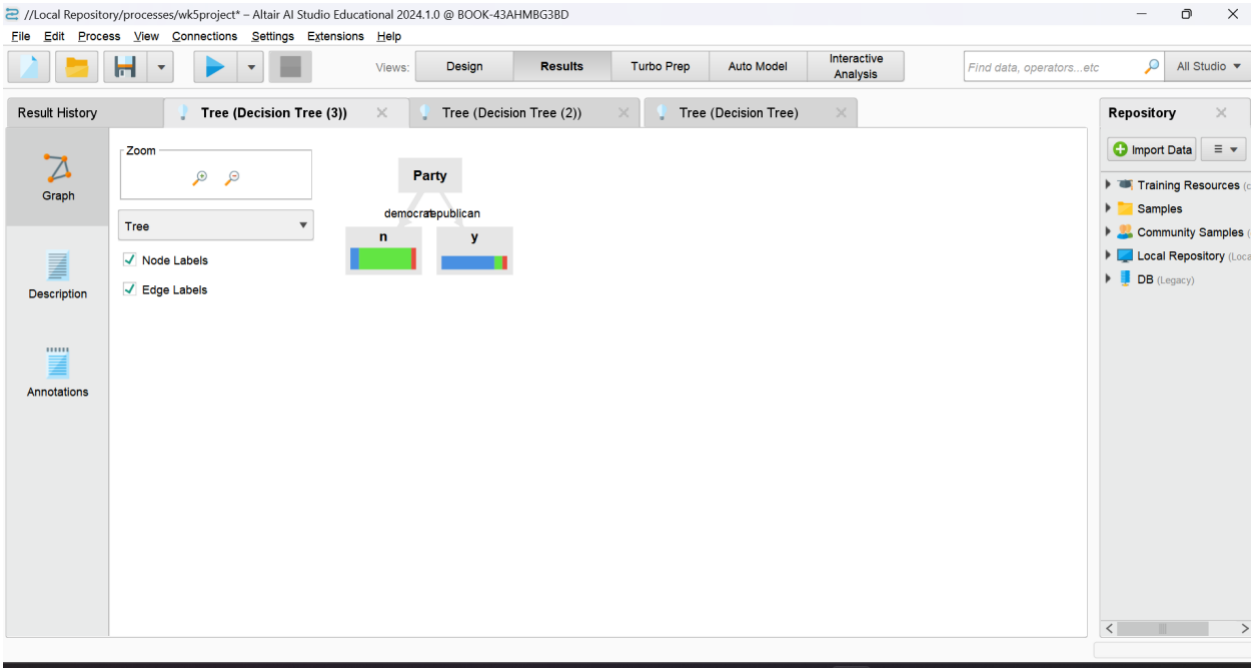
Decision Tree #1 Result



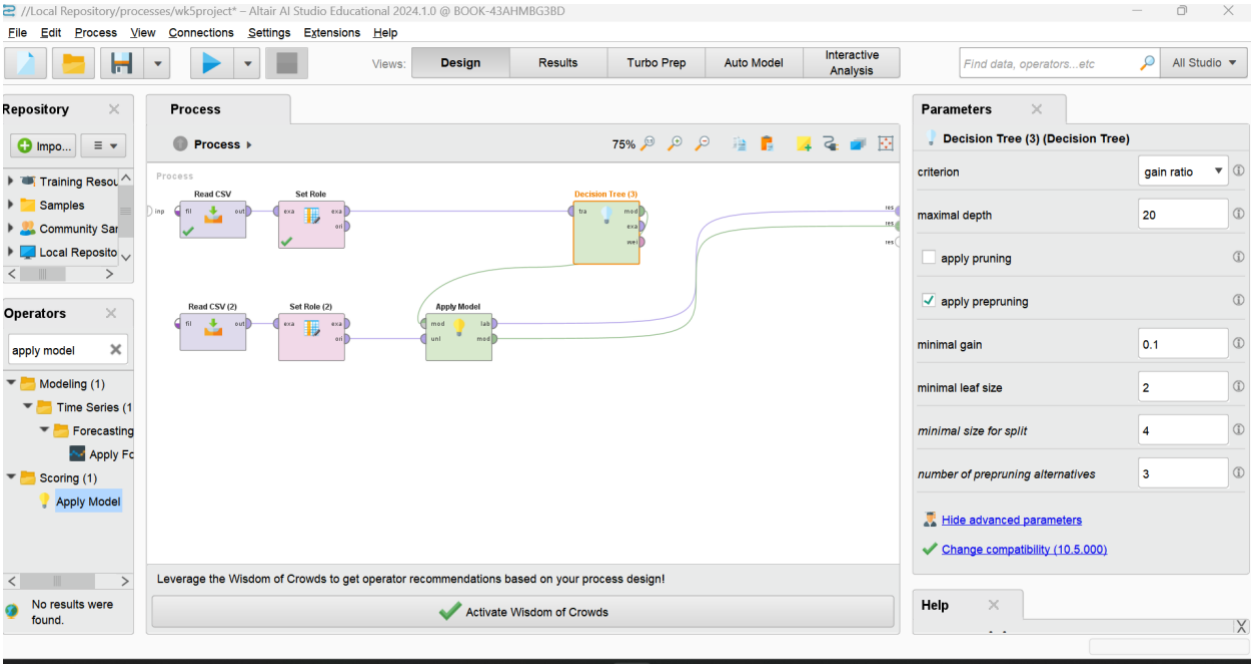
Decision Tree #2 Result



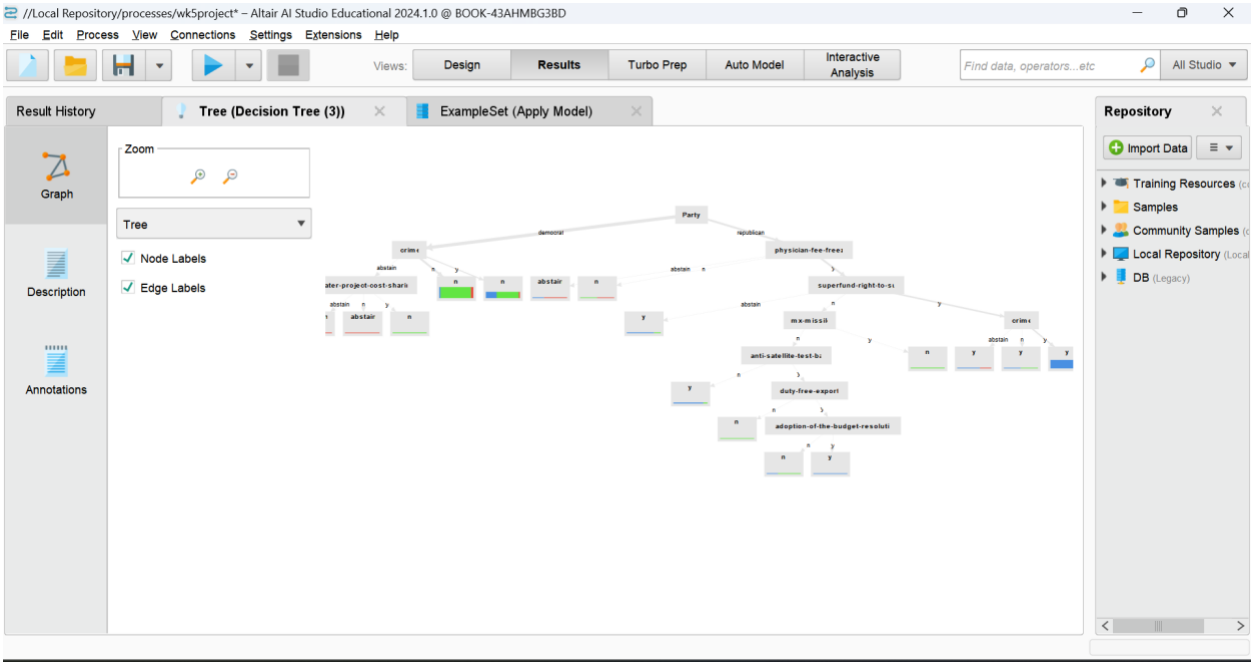
Decision Tree #3 Result



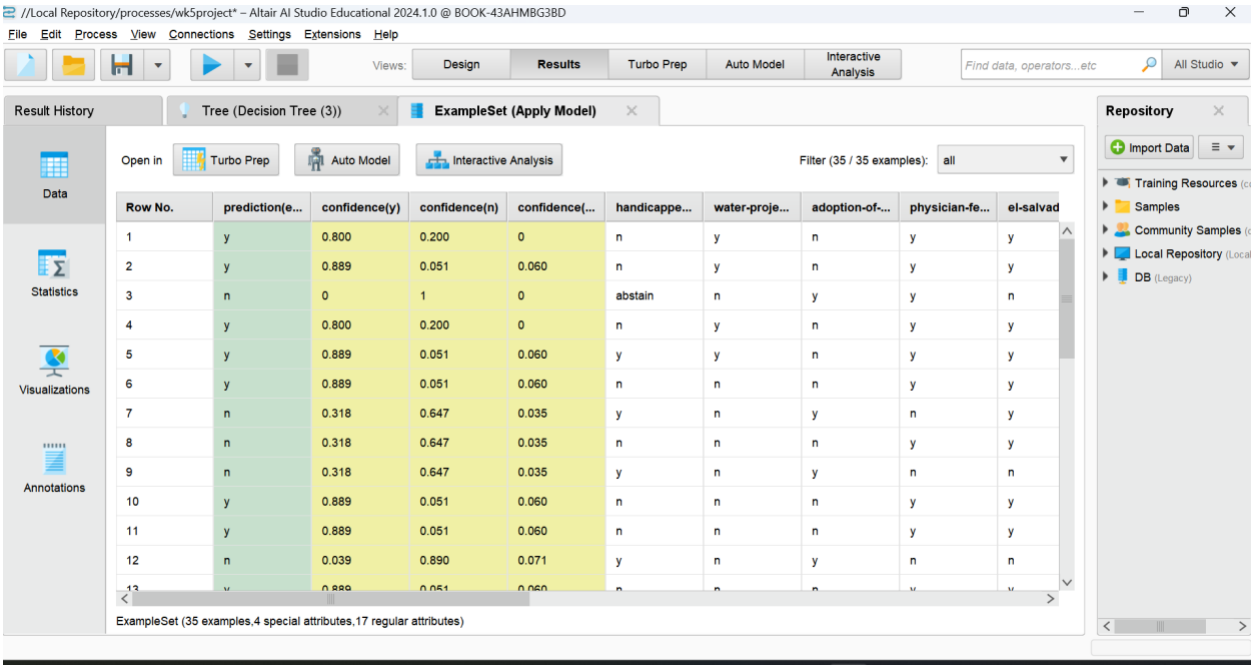
Step 2: Uploaded voter predict data, used parameters/using wk5 lab results for data, the decision tree and naïve bayes



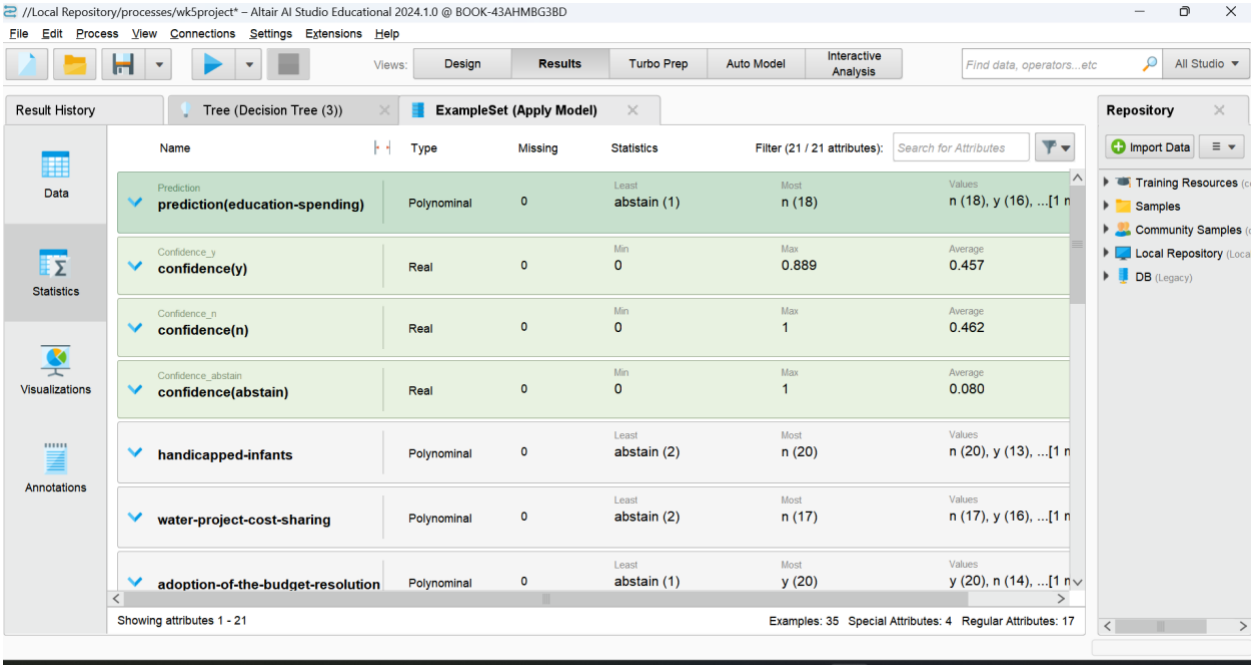
--Predict w/ decision tree results



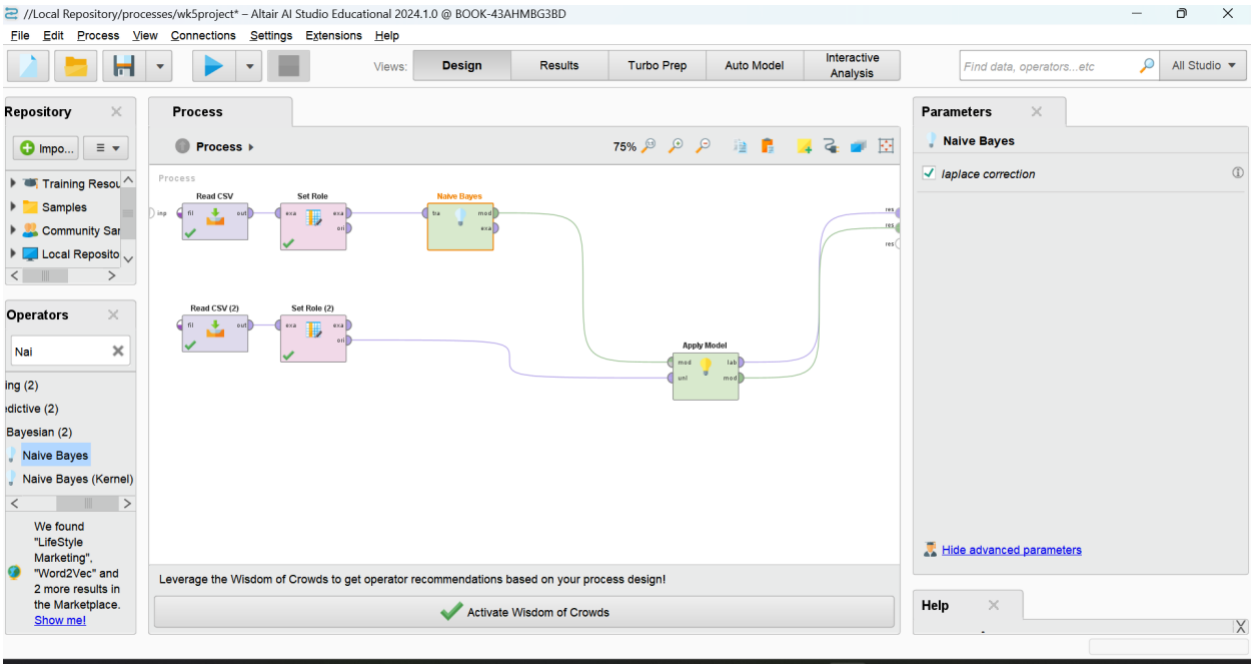
--Predict w/ decision tree results cont.



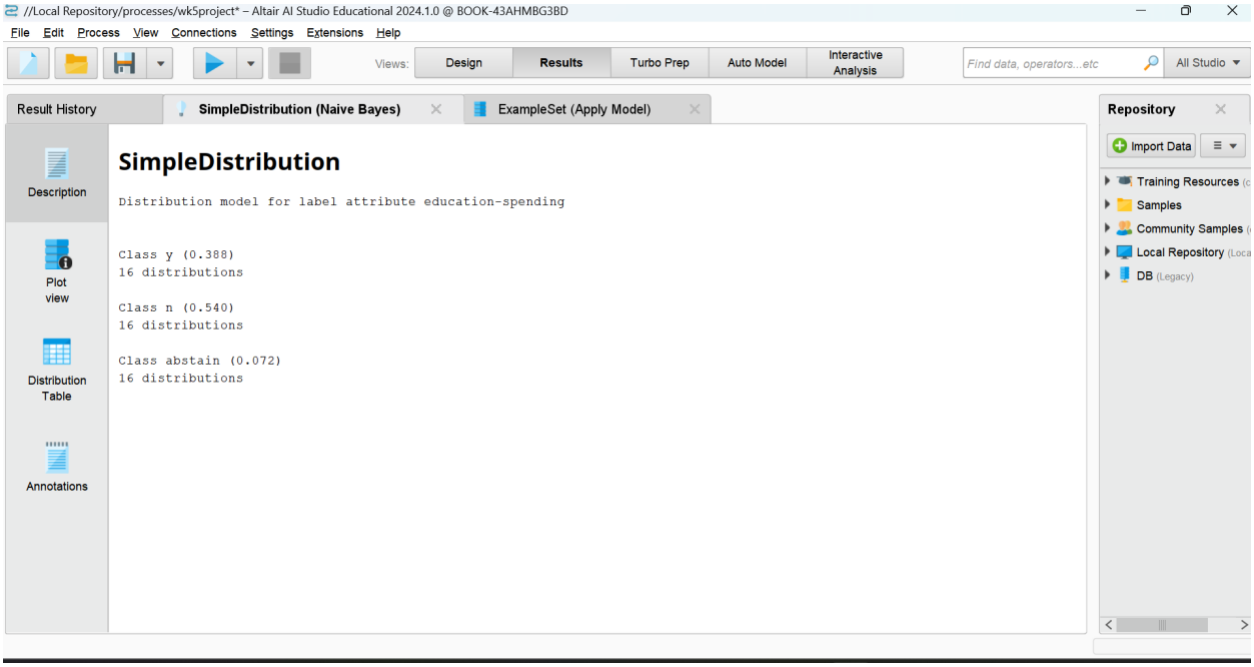
--Predict w/ decision tree results cont.



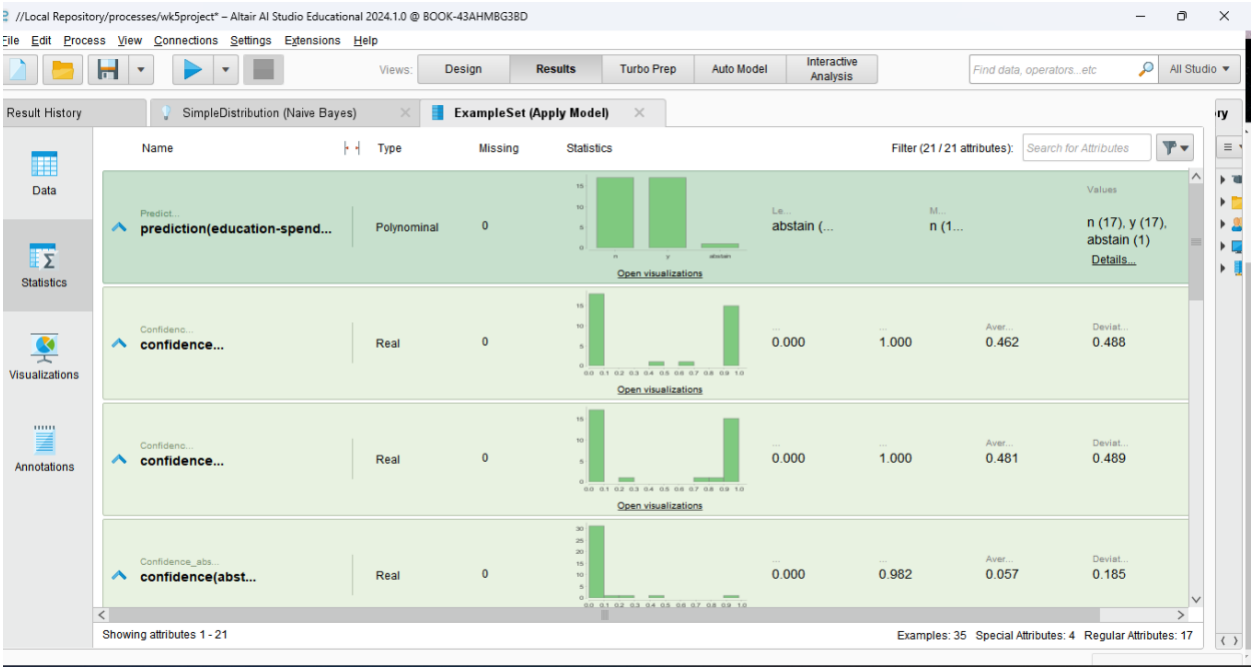
Step 3: Replace the decision tree with naïve bayes with laplace correction



--Predict w/ naïve bayes result cont.



--Predict w/ naïve bayes result cont.

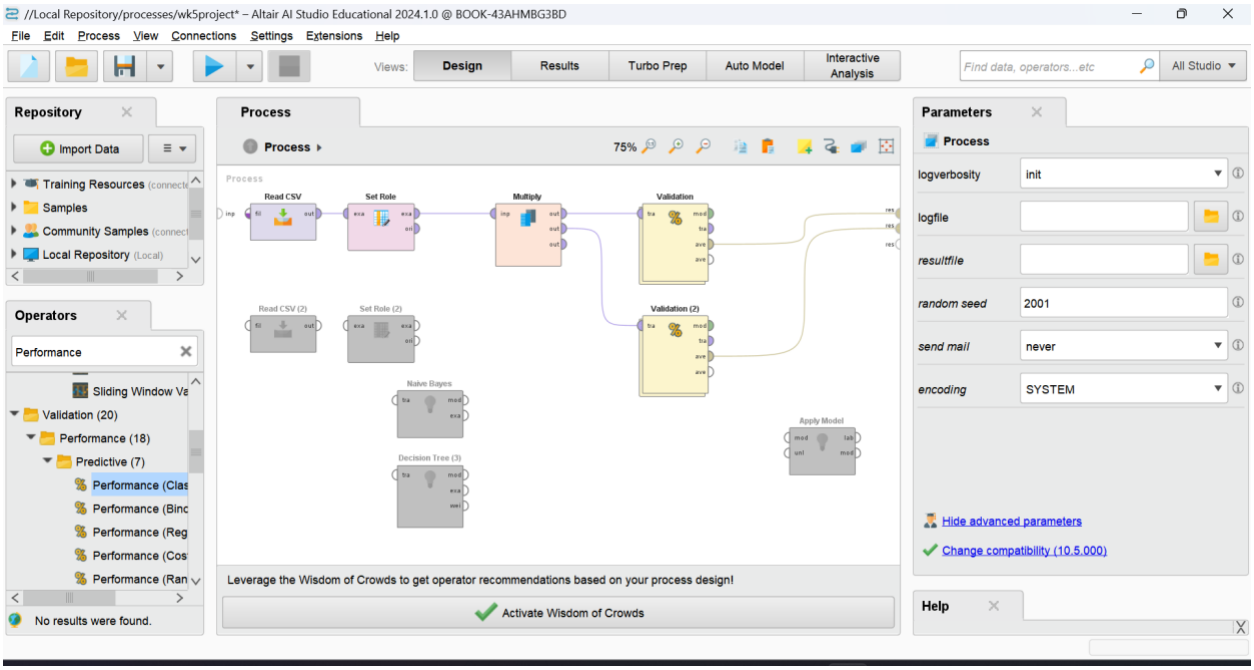


Step 4: We cannot apply a neural network to our data because “Neural Net implementations only work on numeric values”

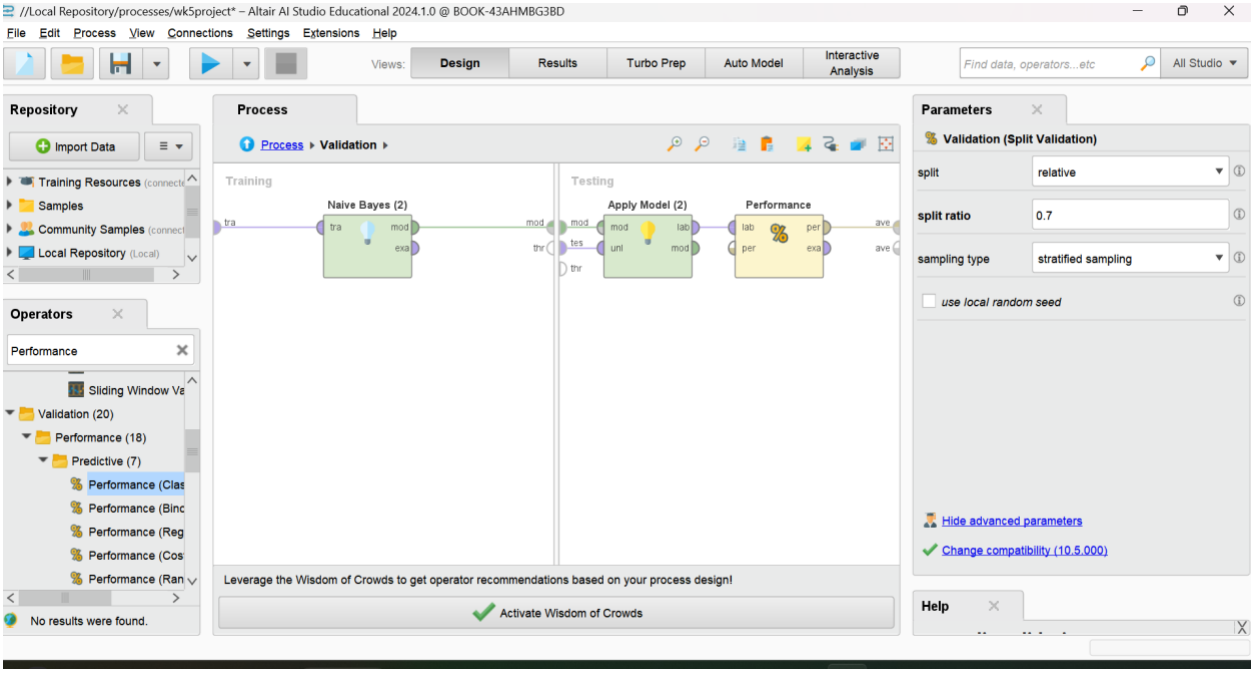
--should we look at wk8 and see if those methods would apply to this project?

Since the prediction dataset doesn’t have actual values for Educational Spending (we are predicting them), we should evaluate the models’ performance on the training dataset to get metrics like accuracy, precision, recall, and the confusion matrix.

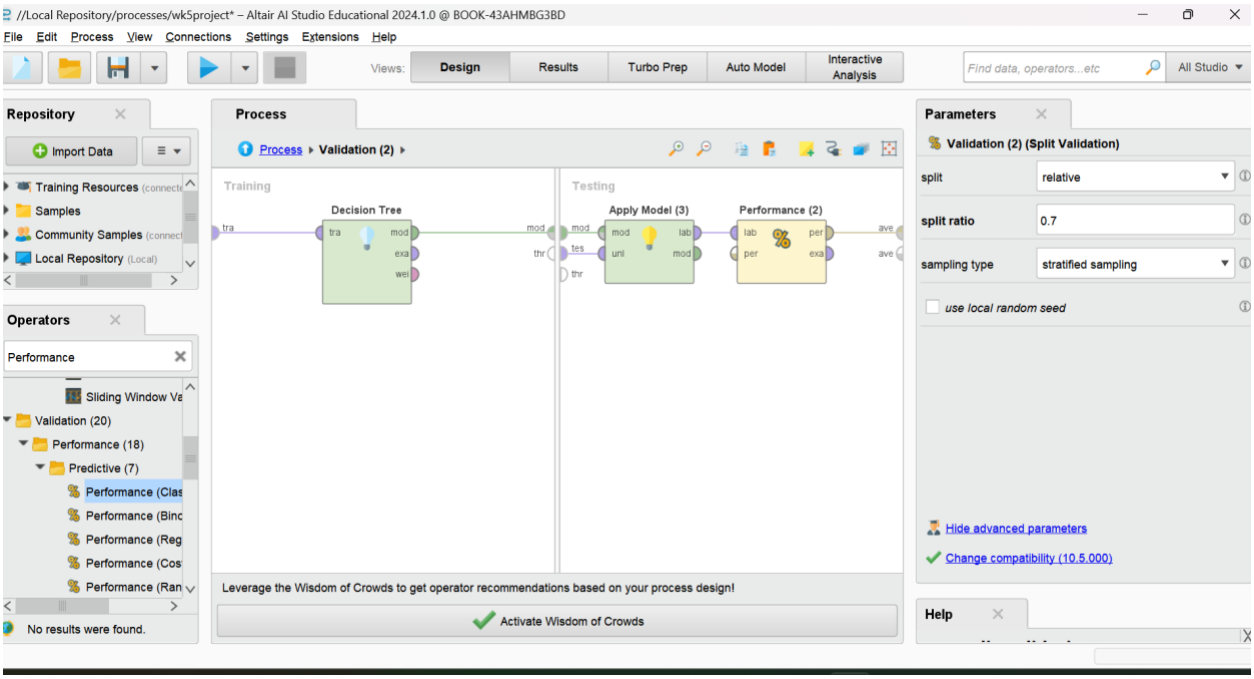
Step 5: Compare decision tree and naïve bayes, using wk6 lab results for comparing models and splitting data



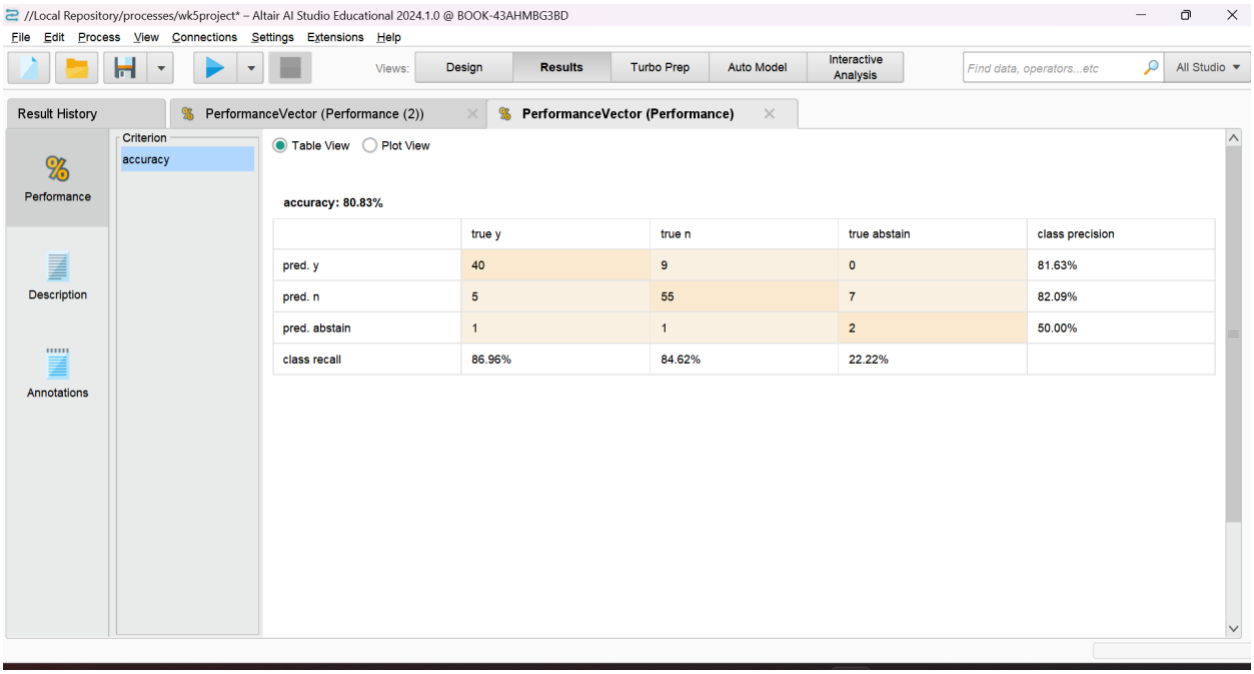
--Split Validation #1 naïve bayes



--Split Validation #2 decision tree



--Results #1 naïve bayes

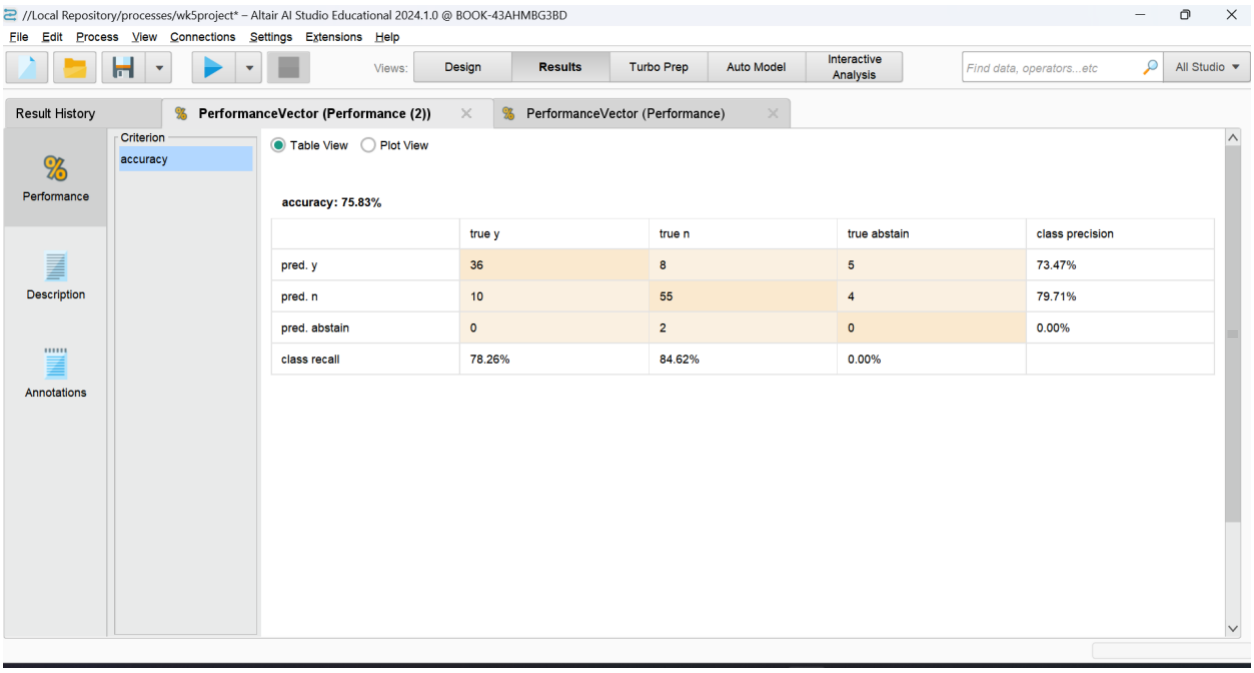


Accuracy: 80.83%

Recall:

Precision:

--Results #2 decision tree



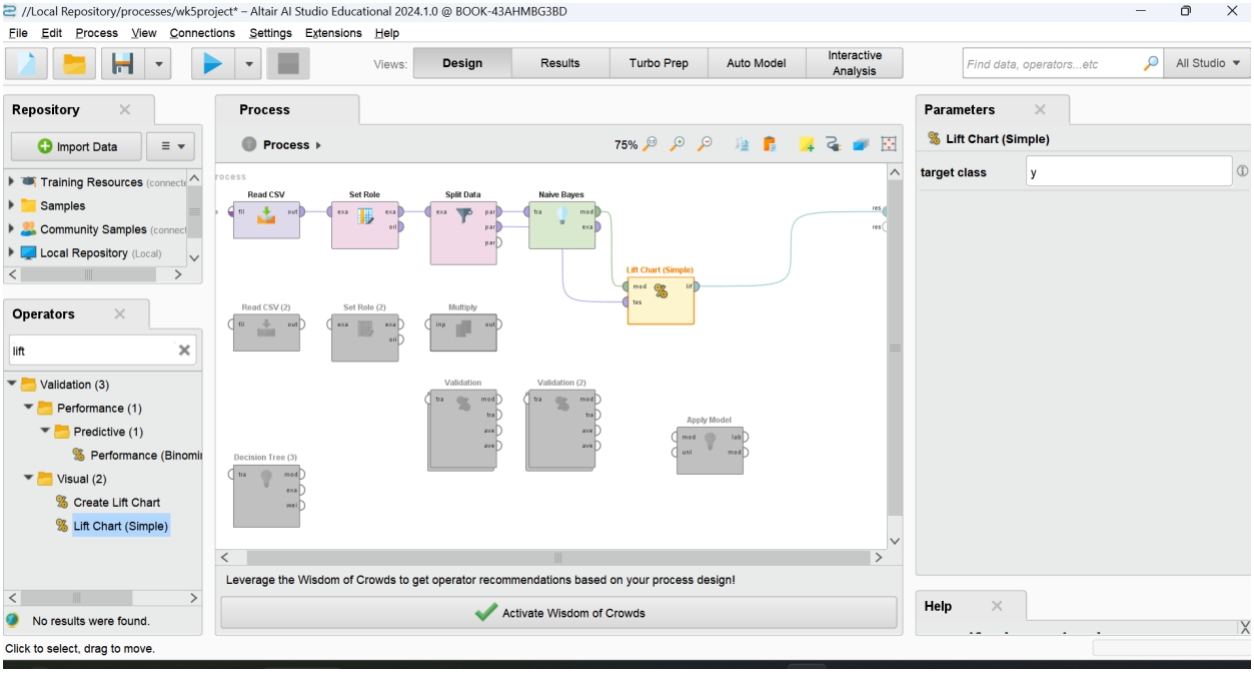
Accuracy: 75.83%

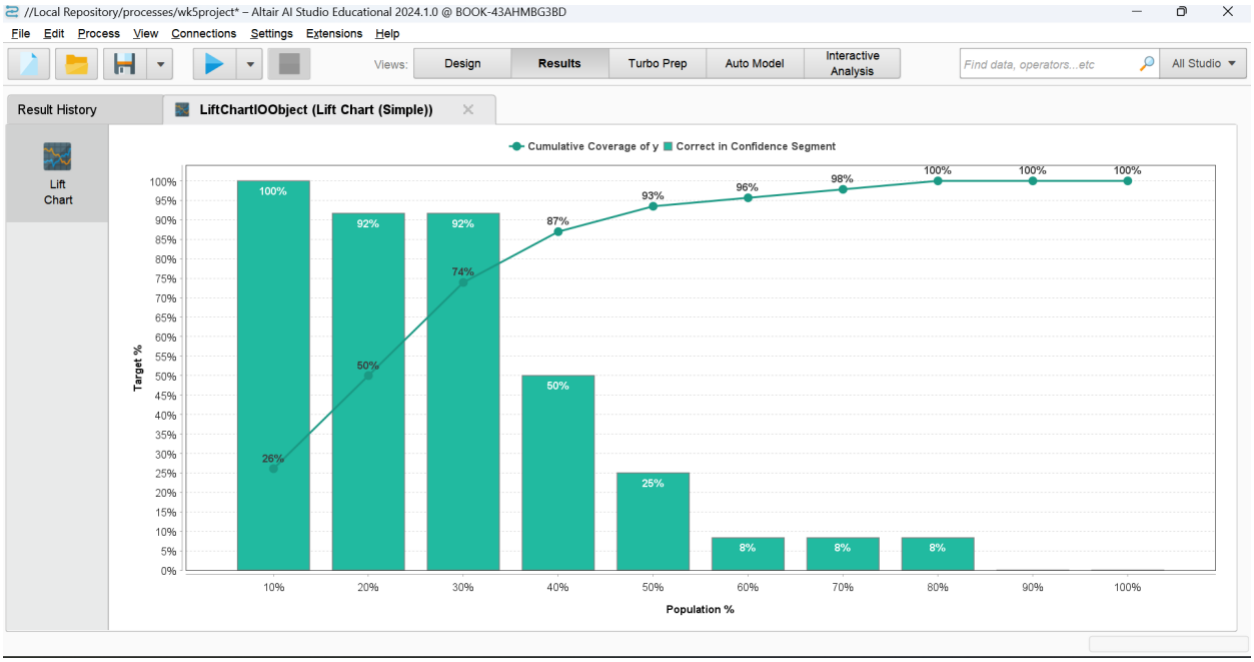
Recall:

Precision:

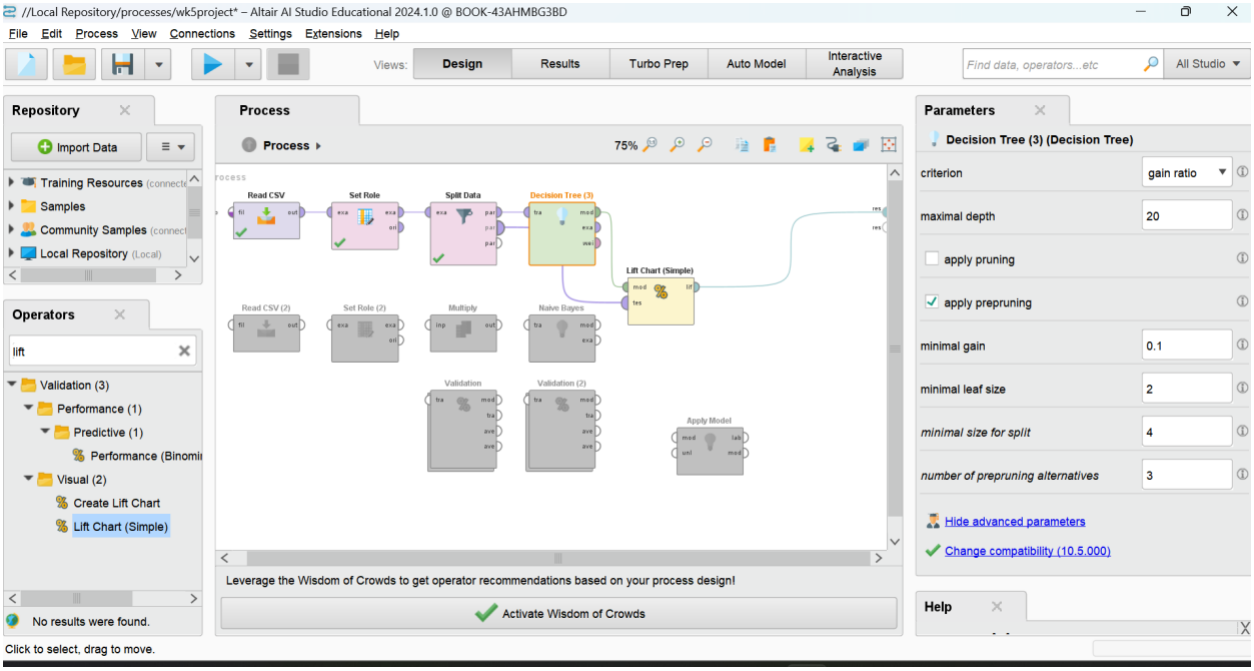
This shows the Naïve Bayes Model is more accurate than the Decision Tree Model.

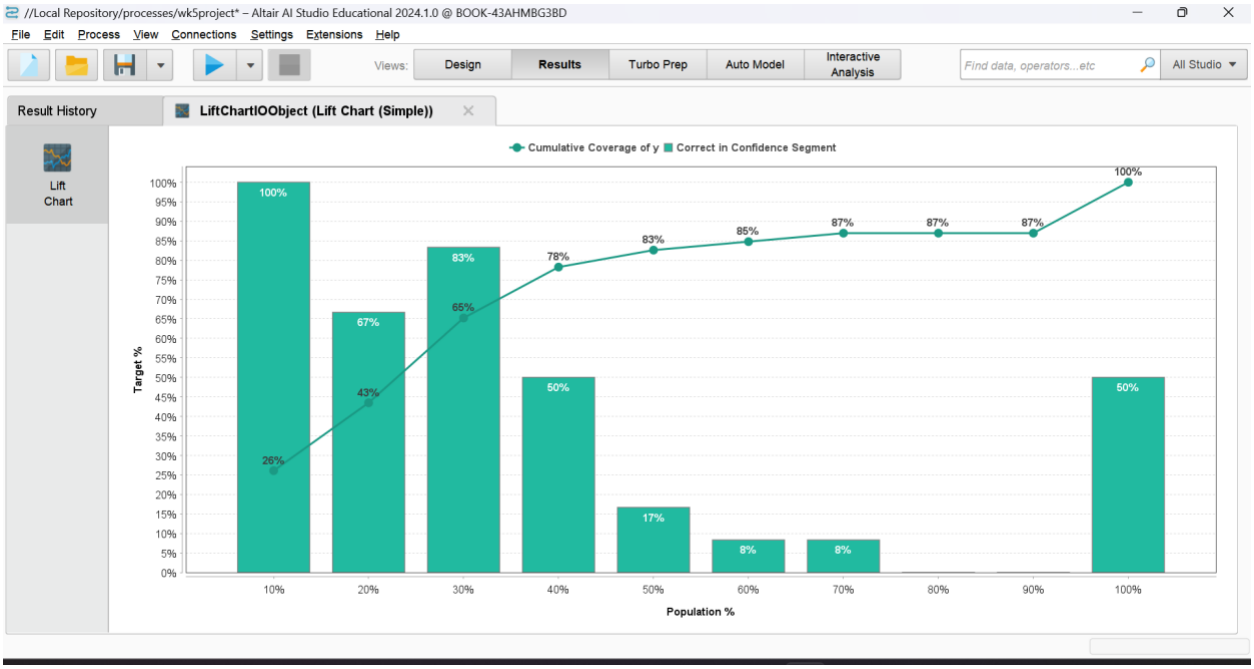
Lift Chart Naïve Bayes





Lift Chart Decision Tree





This tells you that by looking at just the top 10% of the data, the models already captured 26% of all the "Yes" votes. This is a good indication that the models are effectively prioritizing the most likely "Yes" voters early on. (Since both models show similar Lift Chart performance (100% confidence and 26% coverage), we can also compare them on other metrics like accuracy, precision, and recall to determine which is better overall.)