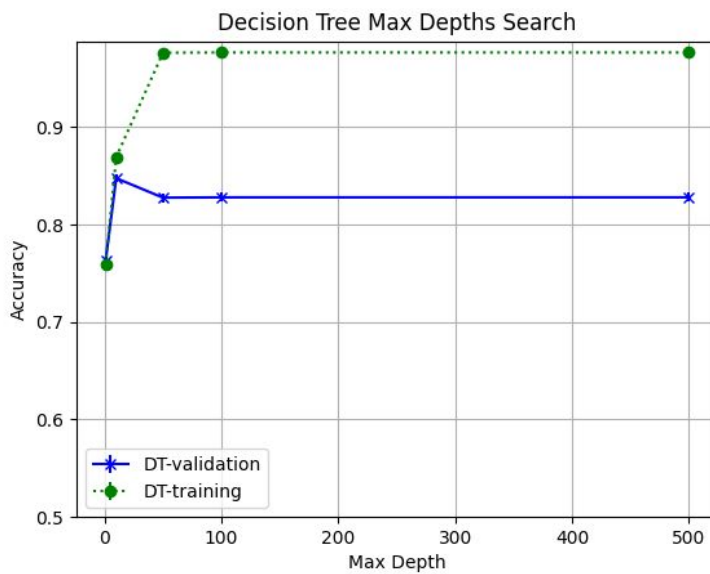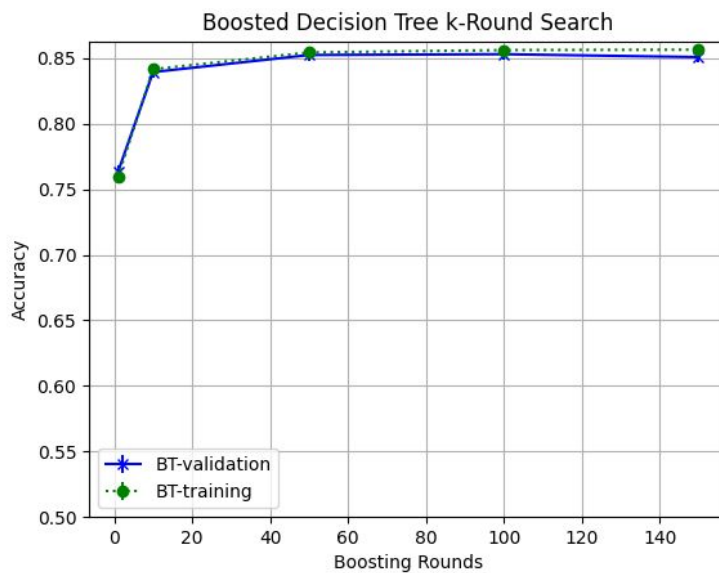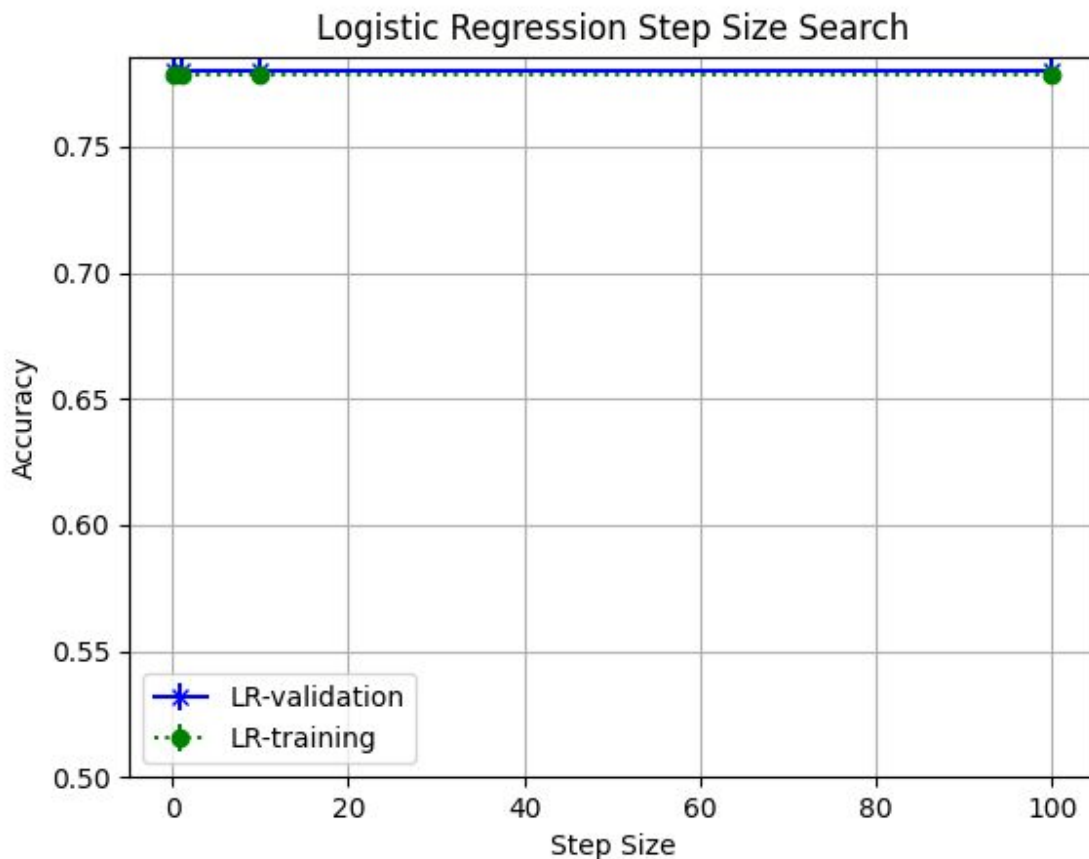**A chart exploring maxDepth for decision trees (maxDepth on x-axis, train and validation accuracy on y-axis).**

A chart exploring the rounds hyperparamter in BoostedTrees with maxDepth set to 1.

A chart exploring the stepSize in logistic regression with convergence set to 0.0001.

Logistic Regression Step Size Search

A 3-5 sentence summary across the algorithms of the bias and variance issues you discovered with this experiment.

Decision trees seem to overfit quite easily as we see a distinct divergence around maxDepth=10 between performance on training and validation data. However while decision trees have variance issues (overfitting), it seems to suffer less from bias issues as there seems to be improvements/learning that happens beyond the accuracy you would get simply by looking at the most common label in the data set. This does not apply to logistic regression, which seems to underfit, or in other words, it cannot fit itself to the adult data set concept.

Boosted trees on the other hand outperforms both on training and validation data. It seems to have better bias (better fit to the concept) and variance, only tailing off a little bit at the end as we increase the number of rounds in the boosted tree.