Hi Yaw,

I enjoyed reading your post on using decision trees to improve airline ticket pricing! It is a fantastic application of decision trees, especially in such a fast-paced and unpredictable industry like aviation. You have done a great job highlighting how factors like seasons, competitor pricing, and economic indicators affect demand (Magee, n.d.).

Your choice of a **regression tree** makes complete sense for predicting continuous values like ticket prices. The data you have included, such as historical prices, occupancy rates, and special events, should provide valuable insights into setting optimal airline prices (Viswa, 2023).

Comparison with Other Methods:

One thing that came to mind while reading your post was how **linear regression** could also be applied here. While it is commonly used for predicting continuous outcomes, linear regression assumes a more straightforward, linear relationship between the variables, which may not capture all the complexities that decision trees can handle. However, decision trees themselves can sometimes **overfit** when they get too deep or complex. I suggest exploring **random forests**, which combine multiple decision trees to create more robust predictions. This could help smooth out any overfitting issues (Coursera, 2024; Donges, 2024).

Pros and Cons of Decision Trees:

What I like about decision trees is how **easy they are to interpret**. Airline executives who are not necessarily data scientists can still understand the "if-then" structure and see how different factors influence pricing decisions. That said, as you pointed out, the unpredictability of demand could still pose challenges. To address this, you could try using techniques like **pruning** to reduce overfitting or **cross-validation** to make sure the model generalizes well to unseen data (K, 2019).

Overall, your post was spot-on, and I am interested in seeing how decision trees could be used in real world airline pricing strategies. Nice work!

All The Best,

Avinash

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