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Airplane Seating EthicalAlgorithm
9/30/2021

People buying less expensive tickets are clearly warned that their party may not be seated together. The unethical piece is that the algorithm shouldn't be purposefully trying to split parties up. An equitable algorithm should try to seat parties together whenever possible in order of priority. Determining priority is where it gets tricky, but I have tried my best to outline an equitable algorithm below. I am making the assumption that the algorithm will have access to data about each party such as the ages of the passengers and the time of purchase of the tickets.

main:
Assign priority to each party according to the prioritize method below.
Sort parties in order of priority.
For each party:
    If a block of seats exist to accommodate party, assign
    Else,
        create a list of sub-parties (for instance, a party of 4 can be split into 1 and 3 or 2 and 2).
        Attempt to assign a block to each sub-party.
        If unable to assign to every sub-party, split again and repeat assignment attempt (possibly using recursion?). You may have to split the party into sub-parties of 1.

Prioritize:
This method will need to be adjusted if different criteria present itself, for instance, if people with disabilities need to be given priority over families with children.

Sort list of parties according to age of the youngest child so that you end up with a list containing parties with the youngest children at the front. Young children have to be seated with an adult regardless. If a family shows up at the airport with no adults sitting next to a young the the airline staff has to reshuffle the seats no matter what the family originally paid for their tickets. Parties with teenagers or adults can be split up, which will make people unhappy but at least it won't pose a safety concern.

For parties with the same youngest child age, sort by age of second youngest child, third youngest child, etc, finally by ticket purchase date if all ages being equal.

Split into sub-parties:

Sub-parties should be split in such a way so that every attempt is made to group a child with at least one adult.

I believe this algorithm will be pretty straightforward to implement assuming the relevant data is available. The key is to keep the prioritization method flexible so that it can easily be updated as conditions change.