This algorithm modifies the original code to assure that blocks of tickets purchased after economy plus are able to sit together.

The algorithm also makes sure that a flight cannot be oversold, so tickets sold will never exceed the number of seats on the plane.

The idea behind purchasing tickets is as follows:

- The economy plus passengers would be first given an option to purchase a window seat
- Economy plus ticket passengers who do not opt for the window seat are then seated in non-window seats in the front rows of the plane.
- These ticket holders may also be relocated in the event that seats need to be rearranged in order to seat a block of regular economy seats. I didn't implement a flex option to be kept track of with ticket purchase, but it could be considered. Implementing this would be difficult as I would want to seat multiple flex option passengers next to each other in the event they needed to be moved to accommodate a group of 2 or 3.

After all economy plus seats have been filled, the algorithm checks the number of open seats per row. It then cross-checks this with the number of seats purchased per economy seat block and seats those groups together based on which row is able to accommodate that number. The algorithm does sort the groups by number of seats needed so that the largest groups are seated first.

In the event that there are not enough available seats in any row to accommodate a group (example: there is a group of 2 needing to be seated but there are only rows with one empty seat), the algorithm will reseat one or more economy plus passengers to create room for the group of passengers.

This reseating can be done in one of three ways:

1. A window seated economy plus passenger is moved to a different window seat.
2. A non-window seated economy plus passenger is moved to a different non-window seat
3. A non-window seated economy plus passenger is moved to an open window seat

I suppose there could be some type of incentive offered to economy plus passengers who are relocated, but this was not built into the algorithm. Also, since the type of seat they have doesn't change (window to window or non-window to non-window), it wouldn't seem to affect what they had originally asked for, except for a non-window moving to a window seat but that could be considered an upgrade.

I ran several rounds of seating the plane 100 different times (approx 1000 seatings total) and on average, swapping an economy plus passenger's seat only happened about 20% of the time.