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Ethics & Computer Science

## Seating Algorithm

Generate a 2-dimensional list containing 30 rows and 6 elements per row to represent the seats on the aircraft, and assign the String, "X" to each seat to represent that it is available.

Generate an empty queue for economy bookings.

How soon is the flight?

- Less than 3 hours → Premium seats are no longer available. Add all new reservations to the economy queue.
- 3 hours to 90 days → Premium or Economy?
- Greater than 90 days → Premium or Economy?

**Greater than 90 days branch:**
Premium or Economy?
- Economy → Add booking request to the economy queue
- Premium → Run seatPremium().

Run seatEconomy().

**3 hours to 90 days branch:**
Premium or Economy?
- Premium → Run seatPremium().
- Economy → Determine the total number of purchased seats (including seats assigned and seats in the economy queue)

Prompt the customer to enter the number of seats they would like to purchase.

Is the number of seats requested > the number of available seats?
- Yes → Inform the customer and prompt them to try purchasing less seats or a different flight.
- No → Add reservation to the economy queue

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**seatPremium()**

Determine the total number of purchased seats (including seats assigned and seats in the economy queue)

Prompt the customer to enter the number of seats they would like to purchase.

Is the number of seats requested > the number of available seats?
- Yes → Inform the customer and prompt them to try purchasing less seats or a different flight.
- No → Display all available seats, and prompt the customer select seats for their party.

Assign a unique code to the customer, and for every seat, replace "X" in the seating list with the customer's code

Return.

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**seatEconomy()**

Are there any reservations in the economy queue?
- No → Return.
- Yes → For the first party in the economy queue, determine the number of seats in the reservation.

Starting in the back left corner of the aircraft and working toward the front right corner of the aircraft, search for the first n consecutive available seats.

Are n consecutive seats available?
- Yes → Assign the seats, assign a unique code to the customer, and for every seat, replace "X" in the seating list with the customer's code.
- No → Can the party be split into two smaller parties such that the members of each smaller party are seated together?
  - Yes → (go to Assign the seats...)
  - No → Starting in the back left corner of the aircraft and working toward the front right corner of the aircraft, assign the first n seats, skipping over seats that are already taken. Then assign a unique code to the customer, and for every seat, replace "X" in the seating list with the customer code.