**Homework 5**

**Question 1: Run a simulation assuming Alliance Air pre-purchased 37 seats on a plane. What is the average daily profit in this scenario?**

For this simulation, it was assumed that Alliance Air had already purchased 37 seats on the Phoenix-Dallas route. Consequently, the overall daily profit that this strategy yields is equal to $3,347.12.

**Question 2: How many seats would you recommend Alliance Air to pre-purchase if they wanted to maximize their average daily profit?  What are the minimum and maximum daily profits if they were to purchase this quantity?**

From the analysis, it is suggested that Alliance Air should try to buy 50 seats to ensure maximum daily profit.

Minimum Daily Profit: -$1,700

Maximum Daily Profit: $7,500

This recommendation assists the airline in being ahead of demand to maximize gains from consumers without incurring losses for unsold or overbooked flights.