MANAGEMENT SCIENCE

GROUP 20

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**Question 1**

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Since GWA assumes a flat price of $0.1 per mile per seat for the organization of schedules, we multiply the flat price with the number of passengers and the number of miles travelled. GWA also needs to pay per type of plane the corresponding flying costs. Moreover, there are three types of planes within the calculation: 50-, 100-, 300 passengers. We multiply these amounts with the connected flying costs per plane multiplied with the number of miles travelled. The total calculation is performed to maximize the profit of GWA. However, we need to account for demands. The maximum capacity of small planes is 50 passengers, medium planes is 100 passengers and large planes is 300 passengers. Moreover, each type of plane can form combinations to carry all the available passengers from a particular flight.

**What is the daily profit?**

**What is the total number of planes of each type used?**

**The total number of planes used of each type:**

Small plane: 579  
Medium plane: 695  
Large plane: 408

**What is the daily revenue and what is the daily cost?**

**What is the profit margin?**

**Calculate the utilization of the allocated capacity**

The utilization of the allocated capacity is 123.44.

**Calculate the percentage of lost demand**

The percentage of lost demand is 10.06%