

Problem Statement:

Minimize the cost operations for Mr. Speedy.

Problem Evaluation and Formulation:

- Total of 24 vans (4 backup vans)
- 32 technicians
- Each technician is assigned with a van and each van has one or two technicians
- Day, Night and Weekend shifts.

Possible Alternates:

1. Alternate 1:

- Use 10 vans and 16 technicians during day
- Use 10 vans and 16 technicians during night
- Keep the remaining 4 vans as backup

2. Alternate 2:

- Use 13 vans and 18 technicians during day
- Use 8 vans and 11 technicians during night
- 3 vans and 3 technicians as backup

3. Alternate 3:

- Use 12 vans and 16 technicians during day time
- Use 12 vans and 16 technicians during night
- No backup

Evaluation:

After giving a thought to each of the alternate solution, I believe Alternate 2 is the best for the following reasons:

- Since there will be more work to do during day time, so it makes sense to use more vans and technicians during that time.
- There will be less work at night and hence the use of lesser vans and technicians during night.
- 3 vans and 3 technicians as backup are enough.

Using this Alternate solution we can also manage the weekend coverage easily. Since the night shift workers have less work to do, they will also work at the weekend. Each area will be provided with a certain van so that the fuel costs are also less.