Tour Guide Scheduling Optimization Program

Objective: Design a computer program to optimize employee schedule.

Parameters:

Tour Guide Qualifications

1. Level 0 Guide:
   1. New employees with no experience
   2. Training on basic tour guide training
   3. Must be with a level 5 guide always
2. Level 1 Guide:
   1. Basic experience level
   2. Cannot lead any tour, but can be assistant on any tour
3. Level 2 Guide:
   1. Can lead 2 tours max
4. Level 3 Guide:
   1. Can lead 4 tours max
5. Level 4 Guide:
   1. Leads of 4 tours max
   2. Can teach employees
6. Level 5 Guide:
   1. Can lead 4 tours max
   2. Can teach employees
   3. Can evaluate employees

Tour Transportation Programs (buses)

1. 2 bus tour
   1. Requires 2 tour guides (1 for each bus)
   2. Lead tour guide must be level 2,3,4,5
   3. Assistant tour guide can be level 1,2,3,4,5
2. 4 bus tour
   1. Requires 4 tour guides (1 for each bus)
   2. #1 guide must be level 3,4,5 level guide
   3. #2 guide must be 1,2,3,4,5 level guide
   4. #3 guide must be 2,3,4,5 level guide
   5. #4 guide must be 1,2,3,4,5 level guide
3. 6 bus tour
   1. Requires 6 tour guides (1 for each bus)
   2. #1 guide must be level 3,4,5 level guide
   3. #2 guide must be 1,2,3,4,5 level guide
   4. #3 guide must be 2,3,4,5 level guide
   5. #4 guide must be 1,2,3,4,5 level guide
   6. #5 guide must be 2,3,4,5 level guide
   7. #6 guide must be 1,2,3,4,5 level guide
4. 8 bus tour
   1. Requires 8 tour guides (1 for each bus)
   2. #1 guide must be level 3,4,5 level guide
   3. #2 guide must be 1,2,3,4,5 level guide
   4. #3 guide must be 2,3,4,5 level guide
   5. #4 guide must be 1,2,3,4,5 level guide
   6. #5 guide must be 2,3,4,5 level guide
   7. #6 guide must be 1,2,3,4,5 level guide
   8. #7 guide must be 2,3,4,5 level guide
   9. #8 guide must be 1,2,3,4,5 level guide
5. 10 bus tour
   1. Requires 10 tour guides (1 for each bus)
   2. #1 guide must be level 3,4,5 level guide
   3. #2 guide must be 1,2,3,4,5 level guide
   4. #3 guide must be 2,3,4,5 level guide
   5. #4 guide must be 1,2,3,4,5 level guide
   6. #5 guide must be 2,3,4,5 level guide
   7. #6 guide must be 1,2,3,4,5 level guide
   8. #7 guide must be 2,3,4,5 level guide
   9. #8 guide must be 1,2,3,4,5 level guide
   10. #9 guide must be 2,3,4,5 level guide
   11. #10 guide must be 1,2,3,4,5 level guide

Training Programs

1. Level 1
2. Level 2
3. Level 3
4. Level 4
5. Level 5

Daily Tasks

1. Normal Tours (doing daily tours)
2. Training Programs (upgrading to higher level tour guide)
3. Evaluation programs (Evaluate how tour guides perform

Tour Timelines

1. Tours have 3 timelines (preparation, tour, office time)
2. Example tour timeline:
   1. Prep Time: 7am – 9am
   2. Actual Tour Time: 9am – 11am
   3. Cleanup/Office: 11am – 1pm
3. Timelines are scheduled weekly
4. Timelines need to be programmable

Qualities:

1. Tours per Day: 10 – 30
2. Tour guides: 40

Scheduling Considerations:

1. Employees appointments
2. Employee Time Off
3. Employee Sick Day
4. Various other reasons employee cannot conduct tour

Special Jobs:

1. Tour Office Manager (special level)
2. Tour Office Alt Manager (special level)
3. Tour Office Secretary (any level)