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PERSONNEL SCHEDULING FOR AN AMUSEMENT PARK 1

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For employees working five consecutive days with two days off, find the schedule which meets demand from attendance levels while minimizing payroll costs.

Sch.	Days off	Employees	Sun	Mon	Tue	Wed	Thu	Fri	Sat
A	Sunday, Monday	3	0	0	1	1	1	1	1
B	Monday, Tuesday	5	1	0	0	1	1	1	1
C	Tuesday, Wed.	6	1	1	0	0	1	1	1
D	Wed., Thursday	4	1	1	1	0	0	1	1
E	Thursday, Friday	6	1	1	1	1	0	0	1
F	Friday, Saturday	1	1	1	1	1	1	0	0
G	Saturday, Sunday	0	0	1	1	1	1	1	0

Schedule Totals: 25

Total Demand:

Pay/Employee/Day: \$40

Payroll/Week: **\$5,000**

22 17 14 15 15 18 24

22 17 13 14 15 18 24

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(All fields are required)

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Problem

An amusement park needs a certain number of employees each day of the week. Every employee must be on a schedule that gives him/her two consecutive days off. How many employees should the park hire and what schedule should they be on to minimize total payroll cost?

Solution

- The variables are the number of people hired for each of the 7 possible schedules. On worksheet Sched1 these are given the name Employees_per_schedule.
- The logical constraints are
 - Employees_per_schedule ≥ 0 via the Assume Non-Negative option
 - Employees_per_schedule = integer
 There is also the constraint to have enough employees to operate the rides each day:
 - Employees_per_day \geq Required_per_day
- The objective is to minimize payroll. This is defined on the worksheet as Payroll.

Remarks

This is an example of a simple, but classic personnel scheduling problem. Hospitals, schools, police forces, etc., can all use a model like this to optimize their personnel scheduling.

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