

GAMS Prep

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Due Thu Sept. 29 at the beginning of class

1. (AMO)

4.13. Single-duty crew scheduling. The following table illustrates a number of possible duties for the drivers of a bus company. We wish to ensure, at the lowest possible cost, that at least one driver is on duty for each hour of the planning period (9 A.M. to 5 P.M.). Formulate this scheduling problem as a shortest path problem.

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|------------|-----|------|------|------|-----|-----|-----|
| Duty hours | 9-1 | 9-11 | 12-3 | 12-5 | 2-5 | 1-4 | 4-5 |
| Cost | 30 | 18 | 21 | 38 | 20 | 22 | 9 |

In other words, construct a graph and give two nodes in the graph, let's call them s and t , such that the shortest path from s to t tells us the minimum cost hiring schedule.