Independent Modeling Practice Kit

Three independently authored exercises: shortest path, M/M/1 queue and 0–1 capacity allocation.

Use the newly authored problems

The three exercises use invented nodes, rates and item values. No competition statement, textbook page, answer key or real timetable is reproduced. Work one example by hand before editing its inputs.

Shortest path

The graph exercise uses Dijkstra’s algorithm for nonnegative weights. Undirected mode adds reverse edges. The report gives the node path, total cost and settled distances. An unreachable destination has an explicit no-path result. Negative weights are rejected.

01 / Input record

Purpose
Work three small fictional modelling problems.

Fictional input
Graph A-B=4, A-C=2, C-B=1, B-D=3, C-D=7. Queue arrival 2/hour and service 3/hour. Capacity 7 with items (3,5),(4,7),(2,3).

Units and input scope
Nonnegative graph weights, stationary M/M/1 assumptions and integer 0–1 item weights are different model domains.

Input version
Example version 1; record a new version after changing an input.

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