

# Discrete Optimization

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## 1 LP-mini-project

The National Mining Company operates 6 copper mines and 10 smelters. The following table shows the daily production (in tonnes) of copper ore in each mine: The ore needs to be processed by smelters to produce industrial copper.

	A	B	C	D	E	F	G
	575	1026	3025	5000	965	1560	2300

Table 1: Weekly ore production of mines

The company operates 10 smelters in various cities. Each smelter has a limited daily capacity it can process. The following table represents their capacity:

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
2000	3000	1200	1500	1000	2500	3000	1200	1000	1400

Table 2: Smelters processing capacity

The next table represents the cost of shipping one ton of ore from the mines to smelters:

	A	B	C	D	E	F	G
S1	80	120	90	75	110	75	100
S2	120	90	85	120	90	120	65
S3	100	95	55	130	95	100	85
S4	90	80	115	100	70	110	75
S5	100	70	95	80	90	100	95
S6	80	90	105	100	95	110	95
S7	100	80	95	110	95	125	80
S8	120	90	75	110	95	130	100
S9	130	100	75	125	80	100	95
S10	120	90	95	110	90	120	75

Table 3: Shipping cost from mines to smelters

Your mission is to build a model that will allow the company to produce a shipping schedule that will minimize the cost of shipping.