

# An old pen drive

Difficulty level: intermediate

## Keywords

- Knapsack
- Integer Programming
- Excel Solver

## Problem description

You want to compose a playlist, given a list of tracks in high-resolution audio and an old pen drive, that is partially used (only 140 MB are available). Your playlist must include at least 6 tracks, of which at most 2 with an English title. For each track in the list, its size (in MB) and a preference index (from 1 to 10) are shown in Table 1.

Nb	Track	Size (MB)	Preference Index [1-10]
1	Perfect	25	9.5
2	No roots	20	8
3	La musica non c'è	30	9
4	Musica leggerissima	20	7
5	Zitti e buoni	18	6.5
6	Resta qui	22	9
7	Famous blue raincoat	27	10
8	Rolling in the deep	19	8.5

Table 1: List of the available tracks, each with its size (in MB) and a preference index from 1 (i.e., not at all liked) to 10 (i.e., very liked).

Which tracks are you going to copy to the pen drive, in order to maximize the overall preference index without exceeding the available capacity?

## Tasks

1. Formulate the problem by applying Linear, Integer, or Mixed Integer Linear Programming.
2. Solve the problem by using Excel Solver.
3. Will the track called “*Resta qui*” be copied to the pen drive?