A Two-Phase Heuristic Algorithm for the Label Printing Problem

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This file explains the instance and solution files for the *Label Printing Problem* instances used in the computational study.

1. Instances Used

There are three sets of instances: (i) real-life instances and one large instance (with 100 labels) used by Tuyttens and Vandaele (2014), (ii) randomly generated instances proposed by Tuyttens and Vandaele (2014), and (iii) new large instances with 100 labels adapted from the *Cover Printing Problem* instances first proposed by Romero and Alonso-Pecina (2012). There are 7 instances in the first set of instances. There are 120 randomly generated instances, and 30 instances with 100 labels. In total, there are 157 instances. In each instance file, the number in the first line is the number of labels (N), the number in the second line is the number of slots on a template (S), and the number in the third line is the number of templates (T). In each of the remaining N lines, we provide the demand amount of each item (d_i).

2. Best Solutions

Each of the 157 instances are solved both for the particular and general cases. For each set of instances, the best solutions found by the proposed algorithm are provided in two zip files named as "...ParticularCaseSolutions" and "...GeneralCaseSolutions". In each result file, the first line is the number of templates (T) used in the solution. Then, in each of the following batch of $N + 2$ lines, we provide the template design and the number of prints made for each template. The first line of the $N + 2$ lines in each batch represents the template number, each of the following N lines provides the label index and the number of slots that label is assigned to in the current template. Finally, the number in the $N + 2$nd line represents the number of prints made using this template.

References

Romero, D., F. Alonso-Pecina. 2012. Ad hoc heuristic for the cover printing problem. *Discrete Optimization* **9**(1) 17–28.

Tuyttens, D., A. Vandaele. 2014. Towards an efficient resolution of printing problems. *Discrete Optimization* **14**(1) 126–146.