1D Cutting Stock

Sets

- I = set of items; ($index\ i$)
- J = set of cutting patterns; ($index\ j$)

Parameters

- L = length of the standard stock;
- d_i = demand of item $i \in I$;
- l_i = length of item $i \in I$;
- a_{ij} = number of item $i \in I$ cut in pattern $j \in J$;
- w_j = waste of pattern $j \in J$;

Variables

- x_j = number of stocks used for cutting pattern $j \in J$;

Model

$$min \sum_{j \in J} x_j \tag{1}$$

s.v

$$\sum_{j \in J} a_{ij} \cdot x_j \geq d_i \qquad \forall i \in I \tag{2}$$

$$x_j \in \mathbb{Z}^+ \tag{3}$$