Sets

I All possible ingredients for the cat food.

R Requirements for a can of cat food.

Params

c_i The cost (per gram) of the ingredients.

$q_{r,i}$ The contribution per g of ingredients to requirements.

$r_{i_1}^{min} = -(\infty)$ Minimal required amount of requirement.

$r_r^{max} \geq r_r^{min}, = \infty$ Maximal required amount of requirement.

Variables

$A_i \geq 0$ is amount (g) of each ingredient used.

Objectives

$$\underset{TotalCost}{\text{minimize}} \sum_{i \in I} c_i \cdot A_i \tag{1}$$

Objectives have the following meaning:

- 1 is to minimise the cost per can

Constraints

$$\underset{r \in R}{\forall} \; r_r^{min} \leq \sum_{i \in I} q_{r,i} \cdot A_i \leq r_r^{max} \tag{2}$$

Constraints have the following meaning:

- 2 checks if solution meets the nutritional requirements