Aðgerðagreining glósur

January 18, 2018

Vika 2, T1

Dæmi úr kafla 1 í AMPL bók: Stálsmiðja

Vörur

Gögn

Framleiðslutími (tons per hour): Bands 200, Coils 140
Arðsemi ($ per ton) : Bands $25, Coils $30
Vikurleg hámarks framleiðsla: Band 6000 einingar, coils 400 einingar

Hot many tons of bands and coils should be produced, given 40 hour production time per week to bring in the greatest profit?

Ákvarðanarbreitur

Xb: quantity of Bands to produce
C_c: quantity of coils to produce

Skorður

$\frac{1}{200} * X_b + \frac{1}{140} * X_c <= 40klst$
$0 <= X_B <= 6000$
$0 <= C_C <= 4000$

Leysum myndrænt

Maximize: $25X^B + 30X_C$
$\frac{1}{200}X_B + \frac{1}{140}X^C <= 40$
$0 <= X_B <= 6000$
$0 <= X_C <= 4000$

Leisa algebruna

$\frac{1}{200}X_B + \frac{1}{140}X_C = 40$
$X_B = 200(40) - \frac{20}{140}X_C$
$X_B = 8000 - 1.42X_C$

AMPL

Gögn:

- set
- fasti, parameter, param
- var, breytur, var
- markfall, objective, maximize eða minimize
- Skorður, constrains, subject to

Skilgreining gagna:

- P set of products
- aj = tons per hour of product j, for each j in P
- b = hours available at the mill
- cj = profit per ton of product j, for each j in P
- uj = maximize tons of product j, for each j in p
- Varible Xj = tons of product j to b made for each j in P

maximize $\sum^{jstakP} C_j X_j$
subject to $\sum^{jstakP} (\frac{1}{aj}) X_j <= b\ 0 <= X_j <= u_j, fyrirlljP$

Vika 2, T2

Diet problem

Finna mat sem uppfyllir næringar þörf sem uppfyllir minnsta kostnað.
Ath að það þarf að finna matar pakka sem uppfyllir alla næringar þörf fyrir heila viku.

Table 1: Matargögn

Vara	kostnaður	A Vítamín	C Vítamín	B1	B2
Beef	num$	num%	num%	num%	num%
Food	num$	num%	num%	num%	num%
Food	num$	num%	num%	num%	num%

Gögn

- Set (mengi) Matarpakki = Beef,food,food
- parameter C_j costnaður per næringarpakka j, ϵ Matapakka
- a_{ij} næringarefni(%) i í matapakka j, i ϵ Næringarefni, j ϵ matarpakki

Ákvörðunarbreytur:
X_j: Fjöld matarpakka j sem á að kaupa fyrir vikuna.

Marfall:
minimize z * $\sum_{j \epsilon Matur} C_j X_j$

Skorður

$$\sum_{j \epsilon Matarpakki} a_{ij} X_j >= amini(700\%)$$

$X_j >= 0, \epsilon matarpakkar$

ATH Bók