系級: 資訊109 學號: F74051124 姓名:歐子毓

Q1.

(a.) Supply Chain Structure from teacher's slide

SCM Example POLab ■ SCM Model 2 suppliers, $V = \{v_1, v_2\}$. 2 facilities, $F = \{f_1, f_2\}$. Suppliers 2 warehouses, $W = \{w_1, w_2\}$. 3 customers, $C = \{c_1, c_2, c_3\}$. 3 raw materials, $P = \{p_1, p_2, p_3\}$. Facilities 1 goods, $G = \{g_1\}$. 5 time units, $T = \{t_1, t_2, t_3, t_4, t_5\}$. Warehouses Customers All production and transportation lead times are assumed to be 1, that is, $T_{vf} = T_{fw} = T_{wc} = T_{bomfc} = 1.$

(b.)

參考 problem1.py

command line 輸入 python3 question1.py 執行

Total cost 為 2035.22

Productivity Optimization Lab

Q2.

$$\operatorname{Min} \sum_{1 <= j < k <= n} v_{jk} (p_{jk} + q_{jk}) + \sum_{j=1}^{2} \sum_{i=1}^{4} w_{ji} (r_{ji} + s_{ji}) + \sum_{1 <= j < k <= n} v_{jk} (y p_{jk} + y q_{jk}) + \sum_{j=1}^{2} \sum_{i=1}^{4} w_{ji} (y r_{ji} + y s_{ji})$$

ORA 03 Capacity, Scheduling, & SCM

Dr. Chia-Yen Lee

s.t.

$$x_i - q_{jk} + p_{jk} = x_k$$
; $1 \le j \le k \le 2$

$$x_i - r_{ii} + s_{ii} = a_i$$
; $1 \le i \le 4$, $1 \le j \le 2$

$$x_{i}, x_{k}, r_{ii}, s_{ii}, q_{ik}, p_{ik} \geq 0$$

$$y_i - yq_{ik} + yp_{ik} = y_k$$
; $1 \le j \le k \le 2$

$$y_i - yr_{ii} + ys_{ii} = b_i$$
; $1 \le i \le 4$, $1 \le j \le 2$

$$y_{i}, y_{k}, yr_{ii}, ys_{ii}, yq_{ik}, yp_{ik} \geq 0$$

(b.)

參考 problem2.py

command line 輸入 python3 question2.py 執行

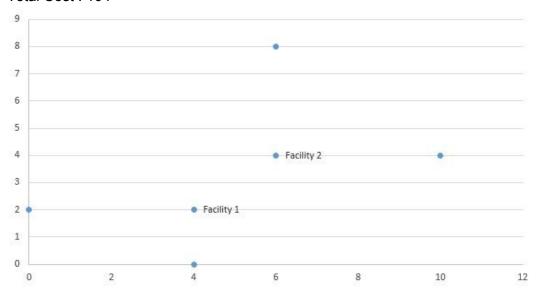
(c.)

新設施座標

$$(x1,y1) = (6,4)$$

$$(x2,y2) = (4,2)$$

Total Cost: 104



Q3.

- (a.)
- (b.)

Q4.

- (a.)
- (b.)

參考 problem3.py

command line 輸入 python3 question3.py 執行

- (c.)
- (d.)