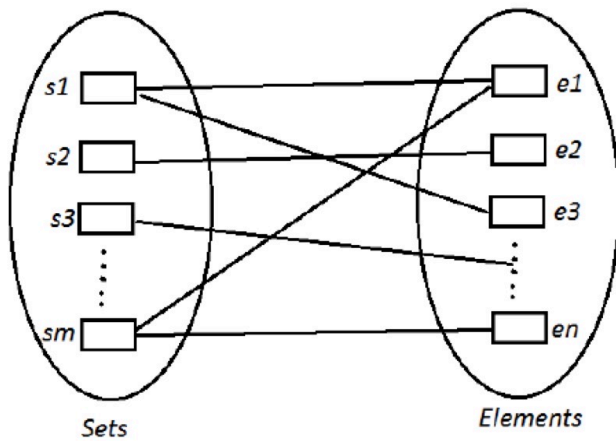


1.



Decision variables: $x_t = 1$ if we choose set S_t , 0 otherwise.

$a_{it} = 1$ if element e_i is in set S_t , 0 otherwise.

Objective: minimize $\sum_{t=1}^m x_t$

Constraints: $x_t \in \{0, 1\} \quad \forall t = 1, 2, 3, \dots, m$

$a_{it} \in \{0, 1\} \quad \forall i = 1, 2, 3, \dots, n; \quad \forall t = 1, 2, 3, \dots, m$

$\sum_{i=1}^n a_{it} x_t \geq 1 \quad \forall t = 1, 2, 3, \dots, m;$

The code and result is on next page.