1.Decision Variables

+) $X[i,j,k] = 1$ if staff I work on phase k of day j , 0 otherwise Such that: $1 \leq i \leq N, 1 \leq j \leq D, 1 \leq k \leq 4$

2.Constraints

+)Each employee works no more than one shift every day:

$\sum 1 \leq k \leq 4 X[i,j,k] \leq 1, for 1 \leq i \leq N, 1 \leq j \leq D$

+)Employees can have a day off after having a night shift on the previous day

$:X[i,j-1,4] + \sum 1 \leq k \leq 4 X[i,j,k] = 1 , for 1 \leq i \leq N, 1 \leq j \leq D$

+)Employees will not work on their off days:

$\sum 1 \leq k \leq 4 X[i,j,k] = 0, for 1 \leq i \leq N, j \in F[i]$

+)Each shift will have at least α employees and β at most:

$\alpha \leq \sum 1 \leq i \leq N X[i,j,k] \leq \beta , for 1 \leq j \leq D, 1 \leq k \leq 4$

3. Objective function

$Z = max \sum 1 \leq j \leq D x[i, j, 4]$, for $1 \leq i \leq N$

> Minimise Z