Indices:

i = 1, 2, ..., 5 used for claim severity levels

j = 1, 2, ..., 5 used for Handler skill levels

k = 1, 2, 3, 4 used for weeks

Given parameters (input data):

N_{ik} = number of claims of severity i reported in week k

$N_i = \sum_k N_{ik}$ = total number of claims of severity i

M_{ij} = number/fraction of claims of severity i can be handed by a handler of skill j in a day

W_i = number of weeks within which 90% of total claims of severity i must be handled

Decision variables:

X_{ijk} = number of Handlers of skill j required to handle claims of severity i in week k

Objective: minimizing the total number of handlers used across all severity levels, skill levels, and weeks.

Min $\sum_{ijk} X_{ijk}$

Constraints:

1. At least 90% of severity i claims are handled within W_i weeks

$$\sum_{k=1}^{W_i} \sum_j X_{ijk} * M_{ij} * 7 => \min\{\sum_{k=1}^{W_i} N_{ik}, 0.9 * N_i\} \text{ for every i}$$

2. All claims must be handled eventually

$$\sum_{k=1}^{4} \sum_j X_{ijk} * M_{ij} => N_i \text{ for every i}$$

3. Every $x_{ijk} >= 0$ is a non-negative integer