A cost function is needed for partial solutions to help in larger decisions. For instance, let's define **m[i][j]** as the minimum cost of serving all the riders using exactly **j stops**, with the last stop being on floor **i**.

Can this function help us place the **(j+1)th** stop based on smaller values? Yes, because the **(j+1)th** stop must be higher than the previous **jth** stop on floor **i**. Additionally, this new stop will primarily benefit passengers aiming to travel beyond floor **i**.

We must carefully allocate passengers between the new stop and floor **i** according to their proximity to each. This approach leads to the following recurrence:

$$m_{i,j+1} = \min_{k=0}^{i} \left(m_{k,j} - (cost\ of\ serving\ passengers\ above\ \boldsymbol{k}) + (cost\ of\ introducing\ stop\ \boldsymbol{i})\right)$$

Note that: $cost\ of\ introducing\ stop\ \boldsymbol{i} = cost\ of\ (k, i) + cost\ of\ (i, infinity)$

the recurrence implies that if the last stop is at floor *i*, the previous stop should be at floor $k < i$. What is the cost for such solution? Subtract the cost of serving all passengers above *k* (cost of *(k, infinity)*) from $m_{k,j}$. Then replace it with the potentially lower cost of adding a stop at floor *i (cost of (k, i)* and *cost of (i, infinity)*).