

Let $OPT(i)$ denote the minimum cost of a solution for weeks 1 through i . In an optimal solution, we either use company A or company B for the i^{th} week. If we use company A , we pay rs_i and can behave optimally up through week $i - 1$. If we use company B for week i , then we pay $4c$ for this contract, and so there's no reason not to get the full benefit of it by starting it at week $i - 3$; thus we can behave optimally up through week $i - 4$, and then invoke this contract.

Thus we have

$$OPT(i) = \min(rs_i + OPT(i - 1), 4c + OPT(i - 4)).$$

We can build up these OPT values in order of increasing i , spending constant time per iteration, with the initialization $OPT(i) = 0$ for $i \leq 0$.

The desired value is $OPT(n)$, and we can obtain the schedule by tracing back through the array of OPT values.

¹ex382.12.857