Suppose we have $T$ stages. We set up two-level data structures $f$ and $x$ such that

- $f[t][i]$ holds the expected value of being in state $i$ and time stage $t$ (should be able to accept values of $t$ up to $T + 1$)
- $x[t][i]$ holds the best decision to take in state $i$ and time stage $t$

The optimization procedure may then be organized along the following general lines:

1. Set up or read in problem data
2. Set up data structures for $x$ and $f$
3. For each state $i$, set $f[T+1][i]$ to be the value of being in state $i$ at the end of planning horizon. Depending on the problem and $i$, this value might be:
   - Zero
   - Infinity for disallowed ending states (+∞ for minimization, –∞ for maximization)
   - Some “salvage” value (for example, what you could get by selling off excess inventory to a discounter at the end of the time horizon)
4. Loop over stages $t = T, T-1, ..., 1$ (backward!)
   - Loop over all possible states $i$
     - Set the current state value $v$ to $+\infty$ for minimization, $-\infty$ for maximization
     - Determine which decision moves $z$ are possible from stage $t$, state $i$
     - Loop over all decisions $z$ that are possible in this case
       - Initialize “move value” $m$ of decision $z$ to contains all costs/rewards for this situation that are not random
     - Determine which distinguishable random events $e$ can occur in this situation
     - Loop over all possible random events $e$
       - Determine next state $j$
       - Add $P\{e\}(\text{costs/rewards depending on } e + f[t][j])$ to $m$
     - If the $m$ improves on $v$, replace $v = m$ and store $z$ as the “best move”
     - Store the “best move” decision for stage $t$, state $s$ in $x[t][i]$
     - Store the corresponding optimal value $v$ in $f[t][i]$
5. Output $f[1][i_0]$ as the optimal expected value, where $i_0$ is the initial state
6. Output $x[t][i_0]$ to indicate the initial decision you must take now
7. Loop over stages $t = 2, ..., T$
   - Loop over all possible states $i$
     - Output $x[t][i]$ to indicate what you would do if you find yourself in state $i$ at stage $t$