function LIKELIHOOD-WEIGHTING(X, $\mathbf{e}$, bn, N) **returns** an estimate of $\mathbf{P}(X \mid \mathbf{e})$
   inputs: X, the query variable
           $\mathbf{e}$, observed values for variables $\mathbf{E}$
           bn, a Bayesian network specifying joint distribution $\mathbf{P}(X_1, \ldots, X_n)$
           N, the total number of samples to be generated
   local variables: $\mathbf{W}$, a vector of weighted counts for each value of X, initially zero

   for $j = 1$ **to** N **do**
      $\mathbf{x}, w \leftarrow$ WEIGHTED-SAMPLE(bn, $\mathbf{e}$)
      $\mathbf{W}[j] \leftarrow \mathbf{W}[j] + w$ where x_j is the value of X in $\mathbf{x}$
   return NORMALIZE($\mathbf{W}$)

function WEIGHTED-SAMPLE(bn, $\mathbf{e}$) **returns** an event and a weight

   $w \leftarrow 1$; $\mathbf{x} \leftarrow$ an event with n elements, with values fixed from $\mathbf{e}$
   for $i = 1$ **to** n **do**
      if X_i is an evidence variable with value x_{ij} in $\mathbf{e}$
           then $w \leftarrow w \times P(X_i = x_{ij} \mid parents(X_i))$
           else $\mathbf{x}[i] \leftarrow$ a random sample from $\mathbf{P}(X_i \mid parents(X_i))$
   return $\mathbf{x}$, w