

- a) Using dynamic programming, find the shortest path from the source (1) to the destination (8).
 - b) List the sequence of nodes in the shortest path and the total weight of this path.
3. Given a sequence of matrices $\{A_1, A_2, A_3, A_4, A_5, A_6\}$ with dimensions, $\langle 30 \times 35 \rangle, \langle 35 \times 15 \rangle, \langle 15 \times 5 \rangle, \langle 5 \times 10 \rangle, \langle 10 \times 20 \rangle, \langle 20 \times 25 \rangle$ respectively.
- a) Use dynamic programming to find the minimum number of scalar multiplications needed to multiply the chain of matrices.
 - b) Show the construction of the cost table and k-table
 - c) Provide the optimal parenthesizing of the matrices.