Q. 1. Use a stack to transform the following infix expression into postfix form. Show clearly the output stream, stack, and the most recently read character. Then use a stack to evaluate the resultant postfix expression. Show the stack snapshot whenever it changes.

\[ 2 + 5 \times 2 + (2 \times 2 + (3 + 2) \times 2) \times 4 \]

\[ 2 + 10 + (\text{\textit{11}} + 10) \times 41 \]

\[ = 68 \]

\[ 252 \times + \]

\[ 252 \times + 2 2 \]

\[ 252 \times + 2 \times 3 2 + \]

\[ 252 \times + 2 2 \times 3 2 + 2 \times + \]

\[ 252 \times + 2 2 \times 3 2 + 2 \times + \]
Evaluating Post fix expression

$2 5 2 * + 2 2 3 * 2 + 2 * 4 +$

Hence answer can be verified as well

$2 + 5 * 2 + (2 * 2 + (3 + 2) * 2) * 4$

$= 2 + 10 + (4 + 5 * 2) * 4$

$= 2 + 10 + (4 + 10) * 4$

$= 12 + 56$

$= 68$