Assignment – 1

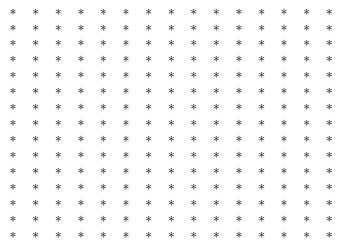
(1) Given an infix expression without brackets. Assume all the operators are binary. Write a program to evaluate this given infix expression without converting it into a postfix expression.

(2) Write a program to obtain the maximum/minimum height of an AVL tree which can be generated from n nodes.

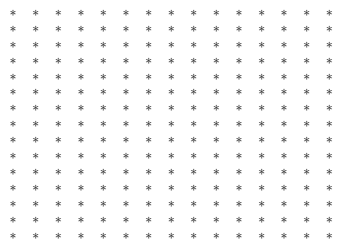
(3) Write a program to multiply two n-digit positive numbers ($100 \leq n \leq 500$). You first take the number of digits in each number as input and then start.

(4) Given a square matrix $n \times n$ where $n \geq 3$. Write a program to print the following patterns. This program should take an argument (say `arg`) along with square matrix, and print accordingly.

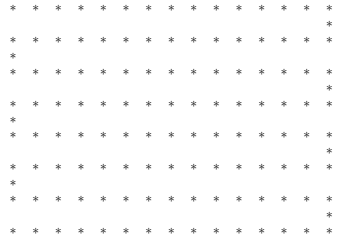
- Input matrix for $n = 15$ is as follows.



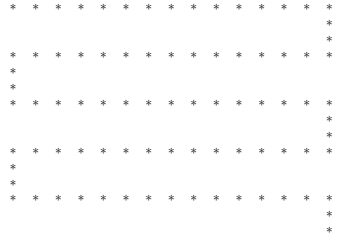
- Output matrix when `arg` $= 0$ is as follows.



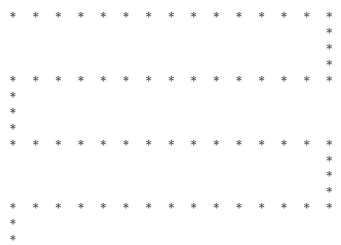
- Output matrix when `arg` $= 1$ is as follows.



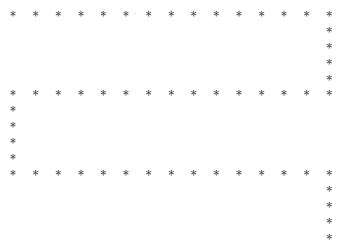
- Output matrix when `arg` $= 2$ is as follows.



- Output matrix when `arg` = 3 is as follows.



- Output matrix when `arg` = 4 is as follows.



- Output matrix when `arg` = 5 is as follows.