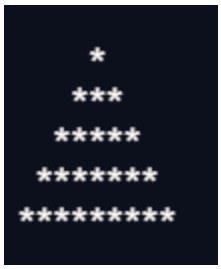
# JAVA PROGRAMS

1. Write a program on computes the sum of the first n natural numbers.
2. Write a program calculates the LCM of three number.
3. Write a program that takes six numbers as input and finds the greatest & smallest among them.
4. Write a program that generates a mathematical Fibonacci series using a loop.
5. Write a program prints the sum of the given series

$$S = 1 - x + \frac{x^2}{2} + \frac{x^3}{3} + \ldots + \frac{x^n}{n}$$

6. "Write a Java program that takes a character as input and checks whether it is a vowel or a consonant."
7. Write a program swaps two numbers without using a third variable.
8. Write a program prints the multiplication table of a given number.
9. Write a program **that takes two numbers,** m **and** n**, as input and prints all prime numbers between them.**
10. Write a program prints a pyramid pattern using loops as given below:




11. Write a program prints a pyramid pattern using loops as given below:


12. Write a program demonstrating various operations on a **1D array**, including:

- Input elements
- Display elements
- Find the sum of elements
- Find the largest and smallest elements
- Reverse the array
- Search for an element
- Delete an element

13. Write a program that performs **addition** & **multiplication (product)** of two **2D arrays**
14. Write a program on variety of **String functions** that help in manipulating and processing text efficiently.

**Basic String Methods:**

- **length()** – Returns the length of the string.
- **isEmpty()** – Checks if the string is empty.

**Comparison & Searching:**

- **equals(str)** – Compares two strings for equality.
- **equalsIgnoreCase(str)** – Compares two strings ignoring case differences.

**Modification & Formatting:**

- **replace(old, new)** – Replaces occurred .

**Splitting & Joining**

- **split(regex)** – Splits the string into an array based on a delimiter.
- **join(delimiter, elements)** – Joins multiple strings with a delimiter.

**Conversion & Utility**

- **toCharArray()** – Converts the string into a character array.
- **getBytes()** – Converts the string into a byte array.

15. Write a program to display name and age of n students using constructor.
16. Write a program on multiple inheritance using a **BankAccount and SavingsAccount** scenario.
17. Write a Java program to create a simple calculator using packages.
18. Write a Java program using AWT that creates a simple GUI with a button and label.
19. Write a Java Applet program that creates a simple GUI with a button and a label.
20. Write a Java program that demonstrates multithreading using both the Thread class and the Runnable interface."
21. Write a Java program that demonstrates exception handling using try, catch, and finally blocks.
22. Write a Java program that demonstrates the implementation of popular functions in Vector and ArrayList, such as adding, removing, searching, sorting, and iterating over elements.