



**UNDERSTANDING:-**

* **IF U OBSERVED CAREFULLY THERE IS A PATTERN IN SPACES AND STARS**
* **FIRST PRINT FILLED STAR PATTERN THEN GO FOR SPACES IN IT**
* **FILLED STAR PATTERN**
  + **IF WE SEE CAREFULLY SPACES ARE INCREASING BY 1 TILL MIDDLE ROW AND ARE DECREMENTING BY 1 AFTER MIDDLE ROW**
  + **IF WE SEE CAREFULLY STARS ARE DECREMENTING BY 2 TILL MIDDLE TOW AND ARE INCREMENTING BY 2 AFTER MIDDLE ROW**
* **SPACES IN MIDDLE HALF PATTERN**
  + **IF WE SEE IN MIDDLE HALF PATTERN SPACES ARE PRESENT IN ROWS ARE GREATER THAN STAR ROW AND SMALLER THAN MIDDLE ROW**
  + **AND AS WELL AS SPACES ARE PRESENT AFTER FIRST POSITION IN ROW AND BEFORE LAST POSITION IN ROW**

ALGORITHM:-

📌 PATTERN: HOLLOW DIAMOND STAR PATTERN

🎯 OBJECTIVE:

\* - Print a diamond shape made of stars (\*) that is hollow from the inside.

\* - Only the borders are filled with stars; internal area is filled with spaces.

🔢 INPUT:

\* - `total\_rows`: Should be an \*\*odd number\*\* (like 5, 7, 9)

🧠 LOGIC BREAKDOWN:

1. Initialization:

\* - `spaces = 0`: Spaces before stars in each row.

\* - `stars = total\_rows`: Initial number of stars (maximum on first row).

2. Outer Loop (i = 1 to total\_rows): Controls each row of the pattern.

3. First Inner Loop (Leading SPACES):

\* - Prints increasing leading spaces from top to middle.

\* - Decreases again from middle to bottom.

4. Second Inner Loop (STARS + HOLLOW):

\* - For every position in star loop (1 to `stars`):

\* - Print `\*` at start and end positions.

\* - Print space (`\t`) inside to create the "hollow" effect.

\* - Hollow condition is:

\* - Row should not be the top or bottom.

\* - Position should be between 1 and `stars` (exclusive).

5. Update Logic (to manage diamond shape):

\* - First half of diamond (`i <= total\_rows / 2`):

\* - `spaces++`, `stars -= 2`

\* - Second half of diamond (`i > total\_rows / 2`):

\* - `spaces--`, `stars += 2`

📌 KEY CONCEPTS:

\* - Top and bottom rows: fully filled with stars.

\* - Rows in-between: stars at the edges only, rest filled with tab spaces.

\* - Symmetrical diamond controlled by increment/decrement of `spaces` and `stars`.

🧠 MEMORY TIP:

\* - Think of it as a fully filled diamond first.

\* - Then "cut out" the center part from rows 2 to mid-1 and mid+1 to end.