

Assignment – 2

Topic: Pattern Visualization & Filtering the Square

Instructions:

1. Take input n from the user wherever required.
2. Do a **dry run on paper first** before coding.
3. **Identify:**
 1. What does the outer loop represent?
 2. What does the inner loop represent?
4. **Do NOT copy from chatGPT / friends — focus on understanding.**

Q1) Hollow Square

Print a hollow square of size n .

Example

If $n = 5$

```
* * * * *
*           *
*           *
*           *
*           *
* * * * *
```

Think:

Which rows are fully filled?

Which columns are fully filled?

What should be printed in the middle?

Q2) Diagonal Square (X Pattern)

Print the following pattern:

If $n = 5$

```
*           *
  *       *
    *   *
  *       *
*           *
```

Think:

When are row and column equal?

When does row + column equal something constant?

Q3) Right Triangle (Derived from Square)

If $n = 5$

```
*
*  *
*  *  *
*  *  *  *
*  *  *  *  *
```

Think:

In square, inner loop runs till n

What condition makes it triangular?

When should printing stop in each row?

Q4) Inverted Right Triangle

If $n = 5$

```
*   *   *   *   *
*   *   *   *
*   *   *
*   *
*
```

Think:

How does number of columns change as rows increase?

What relationship exists between i and n ?

Q5) Chessboard Pattern

If $n = 4$

```
*   #   *   #
#   *   #   *
*   #   *   #
#   *   #   *
```

Submit:

1. Code
2. Dry run for $n = 3$
3. Short explanation:
 - What does outer loop represent?
 - What does inner loop represent?

YENJOYY !!