

Lab 7

Rules:

- You are not allowed to use any array or String
- One only line where the word “String” may appear is in public static void main(**String** [] args) {
- The word “char” must not be anywhere in your solution

Overall hint: Imagine all outputs as a matrix of space and star. Then count spaces and stars to find out the trend of increment or decrement of number of stars/spaces. Utilize several IF statement to control when 'star' will be printed, when 'space' will be printed and when 'enter' will be printed.

PROBLEM 1) Number Line

Sample input:

6

Sample output

123456

PROBLEM 2) Star Line

Print as many stars as given in input

Sample input:

6

Sample output

PROBLEM 3) Rectangle

Sample input:

4

6

Sample output

Hint: 4 and 6 means 4 lines of stars having 6 stars in each line.

PROBLEM 4) Rectangle

Sample input:

4

6

Sample output

123456

123456

123456

123456

Hint: 4 and 6 means 4 lines of numbers having 1..6 in each line.

PROBLEM 5) Triangle - Left Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

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

Hint: One loop for lines, another loop for printing i number of stars when it is line i.

PROBLEM 6) Triangle - Left Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

```
1  
12  
123  
1234
```

PROBLEM 7) Triangle - Right Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

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

Hint: Count and print appropriate number of spaces in front of stars. Notice that there is one less space and one more star in each line.

PROBLEM 8) Triangle - Right Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

```
   1  
  12  
 123  
1234
```

PROBLEM 9) Triangle - Isosceles

Draw triangle of given height

Sample input 1:

3

Sample output 1:

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

Sample input 2:

4

Sample output 2:

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

PROBLEM 10) Triangle - Isosceles

Draw triangle of given height

Sample input 1:

3

Sample output 1:

```
 1
123
12345
```

Sample input 2:

4

Sample output 2:

```
 1
123
12345
1234567
```

PROBLEM 11) Triangle - Right Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

```
 4
 34
234
1234
```

PROBLEM 12) Rhombus

Just draw the image of the above triangle once. And then, the opposite, once.

Sample input:

3

Sample output

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

PROBLEM 13) Rhombus

Just draw the image of the above triangle once. And then, the opposite, once.

Sample input:

3

Sample output

```
 1
123
12345
123
 1
```

PROBLEM 14) Hollow Rectangle

Display a rectangle of given length and width.

Sample input:

4

5

Sample output

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

Hint 1: Print the character space (' ') in the middle.

Hint 2: You can re-use your solution to PROBLEM 2 and use if condition to selectively print first and last star of each line and all stars of first and last line.

PROBLEM 15) Hollow Rectangle

Display a rectangle of given length and width.

Sample input:

4

5

Sample output

```
12345
1    5
1    5
12345
```

PROBLEM 16) Hollow Triangle - Left Justified

Draw right angled triangle of given height

Sample input:

5

Sample output

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

PROBLEM 17) Hollow Triangle - Left Justified

Draw right angled triangle of given height

Sample input:

5

Sample output

```
1
12
1 3
1 4
12345
```

PROBLEM 18) Hollow Triangle

Draw right angled triangle of given height

Sample input:

5

Sample output

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

PROBLEM 19) Hollow Triangle - Right Justified

Draw right angled triangle of given height

Sample input:

5

Sample output

```
  5
 45
3 5
2 5
12345
```

PROBLEM 20) Hollow Triangle

Draw triangle of given height

Sample input 1:

3

Sample output 1:

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

Sample input 2:

4

Sample output 2:

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

PROBLEM 21) Hollow Triangle – Isosceles

Draw triangle of given height

Sample input 1:

3

Sample output 1:

```
  1
 1 3
12345
```

Sample input 2:

4

Sample output 2:

```
  1
 1 3
 1 5
1234567
```

PROBLEM 22) Hollow Rhombus

Just draw the image of the above triangle once. And then, the opposite, once.

Sample input:

3

Sample output

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

PROBLEM 23) Hollow Rhombus

Just draw the image of the above triangle once. And then, the opposite, once.

Sample input:

3

Sample output

```
  1
1 3
1  5
  3
  1
```

PROBLEM 24) Palindrome

Sample input:

5

Sample output

123454321

PROBLEM 25) Palindromic Triangle

Sample input:

5

Sample output

```
  1
 121
12321
1234321
123454321
```