**Sheikh Fazilatunnesa Mujib University**

**Department of Computer Science and Engineering**

**CSE 112 (Structured Programming)**

**Lab 3**

Rules:

* You are not allowed to use any array or String
* 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.

**Task 01:** Number Line

Sample input:

6

Sample output

123456

**Task 02:** 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.

**Task 03:** Star Line

Print as many stars as given in input

Sample input:

6

Sample output

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**Task 04:** Rectangle

Sample input:

4

6

Sample output

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

**Task 05:** Triangle - Left Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

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

**Task 06:** Triangle - Left Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

1

12

123

1234

**Task 07:** Triangle - Right Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

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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.

**Task 08:** Triangle - Right Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

4

34

234

1234

**Task 09:** Triangle - Right Justified

Draw right angled triangle of given height

Sample input:

4

Sample output

1

12

123

1234

**Task 10:** Triangle - Isosceles

Draw triangle of given height

Sample input 1:

3

Sample output 1:

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Sample input 2:

4

Sample output 2:

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**Task 11:** 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

**Task 12:** Rhombus

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

Sample input:3

Sample output

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**Task 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

**Task 14:** Hollow Rectangle

Display a rectangle of given length and width.

Sample input:

4

5

Sample output

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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.

**Task 15:** Hollow Rectangle

Display a rectangle of given length and width.

Sample input:

4

5

Sample output

12345

1   5

1   5

12345