

Programming Fundamentals

Lecture # 23

Ehtisham Rasheed

Department of Computer Science
University of Gurjat, Gujrat

UNIVERSITY OF GUJRAT



Problem 1

- Write a program in C++ to print a square pattern with the # character
- Sample execution:

```
Input the number of characters for a side: 4
```

```
# # # #
```

```
# # # #
```

```
# # # #
```

```
# # # #
```

Problem 2

- Write a C++ program to print the following sequence using for loop as well as while loop

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Problem 3

- Write a C++ program that makes a pattern such as a right angle triangle using numbers that repeat
- Sample output:

```
Input number of rows: 5
1
22
333
4444
55555
```

Problem 4

- Write a program in C++ to display a pattern like a right angle triangle using an asterisk.
- Sample output:

Input number of rows: 5

*

**

Problem 5

- Write a program in C++ to display a pattern like a right angle triangle using an asterisk.
- Sample output:

* * * * *

* * * *

* * *

* *

*

Problem 6

- Write a program in C++ to display a pattern like a right angle triangle using an asterisk.
- Sample output:



```

      *
     **
    ***
   ****
  *****

```

The sample output shows a right-angled triangle pattern of asterisks. The pattern consists of 5 rows. The first row has 1 asterisk, the second row has 2, the third row has 3, the fourth row has 4, and the fifth row has 5. The asterisks are aligned to the right, creating a triangular shape.

Problem 7

- Write a C++ program to make such a pattern like a right angle triangle with the number increased by 1
- Sample output:

```
Input number of rows: 4
```

```
1
```

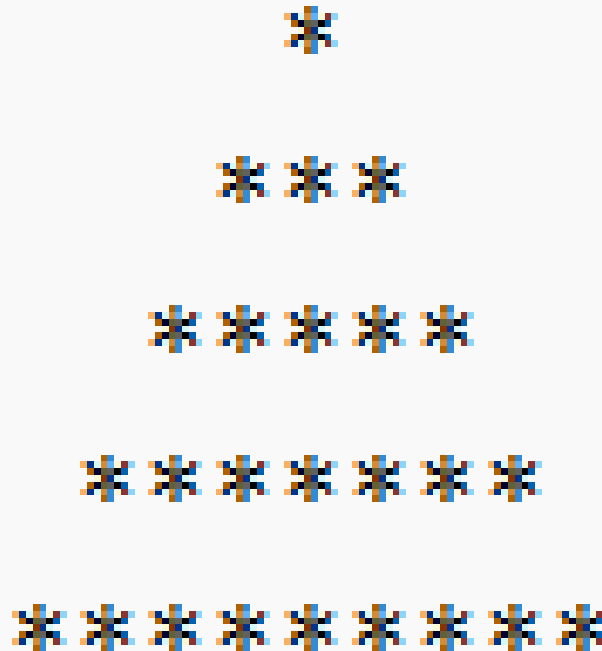
```
2 3
```

```
4 5 6
```

```
7 8 9 10
```


Problem 8

- Write a C++ program to make such a pattern like a pyramid with numbers increased by 1
- Sample output:



```

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

Problem 9

- Write a C++ program to make such a pattern like a pyramid with an asterisk
- Sample output:

Input number of rows: 5

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

Problem 10

- Write a C++ program to display a pattern like a diamond
- Sample output:

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

Problem 11

- Write a C++ program to print a pattern in which the highest number of columns appears in the first row
- Sample output:

```
Input the number of rows: 5
12345
2345
345
45
5
```

Problem 12

- Write a C++ program that displays the pattern with the highest columns in the first row and digits with the right justified digits
- Sample output:

```
Input number of rows: 5
12345
 1234
   123
    12
     1
```

Problem 13

- Write a C++ program to display the pattern as shown in the picture
- Sample output:

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