1. Write a program that reads from the console a string of maximum 20 characters. If the length of the string is less than 20, the rest of the characters should be filled with '*'. Print the result string into the console.

2. Write a program that reverses the words in given sentence.
   Example:
   "C# is not C++ not PHP and not Delphi!" -> "Delphi not and PHP not C++ not is C#!".

3. Write a program that converts a string to a sequence of C# Unicode character literals. Use format strings.
   Sample input:
   Hi!
   Expected output:
   \u0048\u0069\u0021

4. Write a program that reads a list of words, separated by spaces and prints the list in an alphabetical order.

5. Write a program that reads a string, reverses it and prints the result at the console. Example: "sample" -> "elpmas".

6. Write a program that encodes and decodes a string using given encryption key (cipher). The key consists of a sequence of characters. The encoding/decoding is done by performing XOR (exclusive or) operation over the first letter of the string with the first of the key, the second – with the second, etc. When the last key character is reached, the next is the first.

7. Write a program to check if in a given expression the brackets are put correctly.
   Example of correct expression: ((a+b)/5-d).
   Example of incorrect expression:)(a+b)).

8. Sorting an array means to arrange its elements in increasing order. Write a program to sort an array. Use the "selection sort" algorithm: Find the smallest element, move it at the first position, find the smallest from the rest, move it at the second position, etc.

9. Write a program that finds the maximal increasing sequence in an array.
   Example: {3, 2, 3, 4, 2, 2, 4} -> {2, 3, 4}.

10. Write a program that finds the most frequent number in an array.
    Example: {4, 1, 1, 4, 2, 3, 4, 4, 1, 2, 4, 9, 3} -> 4 (5 times)

11. Write a program that finds the index of given element in a sorted array of integers by using the binary search algorithm.
Example: { 1, -1, 2, -3, 5, 4 } => { -3, -1, 1, 2, 3, 4, 5 }, given element= -3 -> index = 0

12. Write a program that fills and prints a matrix of size (n, n) as shown below:
    (examples for n = 4)

```
 1  5  9 13
 2  6 10 14
 3  7 11 15
 4  8 12 16
```