Junior Front-end Developer

Task 1:

Implement a function named **factorial** that has one parameter: an integer, ***n***. It must return the value of ***n!*** (i.e., ***n*** factorial).

Constraints

- **1 ≤ *n* ≤ 10**

Sample Input

4

Sample Output

24

Task 2:

Write a function which accepts a square matrix as an input and prints its elements, while going through the elements spirally.

Sample Input

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

Sample Output

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

Task 3:

Create a function that has two parameters: ***a*** and ***b***. It must return an object modeling a rectangle that has the following properties:

- ***length*** : This value is equal to ***a***.
- ***width***: This value is equal to ***b***.
- ***perimeter***: This value is equal to ***2 x (a + b)***
- ***area***: This value is equal to ***a x b***

Constraints

- **1 ≤ *a, b* ≤ 100**

Task 4:

Create a ***Polygon*** class that has the following properties:

1. A *constructor* that takes an array of integer values describing the lengths of the polygon's sides.
2. A *perimeter()* method that returns the polygon's perimeter.

Task 5:

Create a **Rectangle** class. Perform the following tasks:

1. Add an *area* method to *Rectangle*'s prototype.
2. Create a *Square* class that satisfies the following:
   - It is a subclass of *Rectangle*.
   - It contains a constructor and no other methods.
   - It can use the *Rectangle* class' *area* method to print the area of a *Square* object.

Task 6:

Write a program that finds the amount of numbers from a closed interval, which do not have two equal digits and lists them.

Constraints

- **$1 < a < b < 1000$**

Sample Input

90
105

Sample Output

13
90,91,92,93,94,95,96,97,98,102,103,104,105

Task 7

Instead of paying attention to Infromatics class, Milena is writing to her friends on facebook. Her teacher noticed that each message Milena has written is with Latin letters and with no intervals between the words. As a result Milena had to write an additional program for homework, which prints the letters used in the messages, that are used more than once in an alphabetical order. The program should also print how many times each letter is used.

You can help Milena by writing a program which solves the given task.

Constraints

- $1 \leq$ ***number of characters in string s*** ≤ 100

Sample Input

wordhello

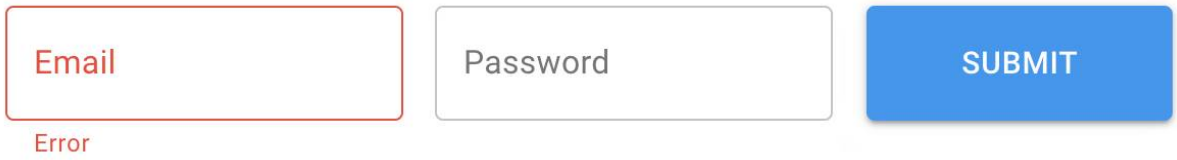
Sample Output

l 2
o 2

Task 8:

Create an HTML form with the given design that contains:

- E-mail field
- Password field
- Submit button



Error

1. The Submit button must be disabled if the fields are empty or are having an error
2. Add an email and password validation on input change - the password must be at lease 6 symbols long with number, capital and small letters in it
3. The error should be placed under each field
4. After clicking on the submit button alert the information from the two fields