

Lab: Arrays

Problems for in-class lab for the ["C# Fundamentals" course @ SoftUni](#)

You can check your solutions in [Judge](#)

1. Day of Week

Enter a number in range 1-7 and print out the **word** representing it or "**Invalid Day!**". Use an **array of strings**.

Examples

Input	Output
1	Monday
2	Tuesday
10	Invalid day!

2. Print Numbers in Reverse Order

Read **n** numbers and print them in reverse order, separated by a single space.

Examples

Input	Output
3 10 20 30	30 20 10
3 30 20 10	10 20 30
1 10	10

Hints

First, we need to read **n** from the console.

```
class PrintNumbersInReverseOrder
{
    static void Main(string[] args)
    {
        int n = int.Parse(Console.ReadLine());
    }
}
```

Create an **array of integers** with **n** size.

```

class PrintNumbersInReverseOrder
{
    static void Main(string[] args)
    {
        int n = int.Parse(Console.ReadLine());

        int[] numbers = new int[n];
    }
}

```

Read **n** numbers using for loop.

```

class PrintNumbersInReverseOrder
{
    static void Main(string[] args)
    {
        int n = int.Parse(Console.ReadLine());

        int[] numbers = new int[n];

        for (int i = 0; i < n; i++)
        {
            int number = int.Parse(Console.ReadLine());
        }
    }
}

```

Set number to the corresponding **index**.

```

class PrintNumbersInReverseOrder
{
    static void Main(string[] args)
    {
        int n = int.Parse(Console.ReadLine());

        int[] numbers = new int[n];

        for (int i = 0; i < n; i++)
        {
            int number = int.Parse(Console.ReadLine());
            numbers[i] = number;
        }
    }
}

```

Print the array in reversed order.

```

class PrintNumbersInReverseOrder
{
    static void Main(string[] args)
    {
        int n = int.Parse(Console.ReadLine());

        int[] numbers = new int[n];

        for (int i = 0; i < n; i++)
        {
            int number = int.Parse(Console.ReadLine());
            numbers[i] = number;
        }

        for (int i = numbers.Length - 1; i >= 0; i--)
        {
            Console.Write(numbers[i] + " ");
        }
    }
}

```

3. Rounding Numbers

Read an array of real numbers (space separated), round them in "away from 0" style and print the output as in the examples:

Examples

Input	Output
0.9 1.5 2.4 2.5 3.14	0.9 => 1 1.5 => 2 2.4 => 2 2.5 => 3 3.14 => 3
-5.01 -1.599 -2.5 -1.50 0	-5.01 => -5 -1.599 => -2 -2.5 => -3 -1.50 => -2 0 => 0

4. Reverse Array of Strings

Create a program that reads an **array of strings**, reverses it, and **prints** its elements. The input consists of a sequence of space-separated **strings**. Print the output on a single line (space separated).

Examples

Input	Output
a b c d e	e d c b a
-1 hi ho w	w ho hi -1

5. Sum Even Numbers

Read an array from the console and sum only its even values.

Examples

Input	Output
1 2 3 4 5 6	12
3 5 7 9	0
2 4 6 8 10	30

Hints

First, we need to read the array.

```
class SumEvenNumbers
{
    static void Main(string[] args)
    {
        int[] numbers = Console.ReadLine()
            .Split()
            .Select(int.Parse)
            .ToArray();
    }
}
```

We will need a variable for the sum.

```
int sum = 0;
```

Iterate through all elements in the array with for loop.

```
for (int i = 0; i < numbers.Length; i++)
{
}
```

Check if the number at the current index is even.

```
for (int i = 0; i < numbers.Length; i++)
{
    int currentNumber = numbers[i];
    if (currentNumber % 2 == 0)
    {
        sum += currentNumber;
    }
}
```

Print the total sum.

```
Console.WriteLine(sum);
```

6. Even and Odd Subtraction

Create a program that calculates the difference between the **sum of the even** and the **sum of the odd** numbers in an array.

Examples

Input	Output	Comments
1 2 3 4 5 6	3	Even: $2 + 4 + 6 = 12$ Odd: $1 + 3 + 5 = 9$ Result: $12 - 9 = 3$
3 5 7 9	-24	Even: 0 Odd: $3 + 5 + 7 + 9 = 24$ Result: $0 - 24 = -24$
2 4 6 8 10	30	Even: $2 + 4 + 6 + 8 + 10 = 30$ Odd: 0 Result: $30 - 0 = 30$

Hints

First, we need to read the array.

```
class EvenOddSubtraction
{
    static void Main(string[] args)
    {
        int[] numbers = Console.ReadLine()
            .Split()
            .Select(int.Parse)
            .ToArray();
    }
}
```

We will need two variables – even and odd sum.

```
int evenSum = 0;
int oddSum = 0;
```

Iterate through all elements in the array with for loop.

```
for (int i = 0; i < numbers.Length; i++)
{
}
```

Check the current number – if it is even, add it to the even sum, otherwise add it to the odd sum.

```
int currentNumber = numbers[i];
if (currentNumber % 2 == 0)
{
    evenSum += currentNumber;
}
else
{
    //TODO
}
```

Print the difference.

```
int difference = evenSum - oddSum;
Console.WriteLine(difference);
```

7. Equal Arrays

Read two arrays and determine whether they are identical or not. The arrays are **identical**, if all their **elements are equal**. If the arrays are identical, find the **sum of the elements of one of them** and print the following message to the console: **"Arrays are identical. Sum: {sum}"**

Otherwise, find the first index where the arrays differ and print the following message to the console: **"Arrays are not identical. Found difference at {index} index"**

Examples

Input	Output
10 20 30 10 20 30	Arrays are identical. Sum: 60
1 2 3 4 5 1 2 4 3 5	Arrays are not identical. Found difference at 2 index
1 10	Arrays are not identical. Found difference at 0 index

Hints

First, we need to read two arrays.

```
class EqualArrays
{
    static void Main(string[] args)
    {
        int[] arr1 = Console.ReadLine()
            .Split()
            .Select(int.Parse)
            .ToArray();

        int[] arr2 = Console.ReadLine()
            .Split()
            .Select(int.Parse)
            .ToArray();
    }
}
```

Iterate through arrays and compare elements. If the elements are not equal print the required message and break the loop.

```
for (int i = 0; i < arr1.Length; i++)
{
    if (arr1[i] != arr2[i])
    {
        Console.WriteLine($"Arrays are not identical. Found difference at {i} index");
        break;
    }
}
```

Think about how to solve the other part of the problem.

8. Condense Array to Number

Create a program to read **an array of integers** and condense them by **summing** all adjacent couples of elements until a **single integer** remains.

For **example**, let us say we have **3** elements - **{2, 10, 3}**. We sum the first two and the second two elements and get **{2 + 10, 10 + 3} = {12, 13}**, then we sum all adjacent elements again. This results in **{12 + 13} = {25}**.

Examples

Input	Output	Comments
2 10 3	25	2 10 3 → 2+10 10+3 → 12 13 → 12 + 13 → 25
5 0 4 1 2	35	5 0 4 1 2 → 5+0 0+4 4+1 1+2 → 5 4 5 3 → 5+4 4+5 5+3 → 9 9 8 → 9+9 9+8 → 18 17 → 18+17 → 35
1	1	1 is already condensed to number

Hints

While we have more than one element in the array **nums[]**, repeat the following:

- Allocate a new array **condensed[]** of size **nums.length**.
- Sum the numbers from **nums[]** to **condensed[]**.
 - **condensed[i] = nums[i] + nums[i+1]**
- **nums[] = condensed[]**

The process is illustrated below:

