# Lab: Arrays

Tasks for exercise in class and for homework to the course ["Programming Fundamentals and Unit Testing" @ SoftUni](https://softuni.bg/trainings/4256/programming-fundamentals-and-unit-testing-september-2023).

Test your tasks in the Judge system: [https://judge.softuni.org/Contests/4427](https://judge.softuni.org/Contests/4427/Arrays-Lab)

## Day of Week

Write a program that:

* Reads an integer number from the console
* If the number is in range [1…7] print:
  + "**Monday**" for number 1
  + "**Tuesday**" for number 2
  + "**Wednesday**" for number 3
  + "**Thursday**" for number 4
  + "**Friday**" for number 5
  + "**Saturday**" for number 6
  + "**Sunday**" for number 7
* If the number is out of the given range print "**Invalid day!**"

## Example Input / Output

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 1 | Monday | 2 | Tuesday | 3 | Wednesday | 4 | Thursday |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 5 | Friday | 6 | Saturday | 7 | Sunday | 9 | Invalid day! |

## Sum an Array

Write a program that:

* Read an **array of integers** (from a single line separated with a space)
* Print the **sum** of all elements in the given array

## Example Input / Output

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 5 3 6 3 4 | 21 | 20 30 -5 | 45 | 25 45 -3 | 67 |

## Reverse an Array

Write a program that:

* Read an **integer number N** from the console
* After that read **N integer numbers** from the console, each on separate line
* Store the numbers in the array of integers
* Reverse the numbers in the array
* Print elements of the array on a single line, space-separated

## Example Input / Output

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 3  10  20  30 | 30 20 10 | 4  10  20  30  40 | 40 30 20 10 |

## Even and Odd Subtraction

Write a program that:

* Read an **array of integers** (from a single line separated with a space)
* Calculates the difference between the sum of the even and the sum of the odd numbers in an array
* Print the difference

## Example Input / Output

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 1 2 3 4 5 6 | 3 | Sum even: 2 + 4 + 6 = 12  Sum odd: 1 + 3 + 5 = 9  Difference: 12 – 9 = 3 |
| 3 5 7 9 | -24 | Sum even: 0  Sum odd: 3 + 5 + 7 + 9 = 24  Difference: 0 – 24 = –24 |
| 2 4 6 8 10 | 30 | Sum even: 2 + 4 + 6 + 8 + 10 = 30  Sum odd: 0  Difference: 30 – 0 = 30 |

## Equal Arrays

Write a program that:

* Read **two arrays with the same length** from the console
* Check whether they are identical or not
  + If the arrays are identical, print: "**Arrays are identical.**"
  + If the arrays are NOT identical, print: "**Arrays are not identical.**"

**Note:** Arrays are identical if their elements are equal.

## Example Input / Output

|  |  |
| --- | --- |
| **Input** | **Output** |
| 10 20 30  10 20 30 | Arrays are identical. |
| 1 2 3 4 5  1 2 4 3 5 | Arrays are not identical. |
| 1  10 | Arrays are not identical. |

## Common Elements

Write a program that:

* Read **two integer arrays with the same length** from the console
* Prints common elements in two arrays, space-separated

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 20 30 40 50  30 10 15 50 | 30 50 |
| 7 8 9 10  1 2 3 7 | 7 |
| 1 2 3 4 5  5 4 3 2 1 | 1 2 3 4 5 |