# Exam Preparation

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/4455/Exam-Preparation-II>

# Magic Numbers

Write a program that:

* Reads an integer number **N** from the console, always greater than 1
* Print all **magic** numbers in range **[1; N]** - separated by single space
* The number is magic when:
  + **All of its digits are prime numbers**
  + **Sum of all digits is divisible by 2**
* If the are no such numbers print "**no**"

# Example Input / Output

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 25 | 2 22 | We have to check numbers in range [1; 25]  Magic numbers in this range are 2 and 22. |
| 100 | 2 22 33 35 37 53 55 57 73 75 77 |  |

# Min / Max Values

Write a program that:

* Reads an **array of integer numbers** from the first line of the console, separated by single space
* Read an **integer number N** from the second line of the console
* Find **max number in the first N elements** in the given array
* Find **min number in the first N elements** in the given array
* Print **max number** and **min number**, each on **separate line**

# Example Input / Output

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 3 42 61 7 8 9 10 23  4 | 61  3 | First 4 numbers in the array are: 3 42 61 7  Max number is: 61  Min number is: 3 |
| 12 34 98 42 65 12  3 | 98  12 | First 3 numbers in the array are: 12 34 98  Max number is: 98  Min number is: 12 |

# 3. Unit Test Method: Pascal Triangle

Test a given method which takes in **an integer n** and prints that number of **rows** from the **pascal triangle**.

The method is found in the PascalTriangle.cs file:

A screenshot of a computer code

Description automatically generated

You are given a **test** **file** PascalTriangleTests.cs containing **5 empty test cases**. Implement all the cases:

A screenshot of a computer test

Description automatically generated

When you are ready make sure your **tests run:**

**A screenshot of a computer

Description automatically generated**

**IMPORTANT:** **DO NOT REMOVE OR CHANGE ANY NAMESPACES AND USINGS.**

# 4. Unit Test Array: Longest Increasing Subsequence

Test a given method which takes in **an integer array** and finds the **longest increasing subsequence** (LIS).

The method is found in the LongestIncreasingSubsequence.cs file:

A screen shot of a computer code

Description automatically generated

A screenshot of a computer program

Description automatically generated

A screenshot of a computer code

Description automatically generated

You are given a **test** **file** LongestIncreasingSubsequenceTests.cs containing **5 empty tests**. Implement all the unit tests:

A screenshot of a computer program

Description automatically generated

When you are ready make sure your **tests run:**

A screenshot of a computer program

Description automatically generated

**IMPORTANT:** **DO NOT REMOVE OR CHANGE ANY NAMESPACES AND USINGS.**