Lab: Nested Loops

Test your tasks in the Judge system: https://judge.softuni.org/Contests/4416

1. Numbers From N to 1

Write a program that:

- **Reads an integer number N** from the console
- **Prints the numbers** from **N to 1**, each on separate line

Example

Input	Output
2	2 1

Input	Output
4	4 3 2 1

2. Even Powers of 2

Write a program that:

- Reads an **integer number n** from the console
- Prints on the console the number two on **even powers in the range [0; n]**
  $2 \leq 2^n$: 2^0, 2^2, 2^4, 2^6, …, 2^n.

Example

Input	Output
3	1 4

Input	Output
4	1 4 16

Input	Output
5	1 4 16

Input	Output
6	1 4 16 64

Input	Output
7	1 4 16 64

3. Triangle of Stars

Write a program to print a **triangle of stars** like shown in the examples:

- Read the **size (integer number)** of a triangle from the console
- Print a **triangle of stars**

Example

Input	Output
5	* **

Input	Output
7	* **

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4. Building

Write a program to **print a table**, representing a **building**:

- Reads **two integer numbers** from the console: **floors count** and **estates count** per floor
- Identifiers consist of: **`{type}{floor}{number}`**, e.g. **L65**, **A12**, **O24**
- **Odd** floors hold **apartments** (type **A**), e.g. **A10**, **A11**, **A12**, …
- **Even** floors hold **offices** (type **O**), e.g. **O20**, **O21**, **O22**, …
- The **last floor** holds large apartments (type **L**), e.g. **L60**, **L61**, **L62**

Example

Input	Output
6 4	L60 L61 L62 L63 A50 A51 A52 A53 O40 O41 O42 O43 A30 A31 A32 A33 O20 O21 O22 O23 A10 A11 A12 A13

Input	Output
5 3	L50 L51 L52 O40 O41 O42 A30 A31 A32 O20 O21 O22 A10 A11 A12

5. Number Pyramid

Write a program that:

- Reads an integer number **n** from the console
- Prints a **pyramid of numbers** as shown in the examples

Example

Input	Output
7	1 2 3 4 5 6 7

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

Input	Output
12	1 2 3 4 5 6 7 8 9 10 11 12

Input	Output
15	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

6. Travel Savings

Write a program that calculate the **money collection** for multiple travel destinations:

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- Read a **destination (string)** and **needed budget (floating-point number)** for the destination
- Read many times amounts of collected money, until they are **enough** for the destination (starting from 0)
    - Print:
      "**`Collected: {sum}`**" where sum is formatted to 2nd digit
      or
      "**`Going to {destination}!`**"
- Read another destination and budget and collect money again
- A destination "**End**" ends the program

Example

Input	Output
Bali 3500 800 1800 1000 Brazil 4600 5000 End	Collected: 800.00 Collected: 2600.00 Collected: 3600.00 Going to Bali! Collected: 5000.00 Going to Brazil!

Input	Output
Spain 4000 1000 1500 1500 Greece 800 400 500 End	Collected: 1000.00 Collected: 2500.00 Collected: 4000.00 Going to Spain! Collected: 400.00 Collected: 900.00 Going to Greece!

7. Sum of Digits Calculator

Write a program that:

- Continuously **read integers** until "**End**" is entered from the console
    - Print the **sum of digits** for each integer, use the following format:
      "**`Sum of digits = {sum}`**"
- Finally, print "**Goodbye**"

Example

Input	Output
157 99 5 438 End	Sum of digits = 13 Sum of digits = 18 Sum of digits = 5 Sum of digits = 15 Goodbye

Input	Output
107 345 98 23 End	Sum of digits = 8 Sum of digits = 12 Sum of digits = 17 Sum of digits = 5 Goodbye

8. Prime Numbers

Write a program that:

- Reads two integer numbers: **start of the range** and **end of the range**

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- Print **all prime numbers** in given range

Hint: A prime number is a positive integer greater than 1 that has exactly two distinct positive divisors: 1 and itself.

Example

Input	Output
5 50	5 7 11 13 17 19 23 29 31 37 41 43 47

Input	Output
20 30	23 29

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