Lecture 4

Practice, pt.1

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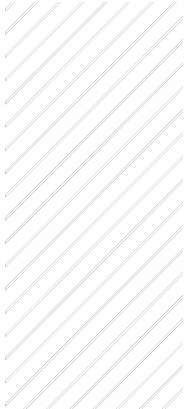
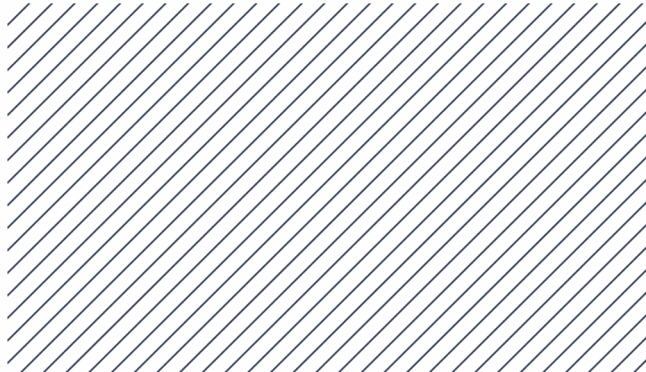
C++ Basics

DIHT MIPT 2021





Practice

Problem 1:
Input a number and output it’s bits in a sequence.

Practice

Problem 2:
Find the sum of squares of numbers from 1 to N

Input:
4

Output:
30

Explanation:
1^2 + 2^2 + 3^2 + 4^2 = 1 + 4 + 9 + 16 = 30

Practice

Problem 3:
Find the hypotenuse of a triangle (legs are given)

Input:
3 4

Output:
5

Practice

Problem 4:
Find max and min of two numbers without using conditions

Input:
3 4

Output:
4 3

Practice

Problem 5:
Find the number of paired bits in the binary representation of an integer

Input:
3

Output:
2

Practice

Problem 6:
Let’s consider sets of:

- Digits [10]
- Latin letters (both capital and lowercase ones) [26 + 26 = 52]
- +
- -

Implement the next functions:

- Input the set
- Output set
- Unite two sets
- Intersect two sets
- Invert set
- Calculate symmetric difference between two sets
- Calculate difference between two sets

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