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Informatics Olympiad Program

Overview

The Informatics Olympiad program is toward International Olympiad in Informatics. The primary goal of this programs to understand and apply various algorithmic techniques in problem solving.

Scope

The Informatics Programs mainly works with algorithms and problems related, but not limited, to the following topics:

1. Algorithms, Time and Space Complexity
2. Searching and Sorting techniques
3. BFS, DFS
4. Graph Theory and related applications
5. Dynamic Programming
6. Shortest Path algorithms
7. Heaps, Network Flows

Details:

I) MATHEMATICS

Arithmetics and Geometry

II) DISCRETE STRUCTURES

Functions, relations, and sets

Basic logic

Proof techniques

Basics of counting

Graphs and trees

Discrete probability

Details:

III) COMPUTING SCIENCE

Programming Fundamentals
- Fundamental programming constructs
- Algorithms and problem-solving
- Fundamental data structures
- Recursion
- Algorithms and Complexity
- Algorithmic strategies

Data structures

Automata and grammars

Advanced algorithmic analysis
- Basics of combinatorial game theory

Geometric algorithms

IV) OTHER AREAS IN COMPUTING SCIENCE

Architecture and Organization

Operating Systems

Programming Languages

Details:

V) SOFTWARE ENGINEERING

- Software design
- Software tools and environments
- Software processes
- Software validation
- Formal methods

VI) COMPUTER LITERACY