Lecture 1
Welcome to CP

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Abstract. This lecture is a part of competitive programming training lectures prepared for Eastern University, Dhaka. This lecture basically introduces the world of competitive programming and the thrill in it.

1 Online Judges

* **Codeforces**
* **LightOJ**
* **Spoj**
* **Codemarshal**
* **Toph**

2 Practice Strategy

1. **Attend each CF round and try to improve CF Rating**
2. Solve a lot of problems (at least 2 problems a day)
3. Think for at least an hour for each problem
4. Drink some water and think again for an hour
5. Have no idea? **Understand** editorial and code yourself
6. Look into better coders' implementations to improve

3 Prerequisites

1. **Learn C++ or Java**
2. Love to solve problems

4 Problem Tags

* Implementation / Brute Force / Adhoc
* Greedy / Binary Search / Ternary Search
* Number Theory / Math / Combinatorics
* Data Structures (Stack/Queue/Priority Queue/Segment Tree/BIT)
* Graph Theory (BFS/DFS/Dijkstra/Floyd-Warshall/Bellman-Ford/DSU)
* Dynamic Programming
* Geometry
* String Algorithms (KMP/Z-algo/Suffix Array/Aho-Corasick)

5 Verdict

- Accepted
- Wrong Answer
- Time Limit Exceeded (Slow algorithm / Infinite loop)
- Memory Limit Exceeded (Using too much memory)
- Runtime Error (Divide by zero / Invalid Memory Access)

6 Time Complexity

1. $O(n)$, $O(n^2)$
2. $O(logn)$, $O(nlogn)$
3. $O(n\ logn\ log(logn)$

7 Memory Complexity

1. Depends on data type and variable count
2. 1 byte = 8 bits
3. **Integer** - 4 bytes, **long long int** - 8 bytes, **double** - 8 bytes

8 Introduction to Vjudge

- Create mail, register accounts and Sign in
- Solve all the problems at **EU Practice Contest Long - 1**