Algorithms III

Introduction

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Outline

1. Topics

2. Homework and Exams

3. Bibliography

Topics

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- Dynamic Programming
- Trees
  - Basic Concepts
  - Binary Trees, Balanced Trees, Segment Trees
  - Tries, B-trees
- Graph Theory
  - Graphs Representation
  - Graph traversal: DFS, BFS
  - Shortest Paths: Dijkstra, Bellman-Ford, Floyd-Warshall, A*
  - Disjoint Sets (Union-Find)
  - Strongly Connected Components (Tarjan and Kosaraju)
  - Topological Sort
  - Minimum Spanning Trees: Kruskal, Prim

Homework and Exams

Homework will be uploaded in

https://omegaup.com/

- Homework: 70%
- Exam: 30%

Format: Three partial exams and one final (maybe a project), each one with a value of 25%

Bibliography

Bibliography

1. Introduction to Algorithms - Cormen
2. Algorithms - Robert Sedgewick
3. Algorithms for Competitive Programming - David Esparza, Antonio Ruiz