

Overview

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Week 4

Algorithms on Graphs

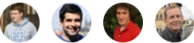
Week 4

Discuss this week's modules here.

182 threads · Last post 15 days ago

Go to forum

Paths in Graphs 2



This week we continue to study Shortest Paths in Graphs. You will learn Dijkstra's Algorithm which can be applied to find the shortest route home from work. You will also learn Bellman-Ford's algorithm which can unexpectedly be applied to choose the optimal way of exchanging currencies. By the end you will be able to find shortest paths efficiently in any Graph.

Less

Learning Objectives

- Explain algorithms for finding shortest paths in weighted graphs
- Create a program for finding a cheapest flight
- Create a program for detecting anomalies in currency exchange rates

Less

Fastest Route

▶ Video: Fastest Route 6 min

Resume

▶ Video: Naive Algorithm 10 min

▶ Video: Dijkstra's Algorithm: Intuition and Example 7 min

▶ Video: Dijkstra's Algorithm: Implementation 3 min

▶ Video: Dijkstra's Algorithm: Proof of Correctness 4 min

▶ Video: Dijkstra's Algorithm: Running Time 7 min

📖 Reading: Slides and External References 10 min

Currency Exchange

▶ Video: Currency Exchange 6 min

▶ Video: Currency Exchange: Reduction to Shortest Paths 8 min

▶ Video: Bellman-Ford Algorithm 6 min

▶ Video: Bellman-Ford Algorithm: Proof of Correctness 6 min

▶ Video: Negative Cycles 7 min

▶ Video: Infinite Arbitrage 10 min

📖 Reading: Slides and External References 10 min

Programming Assignment



Programming Assignment: Programming Assignment 4: Paths in Graphs 3h

Due Aug 30, 1:59 AM CDT

