Week 5

Algorithms on Graphs

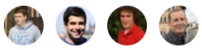
Week 5

Discuss this week's modules here.

Go to forum

52 threads · Last post 8 days ago

Minimum Spanning Trees



In this module, we study the minimum spanning tree problem. We will cover two elegant greedy algorithms for this problem: the first one is due to Kruskal and uses the disjoint sets data structure, the second one is due to Prim and uses the priority queue data structure. In the programming assignment for this module you will be computing an optimal way of building roads between cities and an optimal way of partitioning a given set of objects into clusters (a fundamental problem in data mining).

Less

Learning Objectives

- Explain what a spanning tree is
- Describe algorithms for computing minimum spanning trees
- Create an efficient program for clustering

Less

Minimum Spanning Trees

Video: Building a Network 9 min Resume

Video: Greedy Algorithms 4 min

Video: Cut Property 9 min

Video: Kruskal's Algorithm 15 min

Video: Prim's Algorithm 13 min

Reading: Slides and External References 10 min

Programming Assignment

Programming Assignment: Programming Assignment 5: Minimum Spanning Trees 3h Due Sep 6, 1:59 AM CDT