Foundations of Computer Science
Lecture 11

Graphs II

Matching, Stable Matching.
Coloring.
Paths: Shortest; Euler; Hamiltonian
Last Time

1. What is a graph?

2. Equivalent graphs: graph isomorphism.

3. Notation: path, degree, cycle,

4. Some common graphs: $K_n, K_{n,m}, C_n, L_n$.

5. The Handshaking Theorem: $\sum_{i=1}^{n} d_i = 2|E|$.

6. [Advanced, will not be tested] Sperner’s lemma and fair cake division.
1. Bipartite Graphs and Stable Marriage
   The Dating Algorithm favors men.

2. Coloring and Conflict Graphs.
   Every tree is 2-colorable.

3. Paths
   Shortest path (communicate quickly).
   Euler Path (Snow cleaning; pave all the roads).
   Hamiltonian Path (Travelling salesman).
   Paths in Trees.

4. Spanning trees of a graph.