

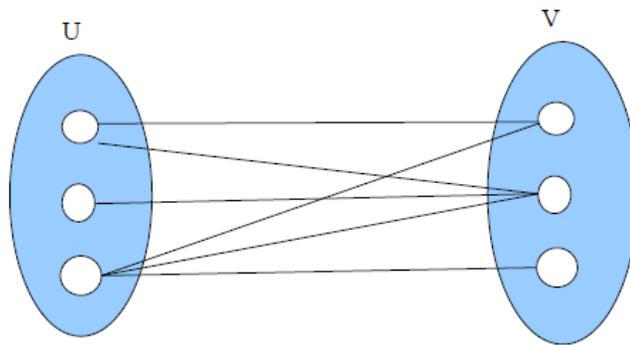
Homework 6

Due date

Section 1072: Mon 5/9

Sections 1071 and 1073: Tue 5/10

- (5 points) **Skip Lists.** The expected asymptotic time performance for skip list operations is $O(\lg n)$. There is a non-zero probability that the performance becomes as bad as $O(n)$. Draw a 7 element skip list by hand, with int data values, that would have such poor performance. Use a maximum node level of 4.
- (10 points) **Disjoint Sets.** Let U and V be two disjoint sets of vertices, A graph $G = (U, V, E)$ is said to be a bipartite graph (or bigraph) if *every* edge in E connects a vertex in U to one in V (see an example bigraph below). Write your procedure that will determine if a given graph $G = \{U, V, E\}$ is a bipartite graph.



- (10 points) **Graphs.** Find the shortest weighted path from A to *all* other vertices for the graph given below. You must state the total weight of the path and the vertices along the path for each path to earn points.

