IIT Madras

ONLINE DEGREE

Mathematics for Data Sciences 1
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Week 10 - Tutorial 3

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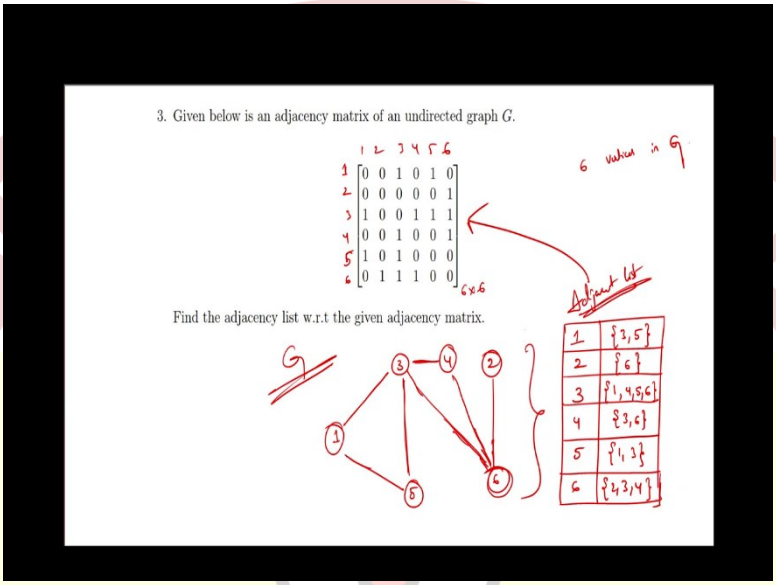

Let us solve another problem related to this graph G. Given below is an adjacency matrix of an undirected graph G, find the adjacency list with respect to the given adjacency matrix. So, this is an adjacency matrix, it is a 6× 6. So, there are 6 vertices in the graph G. So, let us name it 1,2,3,4,5,6, and 1,2,3,4,5,6. From this adjacency matrix, we can see that all vectors are adjacent to each other. So, if you see here, the vertex 1 is adjacent to vertex 3 and vertex 5. Let us try to draw the graph first.

So, this is the vertex 1. And this is adjacent to a vertex 3. And with vertex 5. And in the second row, it shows that vertex 2 is adjacent to only vertex 6. So, this is vertex 2, and this is only adjacent to vertex 6. And in the third row, if you see vertex 3 is adjacent to vertex 1, vertex 4, vertex 5, and vertex 6. So, we have already drawn an edge between 1 and 3. So, 3 is also adjacent to 5, and 3 is also intersected to 6, and 3 is also adjacent to 4.

And if you see the fourth row, vertex 4 is adjacent to vertex 3 and vertex 6. So, vertex 4 is adjacent to vertex 3. We have already drawn in it, and vertex 4 is adjacent to vertex 6. And, if you see the fifth row, that means with respect to 5, vertex 5 is adjacent to vertex 1 and vertex 3. So, vertex 5 is adjacent to vertex 1 and vertex 3. And vertex 6 is adjacent to vertex 2, vertex

3, vertex 4. So, vertex 6 is adjacent to vertex 2, vertex 4, vertex 3. So, we got all the 3 edges. So, this is the graph G.

Now so from this graph, we can write the adjacency list. So, adjacency list gives the vertices which are adjacent to that vertex. Like 1 is adjacent to 3,5, and vertex 2, is adjacent to only 6, vertex 3 is adjacent to 1,4,5, and 6, and vertex 4 is adjacent to 3,6, and vertex 5 is adjacent to 1,3, and vertex 6 is adjacent to 2,3,4. This is the adjacency list with respect to the given adjacency matrix of an undirected graph G. Thank you,