Graph Representation with Matrix vs Adjacency list

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Description:

Adjacency list: An Adjacency list is an array consisting of the address of all the linked lists. The first node of the linked list represents the vertex and the remaining lists connected to this node represents the vertices to which this node is connected. This representation can also be used to represent a weighted graph. The linked list can slightly be changed to even store the weight of the edge.

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Adjacency matrix: Adjacency Matrix is a 2D array of size V x V where V is the number of vertices in a graph. Let the 2D array be M[][], a slot M[i][j] = 1 indicates that there is an edge from vertex i to vertex j. Adjacency matrix for undirected graph is always symmetric. Adjacency Matrix is also used to represent weighted graphs. If M[i][j] = w, then there is an edge from vertex i to vertex j with weight w.

Comparation:

	MATRIX	LIST
Time complexity	O(1)	O(n)
Use memory	Worse	Better
Child access	Worse	Better
Overall	Worse	Better