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CS 312 – Analysis of Algorithms

Homework Assignment 10

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**Part 1: Creating and displaying a simple graph**

1. What representation is being used for the graph in the code provided, Adjacency Matrix or Adjacency List?

* Adjacency List.

1. Why is it that we do not need a variable to keep track of the number of vertices? How can we quickly know the number of vertices in the graph?

* The number of vertices is directly showed by the size of the private data member “edges”; which represents the graph as a vector of sets. Therefore, every set represents a vertex. Thereby, when calling for the size() member edges returns the number of vertices.

1. What is the Big-O time for displaying the graph?

* O(VE) - Where V is the number of vertices, and E is the size of each vertex.

1. What would be the Big-O time for displaying the graph if a matrix representation had been used?

* O() – Where V is the number of vertices as non-existent edges have to be traversed

**Part 2: A Labeled Graph**