Alcorn State University
CS480 Advanced Programming in Java,
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Text file implementation
- first line represents the list of vertices in the graph
- the rest of the lines represents adjacency matrix

0,1,2,3,4
01001
10111
01010
01101
11010

Time complexity

1. `bool isNeighbor(int i, int j)` in GraphAdjacencyMatrix class.

   O(1) - checking if a vertex is a neignbor in an adjacency matrix takes constant time.

2. `bool isNeighbor(int i, int j)` in GraphAdjacencyList class.

   O|v| where v is the number of vertices in the graph. This is because, a vertix han be connected to at most |v| vertices.

3. `ArrayList<Integer> neighborList(int i)` in GraphAdjacencyMatrix class.

   For a given vertex i, the algorithm checks if each of the vertices in the graph is a neighbor.

   So the time complexity is **O|v|** where v is the number of vertices in the graph.

4. `ArrayList<Integer> neighborList(int i)` in GraphAdjacencyList class.

   O(1) sicne we are just using the get method in java to get the arraylist of neighbors.