

Lab Report Checklist

Title

The lab report title is descriptive.

Procedure

Important steps of data collection and analysis are included.

Equipment used is described, including how the equipment was used.

Data

Contact data is presented in a clearly labeled data table.

The data table has a descriptive title and correct column headings.

If a spreadsheet is used, data columns have a similar and consistent format.

Data entries are sorted by time to aid in data analysis.

Analysis—Contact Graphs

The contact graph has nodes that represent people and edges that represent contacts.

Edges are labeled with the time of contact and are color coded by infection status.

Infection status includes:

- Contact between two uninfected individuals with no new infection possible.
- Contact with at least one infected individual, but infection fails due to infectiousness.
- Contact with at least one infected individual and infection successful.
- Contact between two infected individuals with no new infection possible.

Depending on the number of contacts, some status edges may be dropped from the graph.

Multiple drawn graphs showing different infectiousness values.

Analysis—Graph Calculations

One or more of the contact graphs is analyzed with shorter labels applied to the vertices.

The vertex list for the graph is listed using the shorter labels to identify the vertices.

The edge list for the graph is provided using the shorter labels to identify the vertices.

The adjacency matrix is provided for the graph with vertex labels that follow the vertex list.

The adjacency list is provided for the graph with vertex labels that follow the vertex list.

Provide the ordered list of vertices created by a depth first search of the contact graph.

Provide the ordered list of vertices created by a breadth first search of the contact graph.

Conclusion

For each contact graph, provide the number of individuals that were infected.

Describe how the infectiousness affected the spread of infection through the graph.

Describe how the contact graphs were an aid to understanding the spread of infection.

Describe how the contact graphs were an aid to leading to a possible solution to limiting the spread of the disease.

Decide and justify which method is more useful to analysis of infection:

- Breadth first search
- Depth first search

Provide an overall evaluation of the activity and the usefulness of the methods.

Identify additional applications of these methods to other social or biological problems and how graph theory may be able to help lead to solutions.