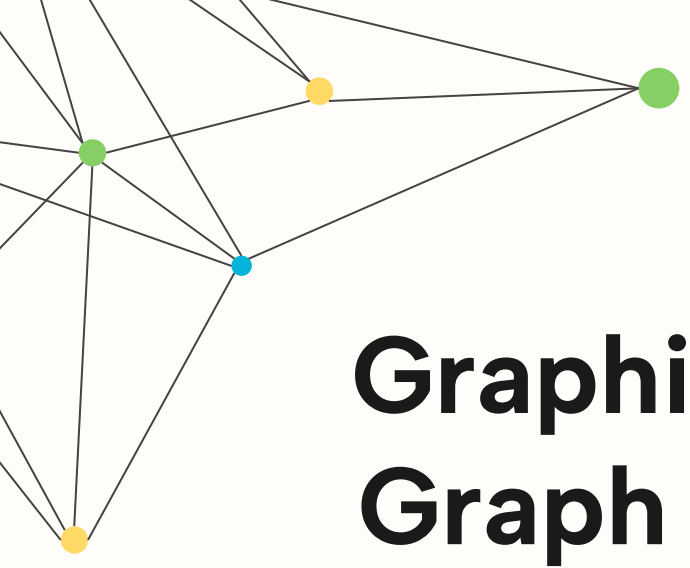
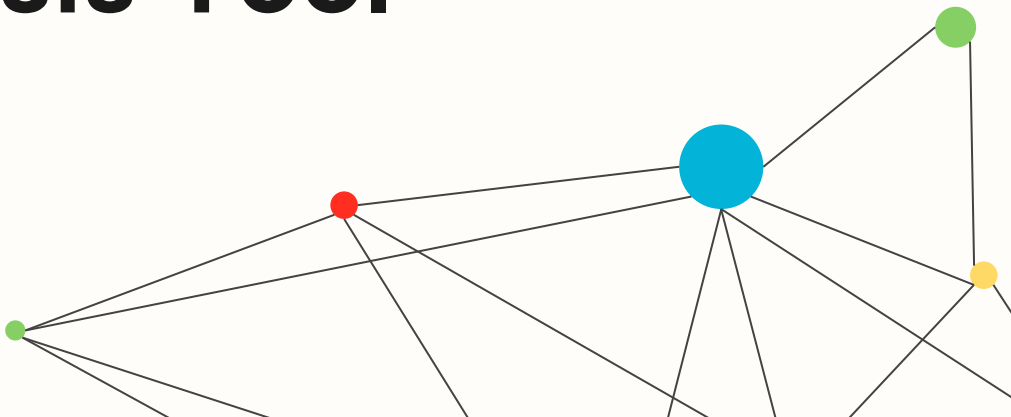
Graphify: An Interactive Graph Visualization and Analysis Tool





Team Member

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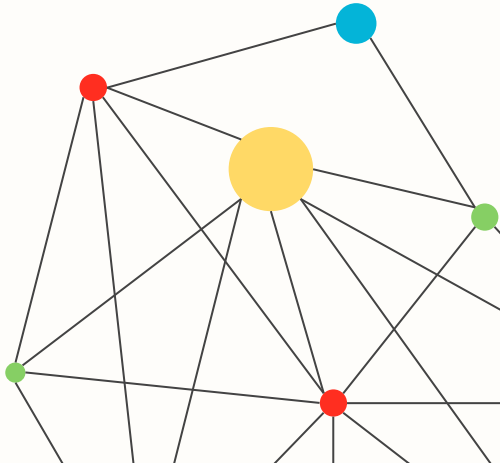
Guide

Prof. Foram Chandarana

Abstract of the Project

- Graphify is an web-based application designed to facilitate the visualization, manipulation, and analysis of graphs for educational in the field of Discrete Mathematics and Graph Theory.



Key Features

- Graph Generation: Generate graphs based on a set of edges and vertices.
- Vertex Degree Calculation: Determine each vertex's degree to understand its connectivity within the graph.
- Graph Coloring: Assign colors to graph vertices ensuring no two adjacent vertices share the same color.

Key Features

- Algorithm Application:

  - *Dijkstra's Algorithm*: Find the shortest path between nodes.
  - *Depth First Search (DFS):* Thorough exploration by traversing as deeply as possible along each branch before backtracking.
  - *Breadth First Search (BFS):* Explore the graph level by level from a starting node.

Technology Used

Website

- Front-End: HTML, CSS
- Algorithms: JavaScript.

Division of the Work

Hetansh’s Part

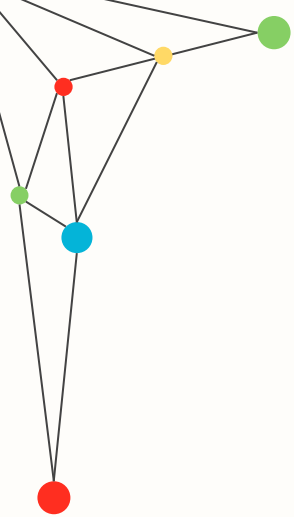
- Graph generation using edges and vertices.
- Implementing Dijkstra's algorithm.
- Assigning degrees to vertices.

Jaineel’s Part

- Implementing Depth First Search (DFS) algorithm
- Implementing Breadth First Search (BFS) algorithm
- Coloring the graph

Conclusion

Graphify is a comprehensive tool developed as part of the Discrete Mathematics and Graph Theory (DMGT) subject. It exemplifies the integration of theoretical knowledge and practical application, contributing to the academic community in graph theory.



Thank You