D-regular graph(Directed — Undirected)*

Project 9†

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Abstract

This paper describes the working of the code **ps_graph.ps1** written in powershell script to make a *d-regular graph* as a part of the course project in CS 213 Software System Lab.

1 Working Of Code

Our program takes input from user for undirected or directed graph. After this step it ask if user want to give *matrix file*.

1.1 Matrix file

- Any m*n matrix file is required for this program to work.
- Any char or integer(0 for no link) can be given in a cell of input matrix. These will represent edge labels in the output graph.
- If matrix input is not valid (not given as a square matrix or left some cells empty) then our program filter the matrix input and give default value as 0 for empty spaces.

*This is a report on the course project for the course CS 213 Software System Lab

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- If user does not want to give a matrix then our program ask for the number of vertices required in output graph.
- After this program execute and final pdf is displayed.

2 Step by Step Improvement

Initially program for simple directed graph was made using only latex in which number of vertices were given manually in a tex file.
Then we tried our best to make it user friendly using powershell.
All the Latex syntax were written in a file using powershell.
Powershell takes input from user and write a file in latex.
After the file has been written, powershell will execute the latex file and will show the PDF.
It will automatically remove all the *tex,*log files after the work is done.

3 Applications in real life

1. It can be used to design a **map** for road networks which can be named distincty using distinct chars and integers 0-9 in input matrix.
2. It can be used for building **network frameworks** and to show the permission access to various users.
3. Facebook use graphs to **find mutual friends** and give new friend suggestions.
4. In computer science it is used to represent the **flow of computation**.
5. **Google Maps** uses graphs for building transportation systems,where intersection of two(or more) roads are considered to be a vertex and the road connecting two vertices is considered to be an edge.

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