PROJECT PROPOSAL

DELHI TECHNOLOGICAL UNIVERSITY
Department of Applied Mathematics
IV Semester

➢ Project Details

Topic: Graphs and Eigen Values
Subject: Linear Algebra (MC 208)

➢ Project by

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➢ Project Supervisor

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➢ Project Introduction

In the project we will discuss about Graphs and Eigen Values.

A graph is a structure pointing to a set of objects in which some pairs of the objects are in some sense "related". The objects correspond to mathematical abstractions called vertices (also called nodes or points) and each of the related pairs of vertices is called an edge (also called link or line). Typically, a graph is depicted in diagrammatic form as a set of dots or circles for the vertices, joined by lines or curves for the edges.

In graph theory, an adjacency matrix is a square matrix used to represent a finite graph. The elements of the matrix indicate whether pairs of vertices are adjacent or not in the graph.

In linear algebra, an eigenvector or characteristic vector of a linear transformation is a nonzero vector that changes at most by a scalar factor when that linear transformation is applied to it. The corresponding eigenvalue, often denoted by λ, is the factor by which the eigenvector is scaled.

We will study about the Graphs and their Adjacency Matrix along with their Eigen Values and how they are related with the structure and other properties of graph.

There are so many unsolved problems and conjectures related to graphs and their corresponding adjacency matrix's eigen values.

We will try to find some new results from our Research Project.

➢ Project Objective

Objective of this project is to study and find some new results about graphs and their adjacency matrix along with their eigen values.

Given below are the objectives for this Research Project.

Objectives:

1. Adjacency matrix and Graphs.

2. Relation between Graphs and Eigen values.

3. Graph colouring and Eigen Values.

4. Solving Problem or, Conjecture.

❖ Date:

January 30, 2022