CS 292F.300 Final project proposal

Gehrig Weber

TOTAL POINTS

1 / 1

QUESTION 1

1 Proposal submitted 1 / 1

✓ **- 0 pts Correct**

This is a good project. I would ask you to add three things: First, for some of the classes the Fiedler value is known analytically (paths, binary trees, stars, complete graphs). For those classes you should compute the Fiedler value analytically and compare it to your experimental results to validate them. Second, I think you should add another couple of classes of graphs for which there's no analytical closed form. One could be Erdos-Renyi random graphs, for which the expected Fiedler value is known analytically and you can use it to see how the actual randomly generated graphs compare to it. You might want to choose one more class as well. Third and finally, I suggest you scale to larger graphs; it should be feasible to get to at least 10,000 and perhaps 50,000 vertices.

Gehrig Weber
Perm Number: 8931503

Project Proposal

The project will be centered around determining how the Fiedler value scales with n in each of several groups of unweighted, undirected graphs, defined by their structure. The groups are the following classes of graphs:

- Path Graphs
- Binary Trees
- 4-ary Trees
- Bipartite Graphs
- Star Graphs
- 3-regular Graphs
- 6-regular Graphs
- Complete Graphs

Each group will contain 5 graphs of sizes $n = |V| = 10, 100, 500, 1000, 3000$. Within the structure and size limitations, each graph will be randomly generated.

Furthermore, there will be an attempt to create a group of graphs where the Fiedler value scales according to some desired scaling that does not appear in any of the aforementioned groups. This will be done for 2 or 3 desired scalings, which will be chosen after results for the first portion of the project are obtained. This project will be done alone.

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✓ **- 0 pts** **Correct**

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