

Coding project: Chordal Graphs

Group #3

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Members:

1. Katkoori, Santhosh Reddy
2. Koneru, Haarika
3. Kumar, Deepak
4. Mangu, Santosh
5. Mudireddy, Mahitha Reddy
6. Nallagatla, Tejaswini
7. Naripeddi, Saikrishna

Programs:

1. Create a chordal graph (Katkoori, Santhosh Reddy)

Input: Interactively input number of vertices “n”.

Method: Create a graph G_n with one vertex v_n . Each next $n-1$ iterations, ask the user to identify a subset S of vertices in the current graph which forms a clique and add a new vertex adjacent to all vertices of S .

Output: a txt file giving an adjacency list of the chordal graph and its perfect elimination ordering.

n, m
1: 4,6,7
2: 3,4,8,9
...
PEO: 4,2,7, ...

2. Draw a chordal graph linearly (Koneru, Haarika)

Input: a txt file giving an adjacency list of the graph and its perfect elimination ordering.

Output: draw the chordal graph linearly by listing vertices from left to right according to the p.e.o..

3. Find a maximum clique of a chordal graph (Kumar, Deepak)

Input: a txt file giving an adjacency list of the graph and its perfect elimination ordering.

Output: the vertex set of a maximum clique.

4. Find a maximum independent set of a chordal graph (Mangu, Santosh)

Input: a txt file giving an adjacency list of the graph and its perfect elimination ordering.

Output: the vertex set of a maximum independent set.

5. Find a minimum clique cover of a chordal graph (Mudireddy, Mahitha Reddy)

Input: a txt file giving an adjacency list of the graph and its perfect elimination ordering.

Output: the vertex sets of cliques forming a minimum clique cover.

6. Find a minimum coloring of a chordal graph (Nallagatla, Tejaswini)

Input: a txt file giving an adjacency list of the graph and its perfect elimination ordering.

Output: for each vertex give its color in a minimum coloring found.

7. Find a maximum clique of a chordal graph ([Naripeddi, Saikrishna](#))

Input: a txt file giving an adjacency list of the graph.

Method: Each iteration remove a vertex with smallest degree from the graph if that degree is less than the number of remaining vertices minus 1.

Output: the vertex set of a maximum clique.