**MINIPROJECT**

**DATA STRUCTURES &amp; ALGORITHMS II**

**TOPIC: FRIENDSHIP ANALYSIS ALGORITHM.**

**DATA STRUCTURES USED:**

**1. GRAPH**

**2. ADJACENCY MATRIX(for storing the connection which exists between all the**

**friends)**

**3. QUEUE(for traversing the graph)**

**4. ARRAY (2D,3D)**

**DEFINITION:**

**1 .GRAPH: The graph data structure is used to store the data, find the mutual**

**friends of a given node and to perform various operations on graph data**

**structure.**

**2 .ADJACENCY MATRIX: The adjacency matrix is used to establish edges between**

**two nodes and &amp; this helps further to analyze the neighbor of the respective**

**node.**

**3 .QUEUE: The queue data structure here is used to display the level wise order of**

**the mutual friends.**

**4 .ARRAY: Here the arrays are used to store and keep a record of the data**

**(friends).**

**FUNCTION USED HERE:**

**1 .Create graph- The create graph function creates the graph according to the**

**adjacent nodes and the relation between them. Here input is taken in the form of**

**two people. The user has to give the input according to the condition that states**

**the relation between the corresponding people.**

**2 .Common Friend amongst the total nodes – The common friend among the**

**given two nodes of input is decided by keeping track of the common node shared**

**by the nodes in the graph. The two nodes who consist a common originating node**

**is checked &amp; the common among them is selected.**

**3 .Search- The search operation helps in finding a particular node in the friendship**

**graph. Using the search function, we obtain results for the common friend and**

**the popular friend in the graph.**

**4 .level wise Display – The nodes in the graph are represented level wise**

**according to the order of the closest friend to any corresponding node. As the**

**levels appear from top to bottom, one comes to know about the closest friend of**

**the previous node.**

**O(v^2)**

**5 .Popular Friend- The popular friend function allows us to find the most popular**

**node shared in the complete graph. The node whom the most nodes subset is**

**considered as the popular one here.**

**SAMPLE OUTPUT**

Enter second name of the pair: ayushi

Do you want to add more?

If yes the please press 1

1

Enter First name of the pair: priya

Enter second name of the pair: ayushi

Do you want to add more?

If yes the please press 1

1

Enter First name of the pair: priya

Enter second name of the pair: aditi

Do you want to add more?

If yes the please press 1

1

Enter First name of the pair: akanksha

Enter second name of the pair: shreya

Do you want to add more?

If yes the please press 1

1

Enter First name of the pair: shreya

Enter second name of the pair: aditi

Do you want to add more?

If yes the please press 1

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Here is the list of all the girls --

priya

tejal

samruddhi

akanksha

maya

ayushi

aditi

shreya

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Here is the list of all the pairs you have entered as friends --

priya tejal

tejal samruddhi

samruddhi akanksha

priya maya

maya ayushi

priya ayushi

priya aditi

akanksha shreya

shreya aditi

\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*\*

1.Find most popular person.

2.Find the common friends.

3.Display the friendship graph levelwise.

Enter your choice: 1

The most popular Friend is:

priya

having 4 friends!

Do you want to continue?

If yes then please enter 1.

1

\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*\*

1.Find most popular person.

2.Find the common friends.

3.Display the friendship graph levelwise.

Enter your choice: 2

Enter name of first friend:

priya

Enter name of second friend:

maya

The common friends between priya and maya is:

ayushi

Do you want to continue?

If yes then please enter 1.

1

\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*\*

1.Find most popular person.

2.Find the common friends.

3.Display the friendship graph levelwise.

Enter your choice: 3

Enter the friend you want to start with =>

priya

priya --->Level 1

tejal maya ayushi aditi --->Level 2

samruddhi shreya --->Level 3

akanksha --->Level 4

Do you want to continue?

If yes then please enter 1.

**OUTCOME:**

**USING THE ABOVE CODE, ONE IS PRACTICALLY**

**ABLE TO ANALYZE THE FRIENDSHIP BETWEEN TWO**

**PEOPLE ; THE PRACTICAL APPROACH TO FIND A**

**COMMON FRIEND OF TWO PEOPLE IN THE GROUP AND**

**THE MOST POPULAR PERSON AMONG A GROUP OF**

**PEOPLE CAN BE FIGURED OUT.**