**CSE225 PROJECT-3 REPORT**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Cem | Ayşe | Belma | Edip | Dündar | Gamze | Ferit | Halit | İlke | Jale |
| Cem | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Ayşe | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Belma | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Edip | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Dündar | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| Gamze | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Ferit | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| Halit | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| İlke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Jale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

**a)** Adjacency Matrix

**b)**

|  |  |  |  |
| --- | --- | --- | --- |
| Source | Degree Centrality | Closeness Centrality | Betweenness Centrality |
| Cem | 3/9 | 9/18 | /1296 |
| Ayşe | 4/9 | 9/17 | /1296 |
| Belma | 3/9 | 9/21 | /1296 |
| Edip | 3/9 | 9/18 | /1296 |
| Dündar | 6/9 | 9/15 | /1296 |
| Gamze | 4/9 | 9/15 | /1296 |
| Ferit | 5/9 | 9/14 | /1296 |
| Halit | 3/9 | 9/16 | /1296 |
| İlke | 2/9 | 9/22 | /1296 |
| Jale | 1/9 | 9/30 | /1296 |

Betweenness Centrality

|  |  |  |  |
| --- | --- | --- | --- |
| Source | Target | Intermediate Nodes | Path |
| Cem | Ayşe | - |  |
| Cem | Belma | Ayşe / Dündar | C-A-B/C-D-B |
| Cem | Edip | Dündar | C-D-E |
| Cem | Dündar | - |  |
| Cem | Gamze | Dündar | C-D-G |
| Cem | Ferit | - |  |
| Cem | Halit | Ferit | C-F-H |
| Cem | İlke | Ferit, Halit | C-F-H-İ |
| Cem | Jale | Ferit, Halit, İlke | C-F-H-İ-J |
| Ayşe | Belma | - |  |
| Ayşe | Edip | Dündar/Belma | A-D-E/A-B-E |
| Ayşe | Dündar | - |  |
| Ayşe | Gamze | Ferit | A-F-G |
| Ayşe | Ferit | - |  |
| Ayşe | Halit | Ferit | A-F-H |
| Ayşe | İlke | Ferit, Halit | A-F-H-İ |
| Ayşe | Jale | Ferit, Halit, İlke | A-F-H-İ-J |
| Belma | Edip | - |  |
| Belma | Dündar | - |  |
| Belma | Gamze | Dündar/Edip | B-D-G/B-E-G |
| Belma | Ferit | Dündar/Ayşe | B-D-F/B-A-F |
| Belma | Halit | Ayşe, Ferit/Dündar, Ferit | B-A-F-H/B-D-F-H |
| Belma | İlke | Ayşe, Ferit, Halit/Dündar, Ferit, Halit | B-A-F-H-İ/B-D-F-H-İ |
| Belma | Jale | Ayşe, Ferit, Halit, İlke/Dündar, Ferit, Halit, İlke | B-A-F-H-İ-J/B-D-F-H-İ-J |
| Edip | Dündar | - |  |
| Edip | Gamze | - |  |
| Edip | Ferit | Dündar/Gamze | E-D-F/E-G-F |
| Edip | Halit | Gamze | E-G-H |
| Edip | İlke | Gamze/Halit | E-G-H-İ |
| Edip | Jale | Gamze, Halit, İlke | E-G-H-İ-J |
| Dündar | Gamze | - |  |
| Dündar | Ferit | - |  |
| Dündar | Halit | Ferit/Gamze | D-F-H/D-G-H |
| Dündar | İlke | Ferit, Halit/Gamze, Halit | D-F-H-İ/D-G-H-İ |
| Dündar | Jale | Ferit, Halit, İlke/Gamze, Halit, İlke | D-F-H-İ-J/D-G-H-İ-J |
| Gamze | Ferit | - |  |
| Gamze | Halit | - |  |
| Gamze | İlke | Halit | G-H-İ |
| Gamze | Jale | Halit, İlke | G-H-İ-J |
| Ferit | Halit | - |  |
| Ferit | İlke | Halit | F-H-İ |
| Ferit | Jale | Halit, İlke | F-H-İ-J |
| Halit | İlke | - |  |
| Halit | Jale | İlke | H-İ-J |
| İlke | Jale | - |  |

**c)** I think that, the most central node is Dundar.Because his centrality values are high and he is friend with almost everyone. So if you know Dundar, you can easily contact other people. Ferit is also a central node since he is friend with Dundar, he can reach many people easily and as he can also reach most unknown people such as Ilke and Jale (by Halit -Dundar is not friend with Halit directly so it is a little harder for him to reach them than Ferit-) .But as Dündar is middle of everyone the most central one is Dundar.

In addition I also think that this is a centralized graph because the graph is mostly around Dundar. That is, Dundar is at the center and other are connected to him in some way. Although Ilke and Jale are a little far away from him Halit connects them to the graph. So the graph is centralized.

About the information on this graph :

People on this graph are close to each other so it can be a community. Almost everyone know -or easily meet- everyone except Ilke –and Jale-.

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