QUESTION 2 :

1. A screen shot of a computer code

   Description automatically generated Find the top 5 nodes with the highest outdegree and and the count of the number of outgoing edges in each
2. A screen shot of a computer code

   Description automatically generatedFind the top 5 nodes with the highest indegree and and the count of the number of incoming edges in each
3. A screenshot of a computer

   Description automatically generatedCalculate PageRank for each of the nodes and output the top 5 nodes with the highest PageRank values. You are free to define any suitable parameters.
4. A screenshot of a computer

   Description automatically generatedRun the connected components algorithm on it and and the top 5 components with the largest number of nodes.
5. A screenshot of a computer

   Description automatically generated Run the triangle counts algorithm on each of the vertices and output the top 5 vertices with the largest triangle count. In case of ties, you can randomly select the top 5 vertices.

SUMMARY: -

1. The analysis shows that the nodes with the highest outdegree have the most outgoing edges, indicating that they are highly well-liked or important inside the network.  
   The highest outdegree is id-2565.
2. Like this, nodes with the highest indegree also have the most incoming edges, demonstrating their significance and strong connections.  
   The highest indegree is id-4037.
3. The most important or core nodes in the network can be identified using the PageRank algorithm. The most important and influential nodes in the network are probably the ones with the highest PageRank ratings.  
   Out of all the nodes, id-4037 has the greatest PageRank.
4. Finding clusters or communities within a network is made easier with the help of the connected component method.  
   Node 1 has the highest count among the top 5 connected components, whereas the next four have much lower counts.
5. Lastly, the triangle counts method can help find nodes that are involved in multiple triangles and have a strong link, which can provide information about how cliques or sub-communities form inside the network.  
   The maximum triangular count, 30940, is found in id-2565.