# Design of Algorithm

**Design Technique :**

The Decrease-and-Conquer design technique along with the recursive approach is used in the designing of the algorithm. The large problem of traversal is broken or decreased in an instance of smaller size and the solution is obtained for it recursively.

**Algorithm :**

Breadth First Search Algorithm is used as it is more efficient and easier to implement in the fields of Networking. We have chosen adjacency matrix of Breadth first search.

```
ALGORITHM BFS(G)
//Implements a breadth first search traversal of a given graph
//Input: Graph G=(V,E)
//Output: Graph G with its vertices marked with consecutive integers in the order they
//have been visited by the BFS traversal

mark each vertex in V with 0 as a matrix of being "unvisited"
count ← 0
for each vertex v in V do
        if v is marked with 0
                bfs(v)


bfs(v)
//visits all the unvisited vertices connected to vertex v by a path and assigns them the
//number in the order they are encountered via global variable count


    count ← count + 1;      mark v with count and initialize a queue
with vwhile the queue is not empty do
        for each vertex w in V adjacent to the front vertex doif w
                is marked with 0
                        count<-count+1; mark w with countadd
                        w to the queue
        remove the front vertex from the queue
```