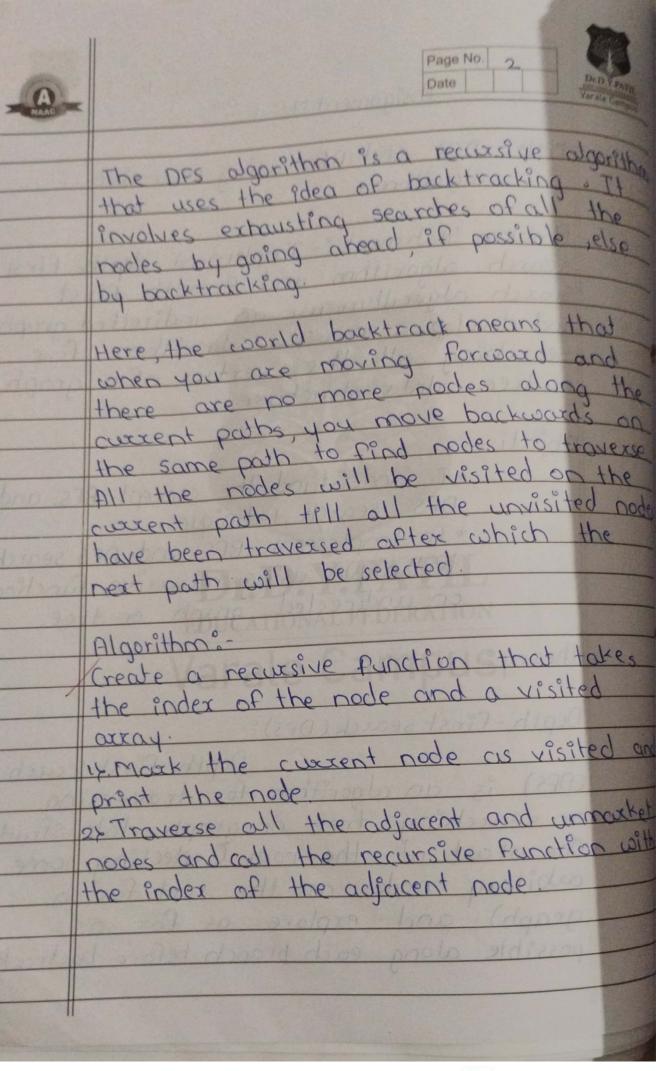
| Assignment No. 1 Date Dr.D. Varate Campus   |
|---|
| Title: DES and BES using recursive  algorithm  Problem Statement: - Implement depth first search algorithm and Breadth first search algorithm use an undirected graph and develop a recursive algorithm for searching all the vertics of a graph. or tree data structure.             |
| objective:  * To understand the concept BFS and  DFS search techniques.  * To implement BFS and DFS search  technique using recursive function  on undirected graph or tree.  |
| Depth-First search (DFS):-  Depth-First search  (DFS) is an algorithm for traversing  or searching tree or graph data structure  One start at the root (selecting some  arbitary node as the root for a  graph) and explore as for as  possible along each branch before bactracking. |
|   |



| 0  | Page No. 3 Date Dr.D.Y.PATIL   |
|--|--|
|  | Complexity Analysis:  Time complexity: O(V+E), where V is the number of vertices and E is the number of edge in the graph.  Space Complexity: O(V), since an extra visited away of size V is required.   |
| 100 to 10 | Pseudocode of recursive BFS:-  DFS (adjacent[][], source, visited[], key) {  if (source == key) return true! He found  the key visited[source] = True.   |
| 441.5  | FOR node in adjacent[source]:  IF visited[node] == Palse:  DES(adjacent, node, visited)  FNO IF  END FOR.  Meturn false IITf it reaches here, then  all nodes have been explored  I and we stell haven't found  the key.  Breadth - Pirst Search (BPS):-  Breadth - First search (BPS) is an algorithm |

