Computing Science 204 (B1)

General Depth First Search Skeleton

Tuesday, August 15

Algorithm: A General Depth First Search Skeleton
Purpose: To indicate where the processing is done for each kind of encounter with a vertex or an edge.
Input: $G = (V, E)$, a graph represented by an adjacency list structure. $V = \{1, 2, \ldots, n\}$.

```
int mark[maxV];
int markvalue;

dfs(int v)
{
   /* dfs starting at vertex v        */
   /* marking vertices with markvalue */
   int w;
   struct node *p;
   /* process vertex when first encountered */
   mark[v] = markvalue;
   p = adj[v];
   while (p != z)
   {
      w = p->v;
      /* processing for every edge */
      if (mark[v] == 0)
      {
         /* processing for tree edges vw    */
         dfs(w);
         /* processing when backing up to v */
      }
      else
      {
         /* processing for non-tree edges   */
      }
      p = p->next;
   }/* while */
   /* processing when backing up from v     */
}/* dfs */
```