Artificial Intelligence
(CS13217)

Lab Report 2

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Experiment 2
Implementing depth first searchi

Objective
To understand and implement tower of honai

Software Tool
1. opertaing system window 10
2.subline version 3.0
3. python

1 Theory

Depth-first search (DFS) is an algorithm for traversing or searching tree or graph data structures. One starts at the root (selecting some arbitrary node as the root in the case of a graph) and explores as far as possible along each branch before backtracking.

.A version of depth-first search was investigated in the 19th century by French mathematician
1. The time and space analysis of DFS differs according to its application area. In theoretical computer science, DFS is typically used to traverse an entire graph, and takes time (—V— + —E—),e.
2. DFS may also be used to collect a sample of graph nodes...
3. DFS also lends itself much better to heuristic methods for choosing a likely-looking branch...

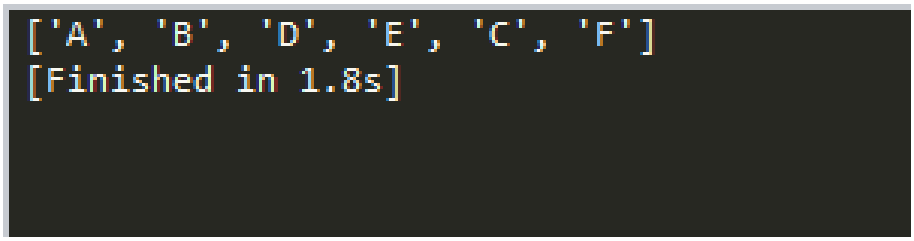

Figure 1: Time Independent Feature Set

2 Task

2.1 Procedure: Task 2

2.2 Procedure: Task 2

```
graph = { # sample graph implemented as a dictionary
 graph={  'A':['E','B','D'],
          'B':['A','D','C'],
          'C':['B'],
          'D':['A','B'],
          'E':['A']}

def dfs(graph,s):
    stack=[]
    visited=[]
    stack=[s]
    while stack:
        node=stack.pop()
        if node not in visited:
            visited.append(node)
            stack=stack+graph[node]
    return visited
```

3 Conclusion