**1}**

import time

# Start timing

start\_time = time.time()

# Graph with depth 2

graph\_depth\_2 = {

'1': ['2', '3'],

'2': ['4', '5'],

'3': ['6', '7'],

'4': [],

'5': [],

'6': [],

'7': []

}

visited = set() # To keep track of visited nodes

def dfs(visited, graph, node):

if node not in visited:

print(node, end=" ")

visited.add(node)

for neighbour in graph[node]:

dfs(visited, graph, neighbour)

print("Following is the Depth-First Search for the depth 2 graph:")

dfs(visited, graph\_depth\_2, '1')

# End timing

end\_time = time.time()

elapsed\_time = end\_time - start\_time

print(f"\nTime taken: {elapsed\_time} seconds")

**Output:**

**Following is the Depth-First Search for the depth 2 graph:**

**1 2 4 5 3 6 7**

**Time taken: 7.724761962890625e-05 seconds**

**2}**

import time

# Start timing

start\_time = time.time()

# Graph with depth 6

graph\_depth\_6 = {

'1': ['2', '3'],

'2': ['4', '5'],

'3': ['6', '7'],

'4': ['8', '9'],

'5': ['10', '11'],

'6': ['12', '13'],

'7': ['14', '15'],

'8': ['16', '17'],

'9': ['18', '19'],

'10': ['20', '21'],

'11': ['22', '23'],

'12': ['24', '25'],

'13': ['26', '27'],

'14': ['28', '29'],

'15': ['30', '31'],

'16': [], '17': [], '18': [], '19': [],

'20': [], '21': [], '22': [], '23': [],

'24': [], '25': [], '26': [], '27': [],

'28': [], '29': [], '30': [], '31': []

}

visited = set() # To keep track of visited nodes

def dfs(visited, graph, node):

if node not in visited:

print(node, end=" ")

visited.add(node)

for neighbour in graph[node]:

dfs(visited, graph, neighbour)

print("Following is the Depth-First Search for the depth 6 graph:")

dfs(visited, graph\_depth\_6, '1')

# End timing

end\_time = time.time()

elapsed\_time = end\_time - start\_time

print(f"\nTime taken: {elapsed\_time} seconds")

**Output:**

**Following is the Depth-First Search for the depth 6 graph:**

**1 2 4 8 16 17 9 18 19 5 10 20 21 11 22 23 3 6 12 24 25 13 26 27 7 14 28 29 15 30 31**

**Time taken: 7.05718994140625e-05 seconds**