NAME – RAJDEEP JAISWAL	DATE – 14 NOV 2021
BRANCH – BTECH CSE	SEC = 608 - A
UID -20BCS2761	Subject – DATA STRUCTURE Lab

1. **Aim/Overview of the practical:**

Write a program for BFS and DFS.

Solution –

CODE IN TEXT-

```
#include<iostream>
#include<vector>
#include<queue>
#include<stack>
using namespace std;

void edge(vector<int>adj[],int u,int v){

adj[u].push_back(v);
}

void bfs(int s,vector<int>adj[],bool visit[]){

queue<int>q;

q.push(s);
```

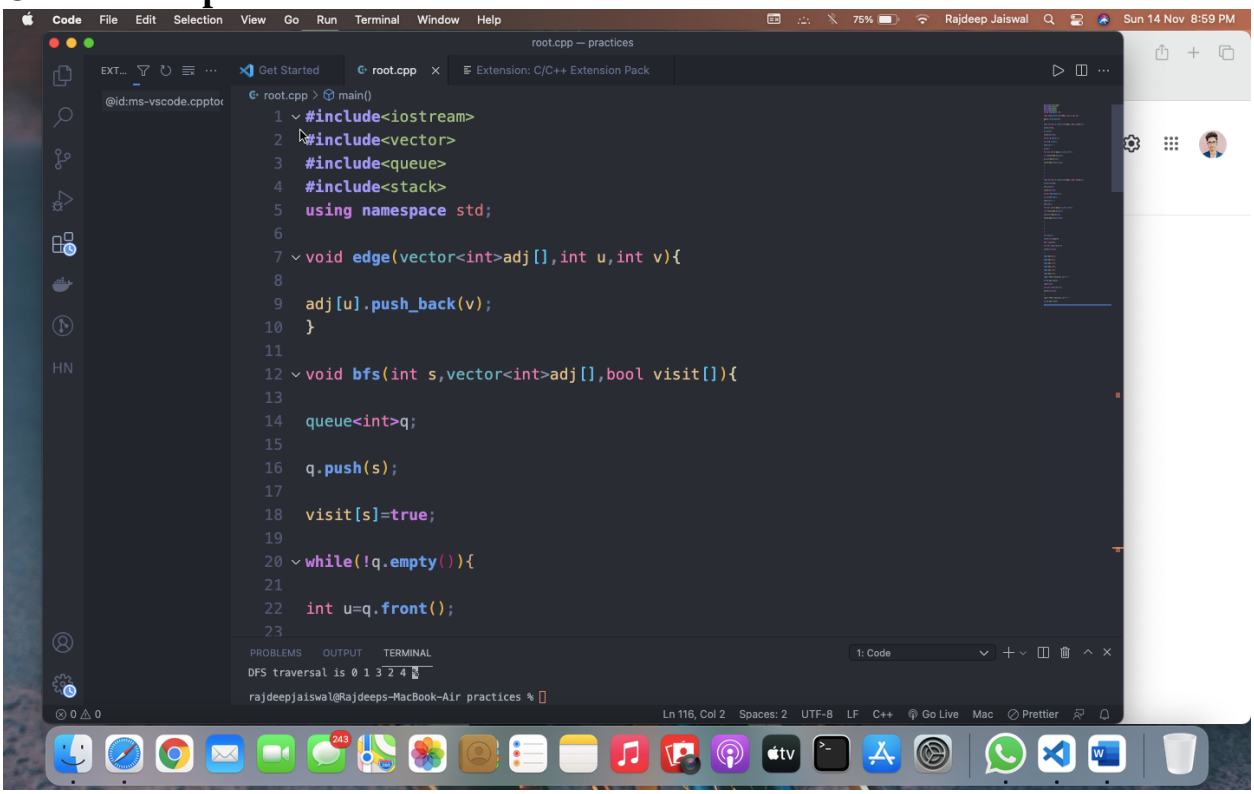
```
visit[s]=true;

while(!q.empty()){

int u=q.front();

cout<<u<<" ";

q.pop();

for(int i=0;i<adj[u].size();i++){

if(!visit[adj[u][i]]){

q.push(adj[u][i]);

visit[adj[u][i]]=true;

}

}

}

}

void dfs(int s,vector<int>adj[],bool visit[]){
```

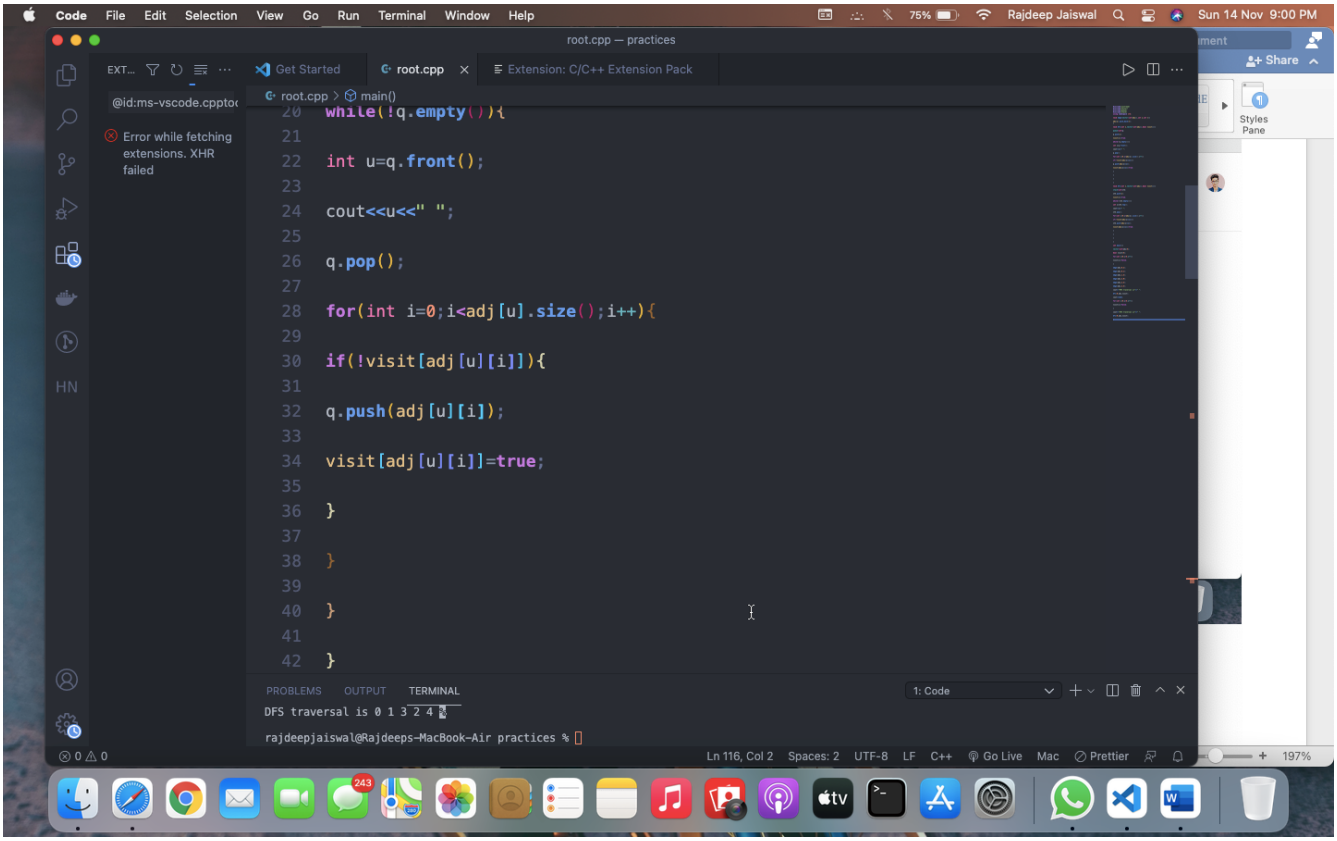
```
stack<int>stk;

stk.push(s);

visit[s]=true;

while(!stk.empty()){

int u=stk.top();

cout<<u<<" ";

stk.pop();

for(int i=0;i<adj[u].size();i++){

if(!visit[adj[u][i]]){

stk.push(adj[u][i]);

visit[adj[u][i]]=true;

}

}

}
```

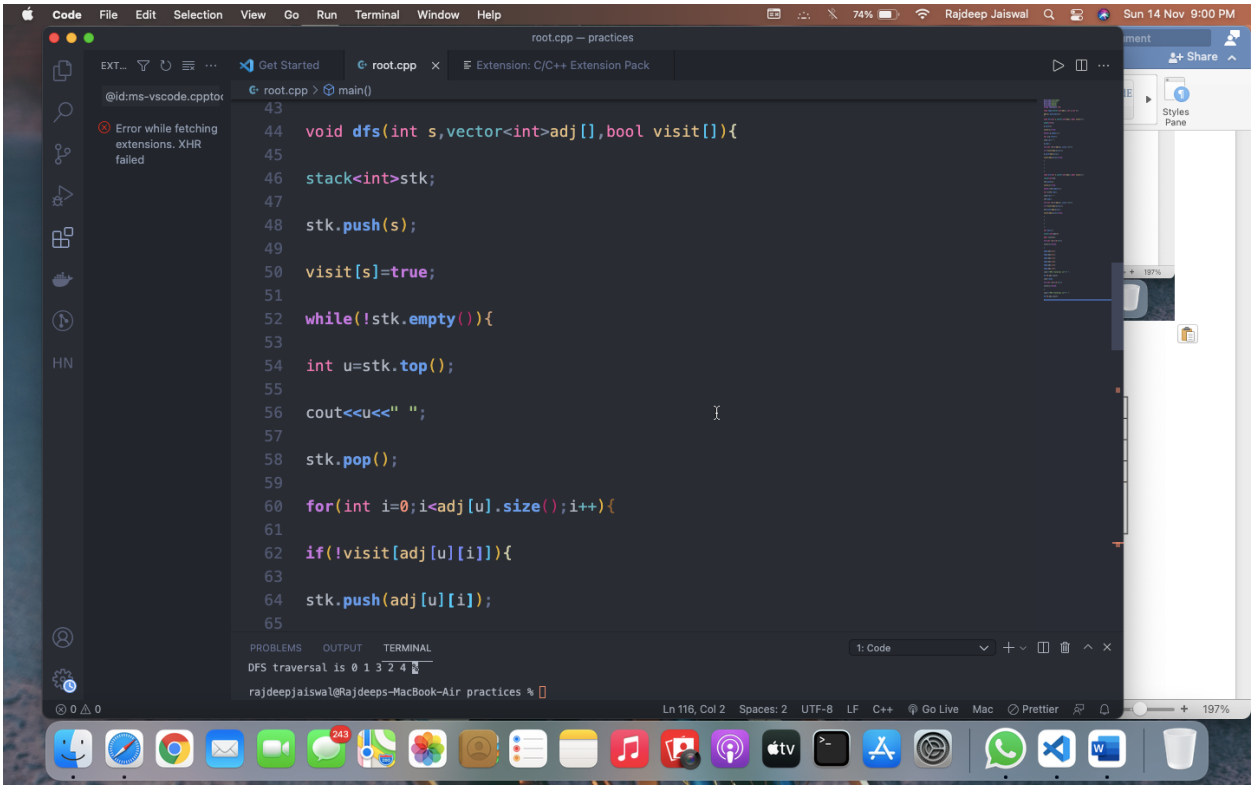
```
}

int main(){

vector<int>adj[5];

bool visit[5];

for(int i=0;i<5;i++){

visit[i]=false;

}

edge(adj,0,2);

edge(adj,0,1);

edge(adj,1,3);

edge(adj,2,0);

edge(adj,2,3);

edge(adj,2,4);

cout<<"BFS traversal is"<<" ";
```

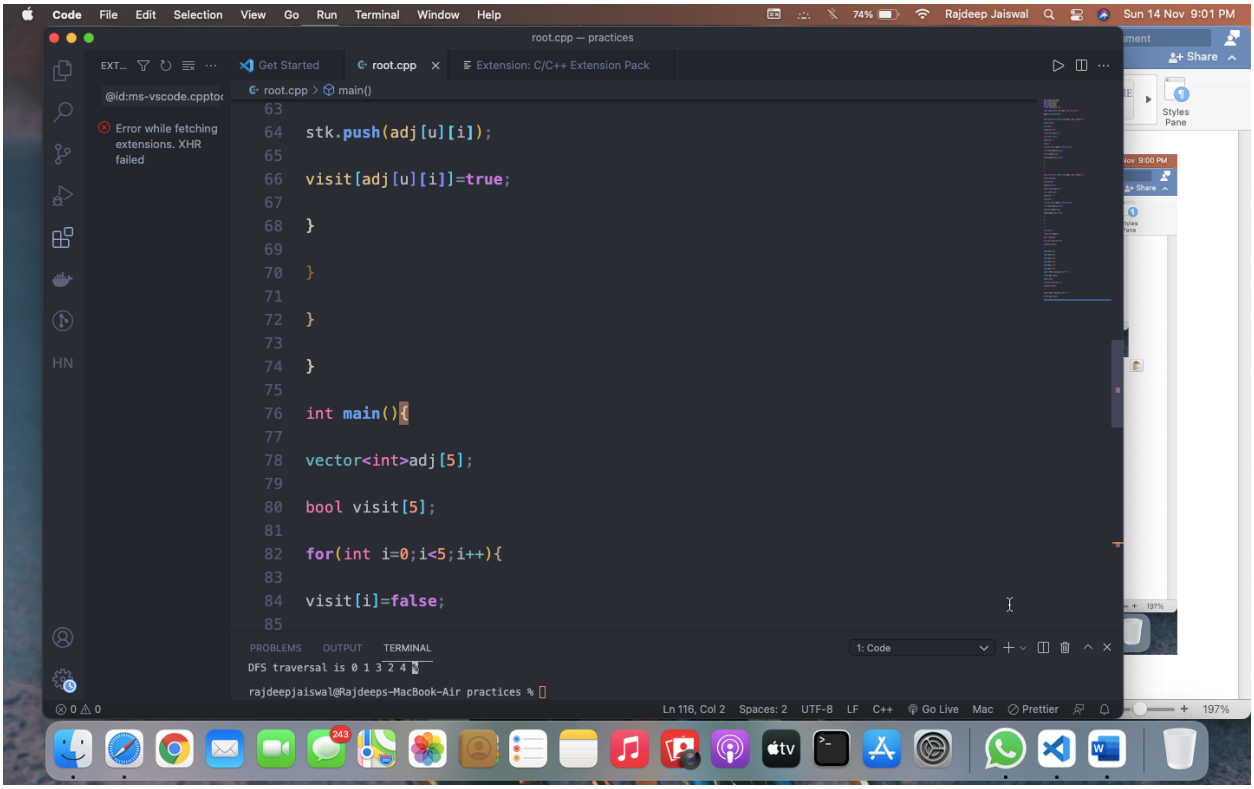
```
bfs(0,adj,visit);

cout<<endl;

for(int i=0;i<5;i++){

visit[i]=false;

}

cout<<"DFS traversal is"<<" ";

dfs(0,adj,visit);

}
```

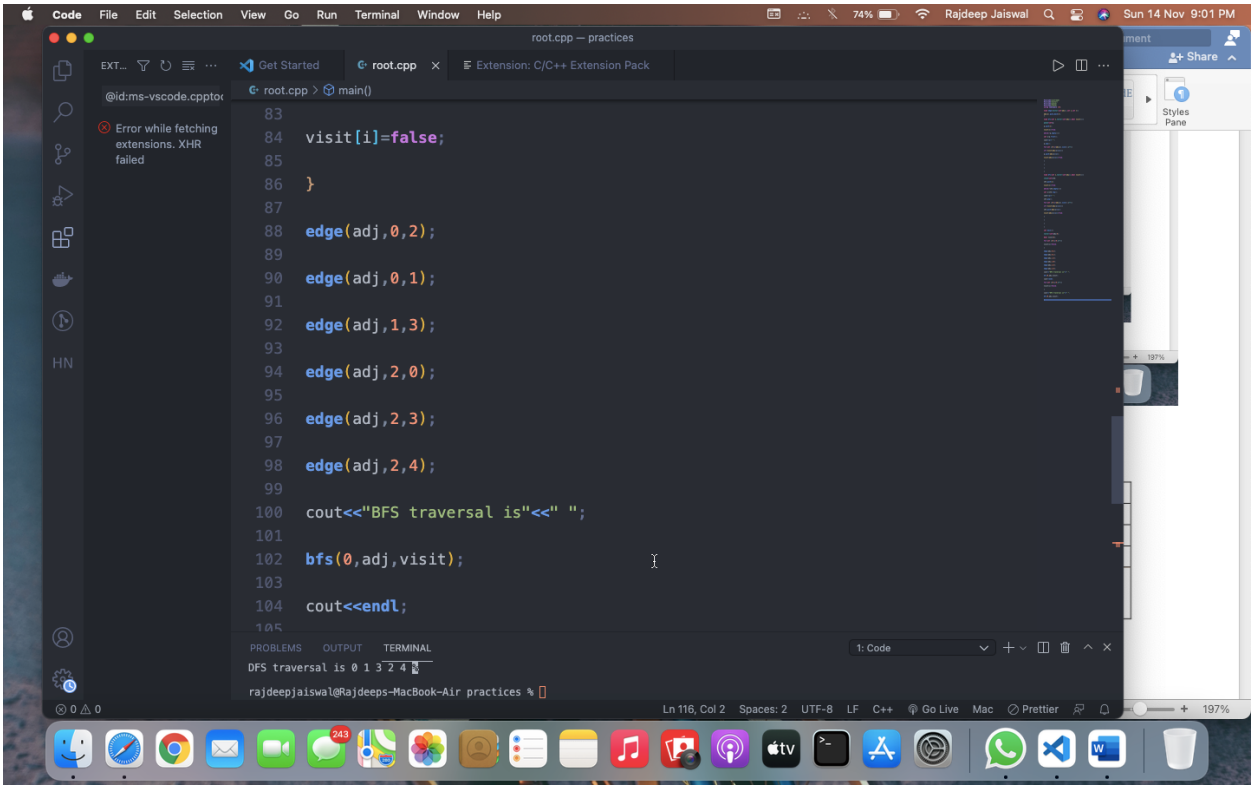
Code in compiler -

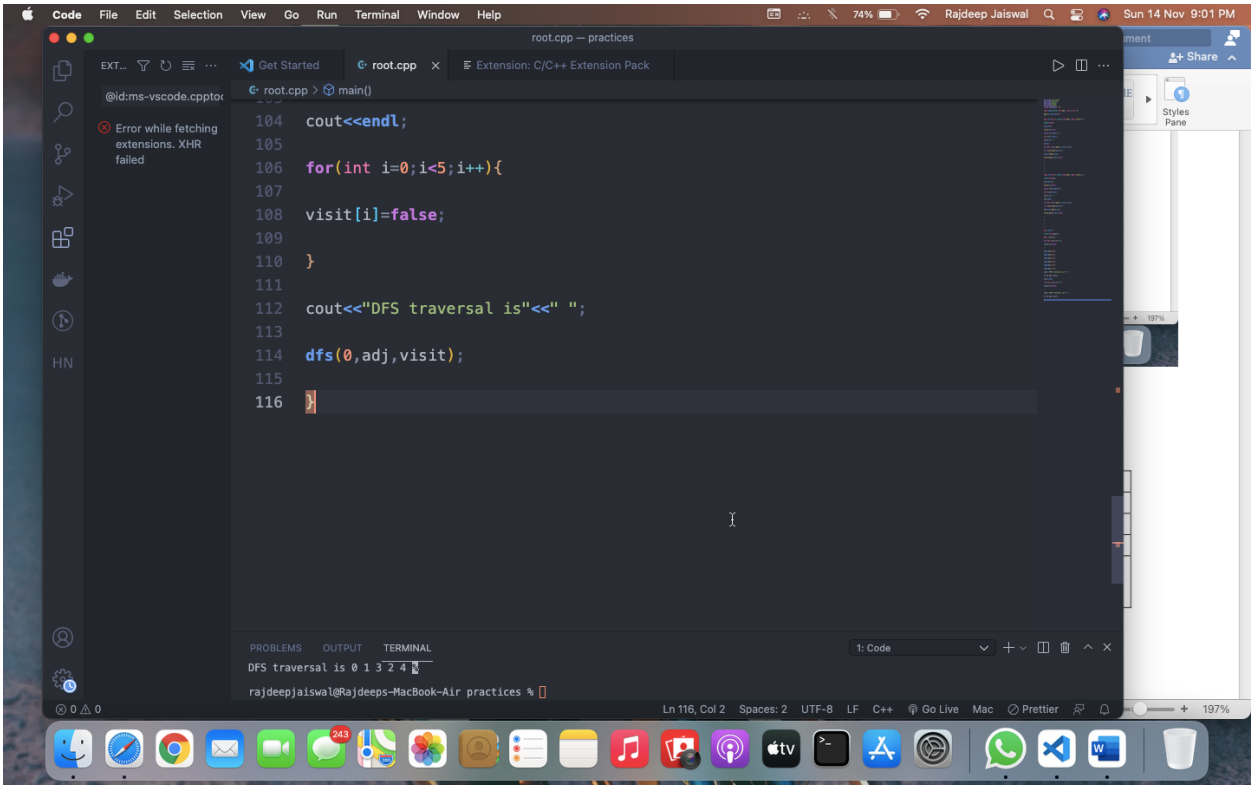



root.cpp — practices
Get Started
root.cpp
Extension: C/C++ Extension Pack
root.cpp > main()
Error while fetching extensions. XHR failed
while(!q.empty()){
int u=q.front();
cout<<u<<" ";
q.pop();
for(int i=0;i<adj[u].size();i++){
if(!visit[adj[u][i]]){
q.push(adj[u][i]);
visit[adj[u][i]]=true;
}
}
}
}
PROBLEMS
OUTPUT
TERMINAL
1: Code
DFS traversal is 0 1 3 2 4
rajdeepjaiswal@Rajdeeps-MacBook-Air practices %
Ln 116, Col 2
Spaces: 2
UTF-8
LF
C++
Go Live
Mac
Prettier
197%


root.cpp — practices
root.cpp
Get Started
Extension: C/C++ Extension Pack
Error while fetching extensions. XHR failed
void dfs(int s,vector<int>adj[],bool visit[]){
stack<int>stk;
stk.push(s);
visit[s]=true;
while(!stk.empty()){
int u=stk.top();
cout<<u<<" ";
stk.pop();
for(int i=0;i<adj[u].size();i++){
if(!visit[adj[u][i]]){
stk.push(adj[u][i]);
PROBLEMS
OUTPUT
TERMINAL
DFS traversal is 0 1 3 2 4
rajdeepjaiswal@Rajdeeps-MacBook-Air practices %


root.cpp — practices
Get Started
root.cpp
Extension: C/C++ Extension Pack
root.cpp > main()
Error while fetching extensions. XHR failed
stk.push(adj[u][i]);
visit[adj[u][i]]=true;
}
}
}
}
int main(){
vector<int>adj[5];
bool visit[5];
for(int i=0;i<5;i++){
visit[i]=false;
PROBLEMS
OUTPUT
TERMINAL
1: Code
DFS traversal is 0 1 3 2 4
rajdeepjaiswal@Rajdeeps-MacBook-Air practices %
Ln 116, Col 2
Spaces: 2
UTF-8
LF
C++
Go Live
Mac
Prettier
197%


root.cpp — practices
root.cpp
Get Started
Extension: C/C++ Extension Pack
Error while fetching extensions. XHR failed
visit[i]=false;
}
edge(adj,0,2);
edge(adj,0,1);
edge(adj,1,3);
edge(adj,2,0);
edge(adj,2,3);
edge(adj,2,4);
cout<<"BFS traversal is"<<" ";
bfs(0,adj,visit);
cout<<endl;
PROBLEMS
OUTPUT
TERMINAL
DFS traversal is 0 1 3 2 4
rajdeepjaiswal@Rajdeeps-MacBook-Air practices %


root.cpp — practices
Get Started
root.cpp
Extension: C/C++ Extension Pack
root.cpp > main()
104 cout<<endl;
105
106 for(int i=0;i<5;i++){
107
108 visit[i]=false;
109
110 }
111
112 cout<<"DFS traversal is"<<" ";
113
114 dfs(0,adj,visit);
115
116 }
Error while fetching extensions. XHR failed
PROBLEMS OUTPUT TERMINAL
1: Code
DFS traversal is 0 1 3 2 4
rajdeepjaiswal@Rajdeeps-MacBook-Air practices %
Ln 116, Col 2 Spaces: 2 UTF-8 LF C++ Go Live Mac Prettier
197%

OUTPUT -


PROBLEMS OUTPUT TERMINAL
1: Code
cd "/Users/rajdeepjaiswal/Desktop/Codes/practices/" && g++ root.cpp -o root && "/Users/rajdeepjaiswal/Desktop/Codes/practices/"root
rajdeepjaiswal@Rajdeeps-MacBook-Air practices % cd "/Users/rajdeepjaiswal/Desktop/Codes/practices/" && g++ root.cpp -o root && "/Users/rajdeepjaiswal/Desktop/Codes/practices/"root
BFS traversal is 0 2 1 3 4
DFS traversal is 0 1 3 2 4
rajdeepjaiswal@Rajdeeps-MacBook-Air practices %
Ln 116, Col 2 Spaces: 2 UTF-8 LF C++ Go Live Mac Prettier

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			