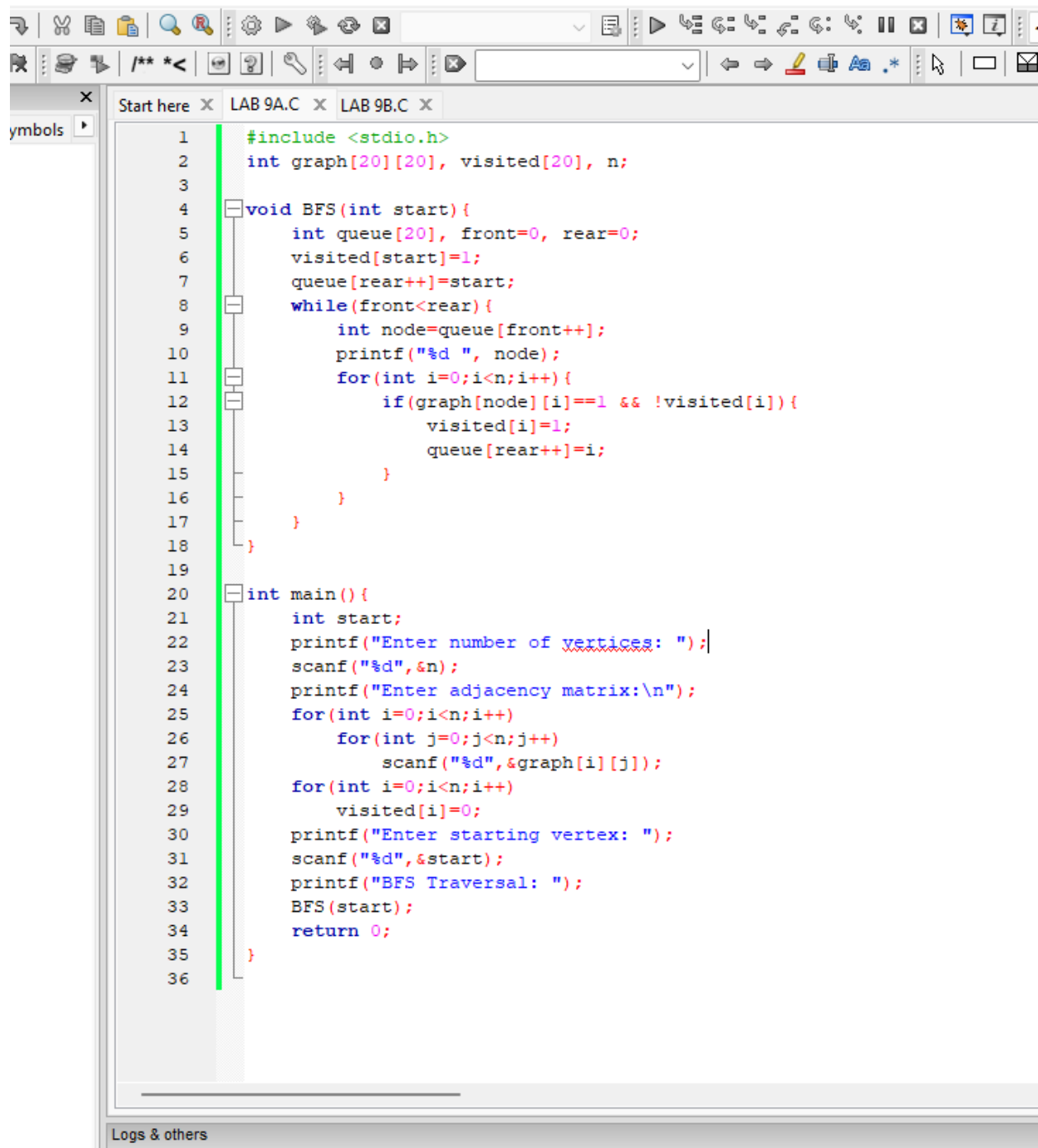


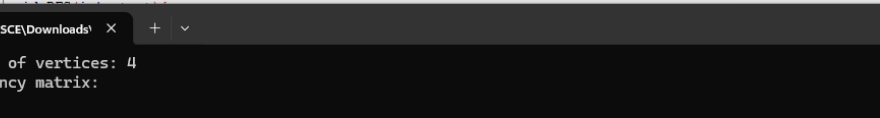
## Lab 9A



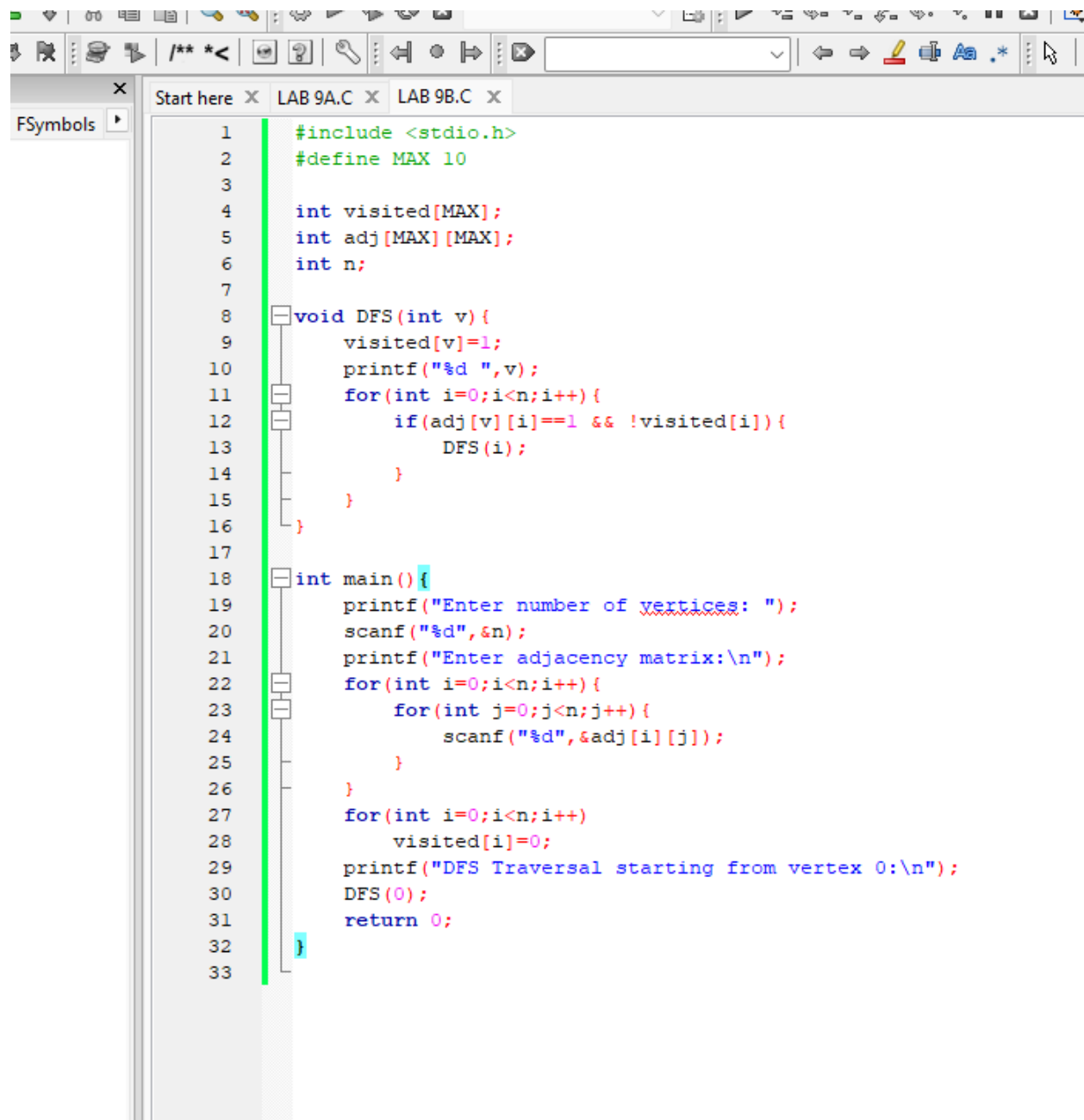
The image shows a screenshot of a C code editor with a toolbar at the top and a file explorer on the left. The editor has three tabs: 'Start here', 'LAB 9A.C', and 'LAB 9B.C'. The 'LAB 9A.C' tab is active, displaying a C program for Breadth-First Search (BFS) traversal. The code is as follows:

```
1  #include <stdio.h>
2  int graph[20][20], visited[20], n;
3
4  void BFS(int start){
5      int queue[20], front=0, rear=0;
6      visited[start]=1;
7      queue[rear++]=start;
8      while(front<rear){
9          int node=queue[front++];
10         printf("%d ", node);
11         for(int i=0;i<n;i++){
12             if(graph[node][i]==1 && !visited[i]){
13                 visited[i]=1;
14                 queue[rear++]=i;
15             }
16         }
17     }
18 }
19
20 int main(){
21     int start;
22     printf("Enter number of vertices: ");
23     scanf("%d",&n);
24     printf("Enter adjacency matrix:\n");
25     for(int i=0;i<n;i++){
26         for(int j=0;j<n;j++){
27             scanf("%d",&graph[i][j]);
28         }
29         visited[i]=0;
30     }
31     printf("Enter starting vertex: ");
32     scanf("%d",&start);
33     printf("BFS Traversal: ");
34     BFS(start);
35     return 0;
36 }
```

The code implements a BFS algorithm. It starts by including `<stdio.h>` and declaring a 2D array `graph` and a 1D array `visited`, both of size 20. The `BFS` function takes a starting vertex `start` and uses a queue to traverse the graph. It marks the starting vertex as visited and enqueues it. Then, it enters a loop where it dequeues a node, prints it, and enqueues all its unvisited neighbors. The `main` function prompts the user for the number of vertices, the adjacency matrix, and the starting vertex, then calls the `BFS` function.



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The image shows a screenshot of a C code editor with a toolbar at the top and a tab bar below it. The tab bar contains three tabs: 'Start here', 'LAB 9A.C', and 'LAB 9B.C'. The 'LAB 9B.C' tab is active, displaying a C program for Depth-First Search (DFS). The code is as follows:

```
1  #include <stdio.h>
2  #define MAX 10
3
4  int visited[MAX];
5  int adj[MAX][MAX];
6  int n;
7
8  void DFS(int v){
9      visited[v]=1;
10     printf("%d ",v);
11     for(int i=0;i<n;i++){
12         if(adj[v][i]==1 && !visited[i]){
13             DFS(i);
14         }
15     }
16 }
17
18 int main(){
19     printf("Enter number of vertices: ");
20     scanf("%d",&n);
21     printf("Enter adjacency matrix:\n");
22     for(int i=0;i<n;i++){
23         for(int j=0;j<n;j++){
24             scanf("%d",&adj[i][j]);
25         }
26     }
27     for(int i=0;i<n;i++)
28         visited[i]=0;
29     printf("DFS Traversal starting from vertex 0:\n");
30     DFS(0);
31     return 0;
32 }
33
```

```
agement
Projects
Workspace

"C:\Users\BMSCE\Downloads" X + v
Enter number of vertices: 4
Enter adjacency matrix:
0 1 1 0
1 0 0 1
1 0 0 1
0 1 1 0
DFS Traversal starting from vertex 0:
0 1 3 2
Process returned 0 (0x0)   execution time : 33.014 s
Press any key to continue.
```