NAME: Haresh Kumar N L (192425009)

COURSE NAME: DATA STRUCTURES FOR MODERN COMPUTING SYSTEMS

COURSE CODE: CSA0302

Experiment 34: Breadth First Search

Code:

```
#include <stdio.h>
int adj[20][20];
int visited[20];
int queue[20];
int n;
void BFS(int start) {
   int front = 0, rear = 0;
   queue[rear] = start;
   visited[start] = 1;
   while (front <= rear) {
      int v = queue[front++];
      printf("%d ", v);
      for (int i = 0; i < n; i++) {
         if (adj[v][i] == 1 && visited[i] == 0) {
            queue[++rear] = i;
            visited[i] = 1;
         }
      }
   }
}
int main() {
   int start;
   printf("Enter number of vertices: ");
   scanf("%d", &n);
   printf("Enter adjacency matrix (%d x %d):\n", n, n);
```

```
    for (int i = 0; i < n; i++) {
        for (int j = 0; j < n; j++) {
            scanf("%d", &adj[i][j]);
        }
    }
    for (int i = 0; i < n; i++)
        visited[i] = 0;
    printf("Enter starting vertex (0 to %d): ", n - 1);
    scanf("%d", &start);
    printf("\nBFS Traversal starting from vertex %d: ", start);
    BFS(start);
    printf("\n");
    return 0;
}
```

Output:

```
Enter number of vertices: 4
Enter adjacency matrix (4 x 4):
0 1 1 0
1 0 0 1
1 0 0 0
0 1 0 0
Enter starting vertex (0 to 3): 0

BFS Traversal starting from vertex 0: 0 1 2 3


=== Code Execution Successful ===
```