

#### Time Complexity:

The time complexity of the code can be determined by going through the code:

- i. At first, we are finding the length of the list which can be done in  $O(1)$  or constant time.
- ii. Secondly, we are using nested 2 loops to create the empty loop which is done in  $O(V^2)$  time where  $V$  is the number of vertices.
- iii. Lastly, we are also using 2 nested for loop to iterate through all the nodes and edges, which can be done in  $O(V \cdot E)$  time where  $E$  is edges.

Hence, we can say that overall time complexity of the given code is  $(V^2)$ .

It depends on the number of the vertices as we see above.

However, it can also depend on edges on some special conditions.

The time complexity for converting the adjacency matrix to list will be  $O(V^2)$  as we have to at least iterate through every row and columns of the given matrix which is  $V^2$ .