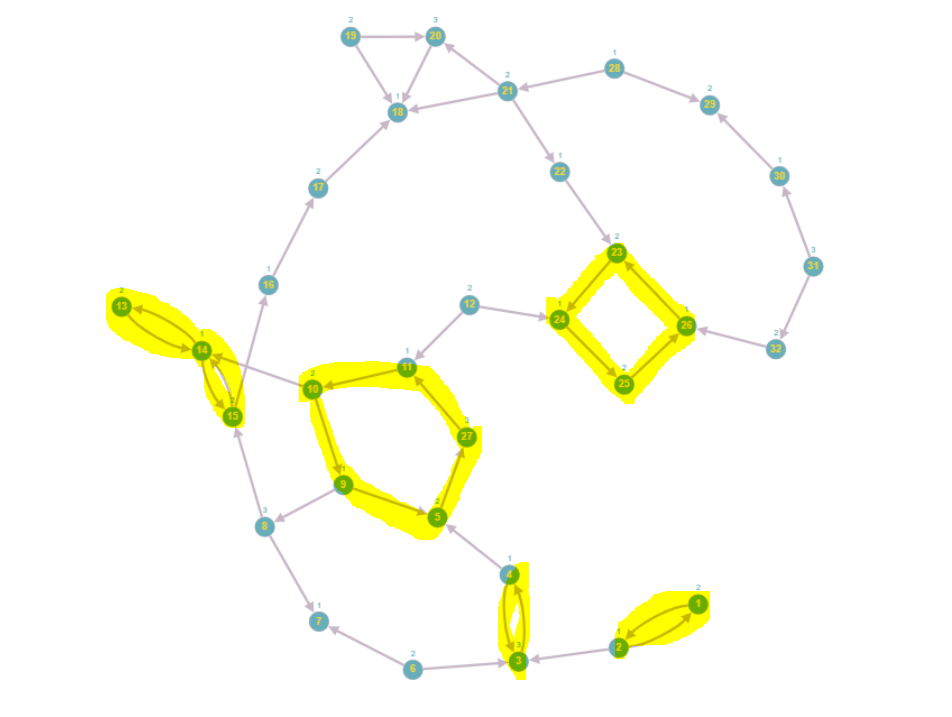
**Question a**

Since we are checking if there is a path between two points on the map, we defined a function ***route\_exists (point\_a, point\_b)*** inside which we started breadth first search from ***point\_a*** to get all the visitable vertices from ***point\_a*** and finally checking any of the visitable vertices is ***point\_b***. Finally, we used if\_else statement to print out the if the route exits between two given points on the map.

**Question b**

We used DFS method from the start node and marked the current vertex as visited and pushed the visited vertex in the stack. Then, we are recursively calling DFS for all the adjacent vertices and checking if the vertex is in the recursion stack. If yes, the graph is cyclic. We can vividly see the cycles in the graph. Please refer to the code submitted.



**Directed graph**