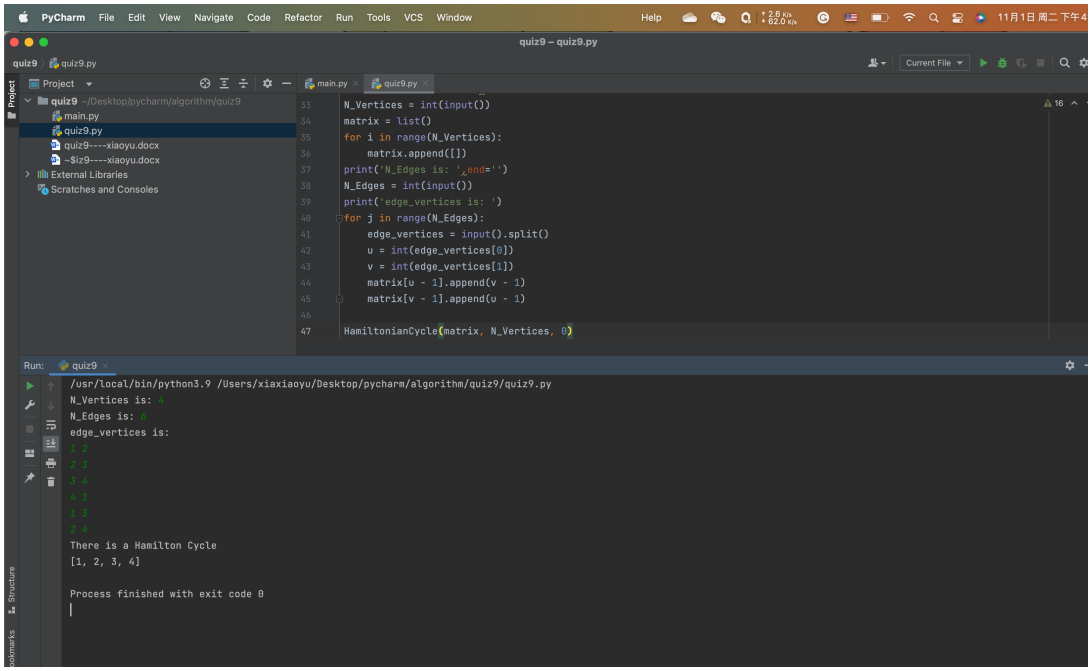
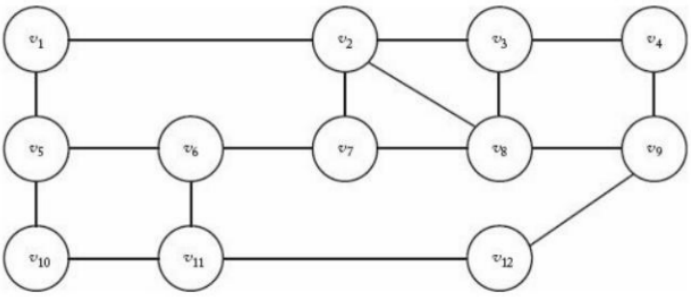
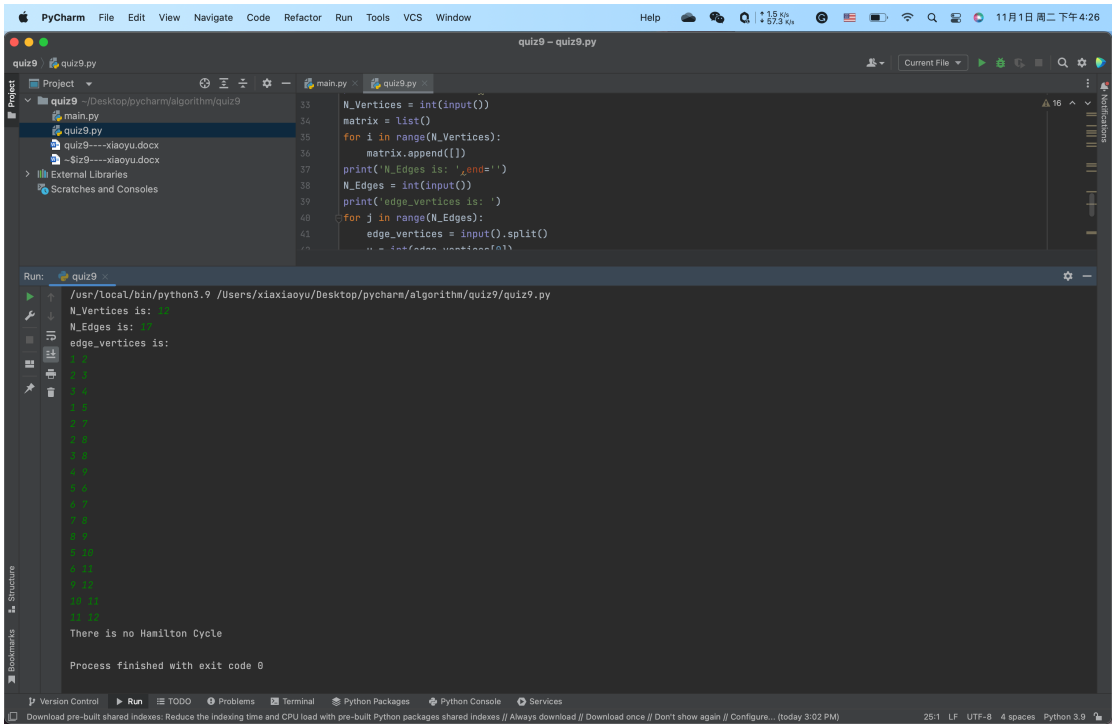
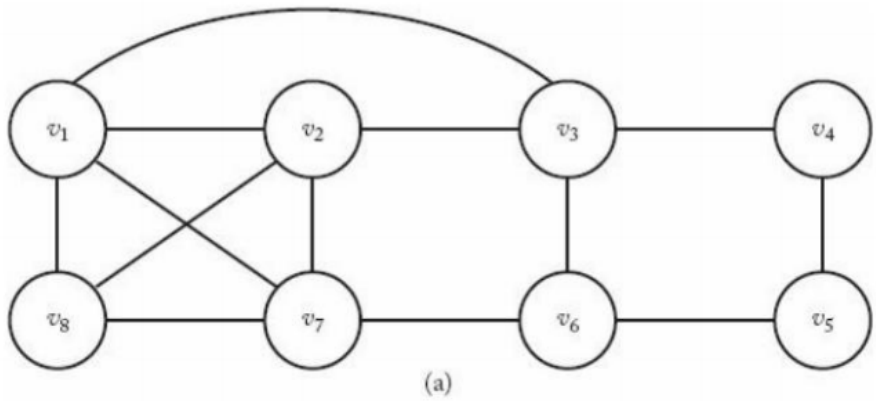
Case 1:

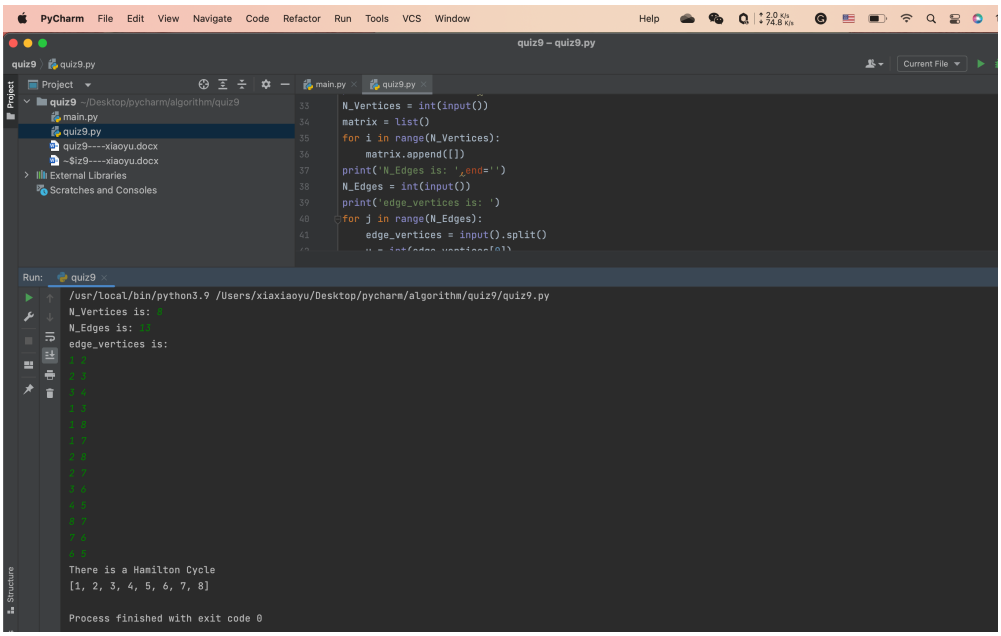

quiz9 – quiz9.py
N_Vertices = int(input())
matrix = list()
for i in range(N_Vertices):
matrix.append([])
print('N_Edges is: ',end='')
N_Edges = int(input())
print('edge_vertices is: ')
for j in range(N_Edges):
edge_vertices = input().split()
u = int(edge_vertices[0])
v = int(edge_vertices[1])
matrix[u - 1].append(v - 1)
matrix[v - 1].append(u - 1)
HamiltonianCycle(matrix, N_Vertices, 0)
/usr/local/bin/python3.9 /Users/xiaxiaoyu/Desktop/pycharm/algorithm/quiz9/quiz9.py
N_Vertices is: 4
N_Edges is: 6
edge_vertices is:
1 2
2 3
3 4
4 1
1 3
2 4
There is a Hamilton Cycle
[1, 2, 3, 4]
Process finished with exit code 0

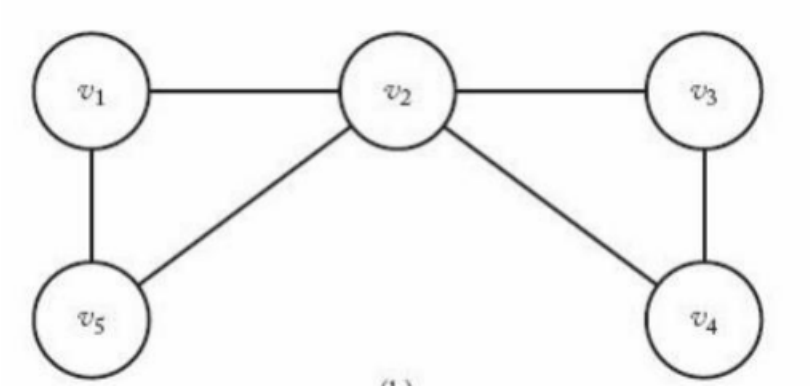
Case 2:

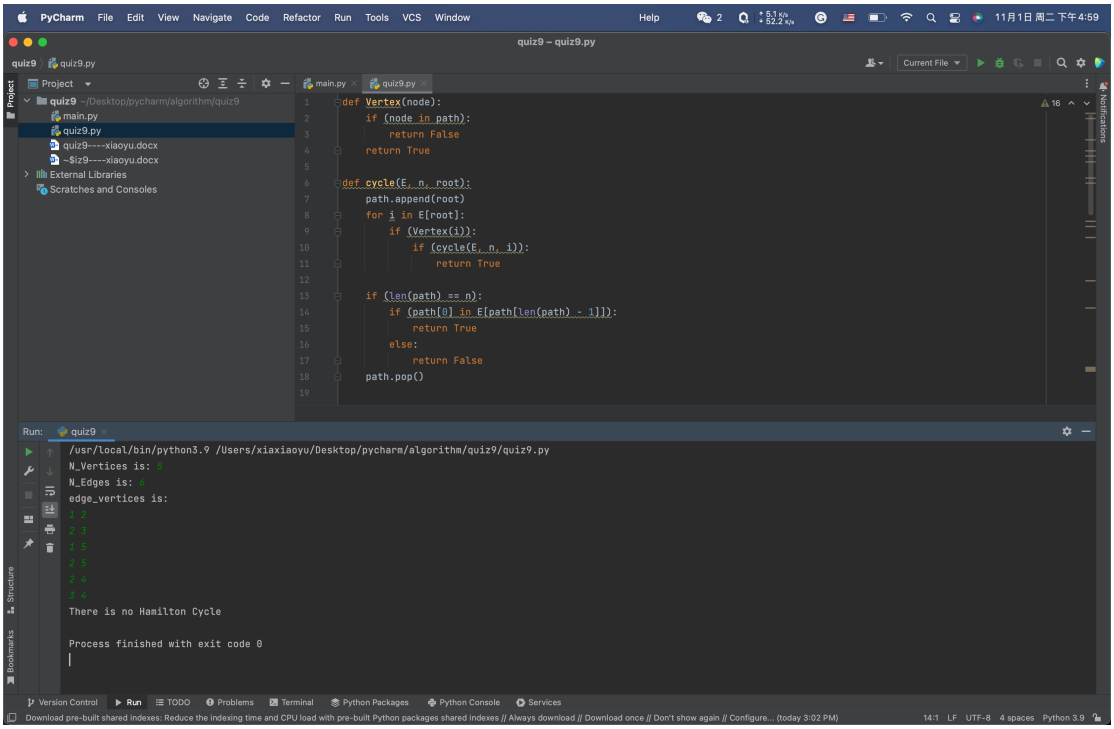

v1
v2
v3
v4
v5
v6
v7
v8
v9
v10
v11
v12


quiz9 – quiz9.py
N_Vertices = int(input())
matrix = list()
for i in range(N_Vertices):
matrix.append([])
print('N_Edges is: ',end='')
N_Edges = int(input())
print('edge_vertices is: ')
for j in range(N_Edges):
edge_vertices = input().split()
/usr/local/bin/python3.9 /Users/xiaxiaoyu/Desktop/pycharm/algorithm/quiz9/quiz9.py
N_Vertices is: 12
N_Edges is: 17
edge_vertices is:
1 2
2 3
3 4
1 5
2 7
2 8
7 8
4 9
8 9
5 10
6 11
9 12
10 11
11 12
There is no Hamilton Cycle
Process finished with exit code 0


v_1
v_2
v_3
v_4
v_8
v_7
v_6
v_5
(a)


PyCharm File Edit View Navigate Code Refactor Run Tools VCS Window Help
quiz9 – quiz9.py
quiz9 quiz9.py
Current File
Project
quiz9 ~/Desktop/pycharm/algorithm/quiz9
main.py
quiz9.py
quiz9----xiaoyu.docx
~$iz9----xiaoyu.docx
External Libraries
Scratches and Consoles
main.py
quiz9.py
N_Vertices = int(input())
matrix = list()
for i in range(N_Vertices):
matrix.append([])
print('N_Edges is: ',end='')
N_Edges = int(input())
print('edge_vertices is: ')
for j in range(N_Edges):
edge_vertices = input().split()
Run: quiz9
/usr/local/bin/python3.9 /Users/xiaxiaoyu/Desktop/pycharm/algorithm/quiz9/quiz9.py
N_Vertices is: 8
N_Edges is: 13
edge_vertices is:
1 2
2 3
3 4
1 3
1 8
1 7
2 8
2 7
3 6
4 5
8 7
7 6
6 5
There is a Hamilton Cycle
[1, 2, 3, 4, 5, 6, 7, 8]
Process finished with exit code 0
Structure


v_1
v_2
v_3
v_5
v_4


PyCharm File Edit View Navigate Code Refactor Run Tools VCS Window Help
quiz9 – quiz9.py
Project
quiz9 ~/Desktop/pycharm/algorithm/quiz9
main.py
quiz9.py
quiz9----xiaoyu.docx
~$iz9----xiaoyu.docx
External Libraries
Scratches and Consoles
def Vertex(node):
if (node in path):
return False
return True
def cycle(E, n, root):
path.append(root)
for i in E[root]:
if (Vertex(i)):
if (cycle(E, n, i)):
return True
if (len(path) == n):
if (path[0] in E[path[len(path) - 1]]):
return True
else:
return False
path.pop()
Run: quiz9
/usr/local/bin/python3.9 /Users/xiaxiaoyu/Desktop/pycharm/algorithm/quiz9/quiz9.py
N_Vertices is: 5
N_Edges is: 6
edge_vertices is:
1 2
2 3
1 5
2 5
2 4
3 4
There is no Hamilton Cycle
Process finished with exit code 0
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14:1 LF UTF-8 4 spaces Python 3.9