DATA STRUCTURE AND ALGORITHM
HW08

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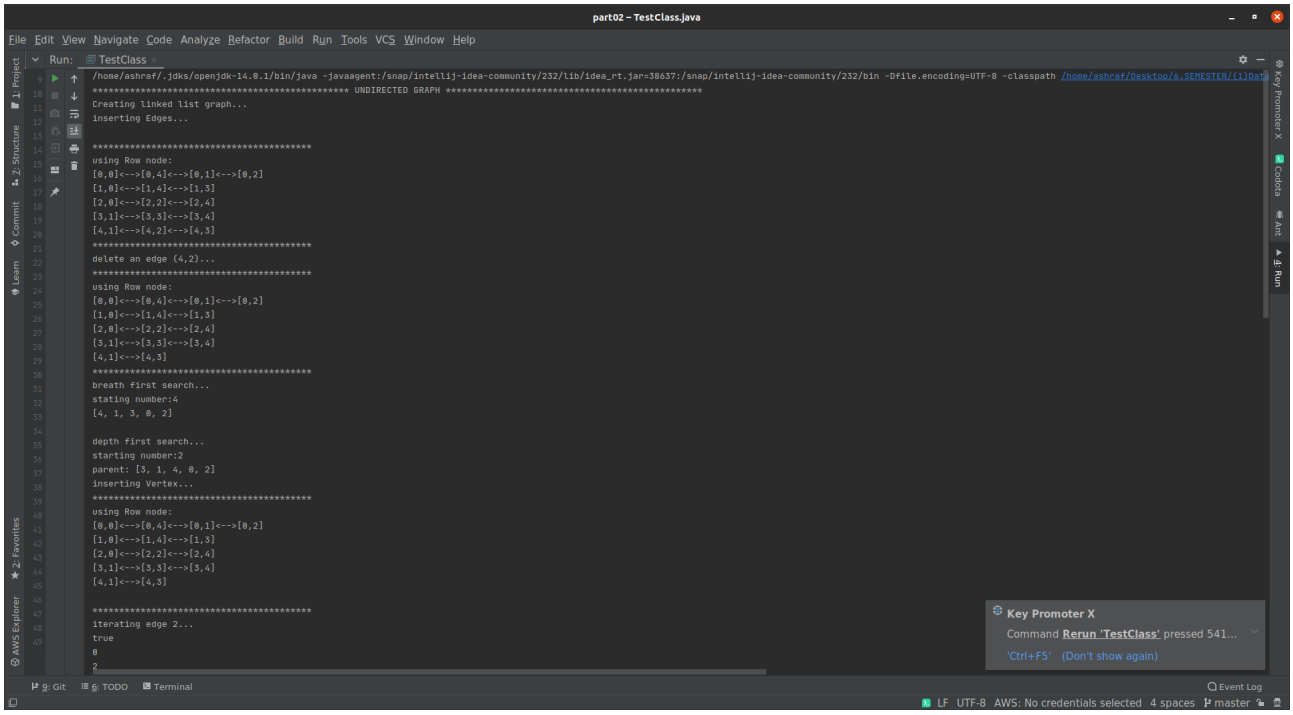
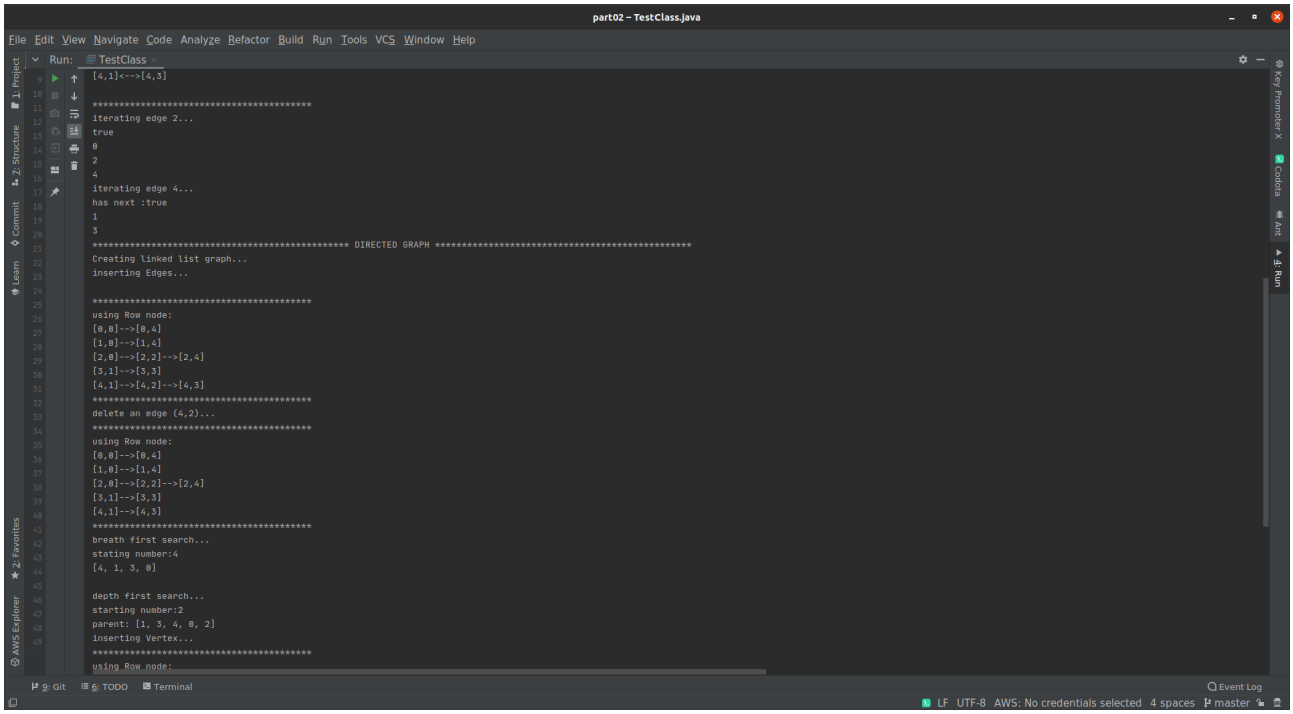
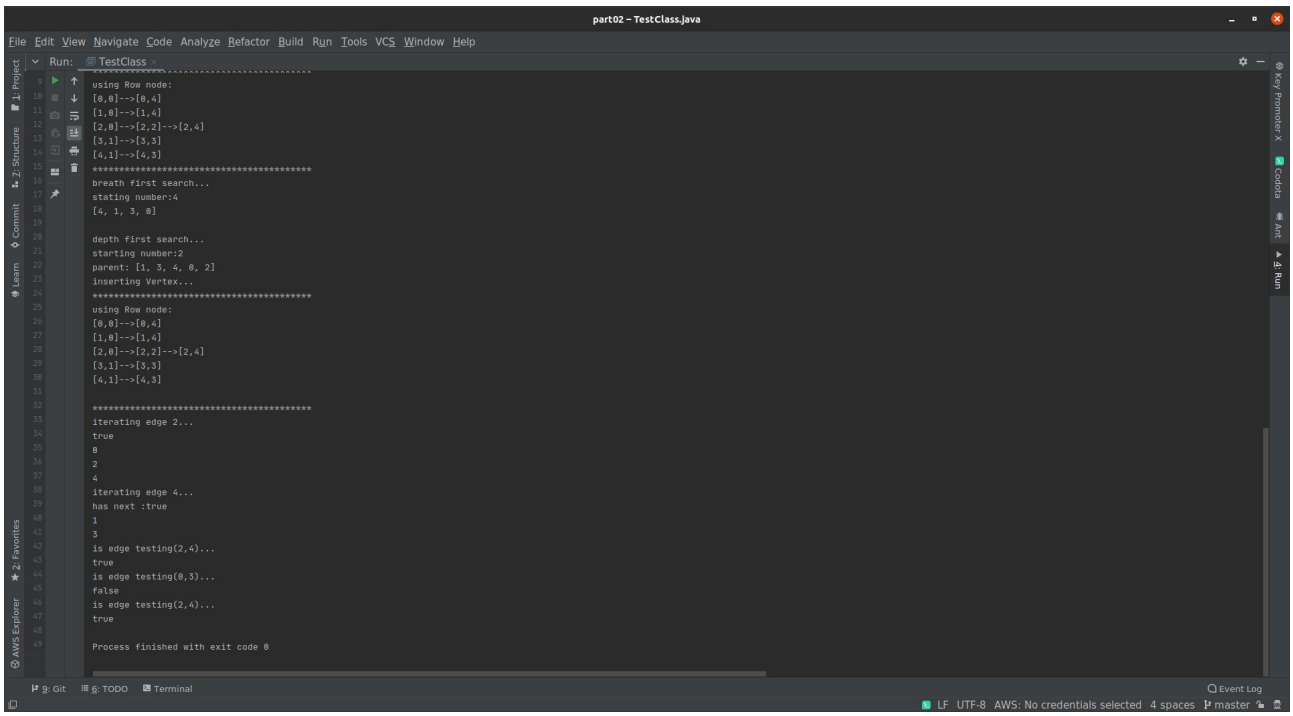
PART02
CLASS DIAGRAM:
SCREEN SHOTS:







SOLUTION APPROACH:

→ TestClass is the main test class which creates graph and tests all the methods.

→LinkedListGraph Class extends AbstractGraph and adds more necessary methods in LinkedListGraph.

→while creating graph I think of it as 2D linkedlist which has row and columns same as numV which the number of edge that initial graph will have.later on we can increase our numV and number of edge in out graph.

→when inserting or deleting any edge or vertex I first check it's graph type whether directed graph or undirected graph and act accordingly.

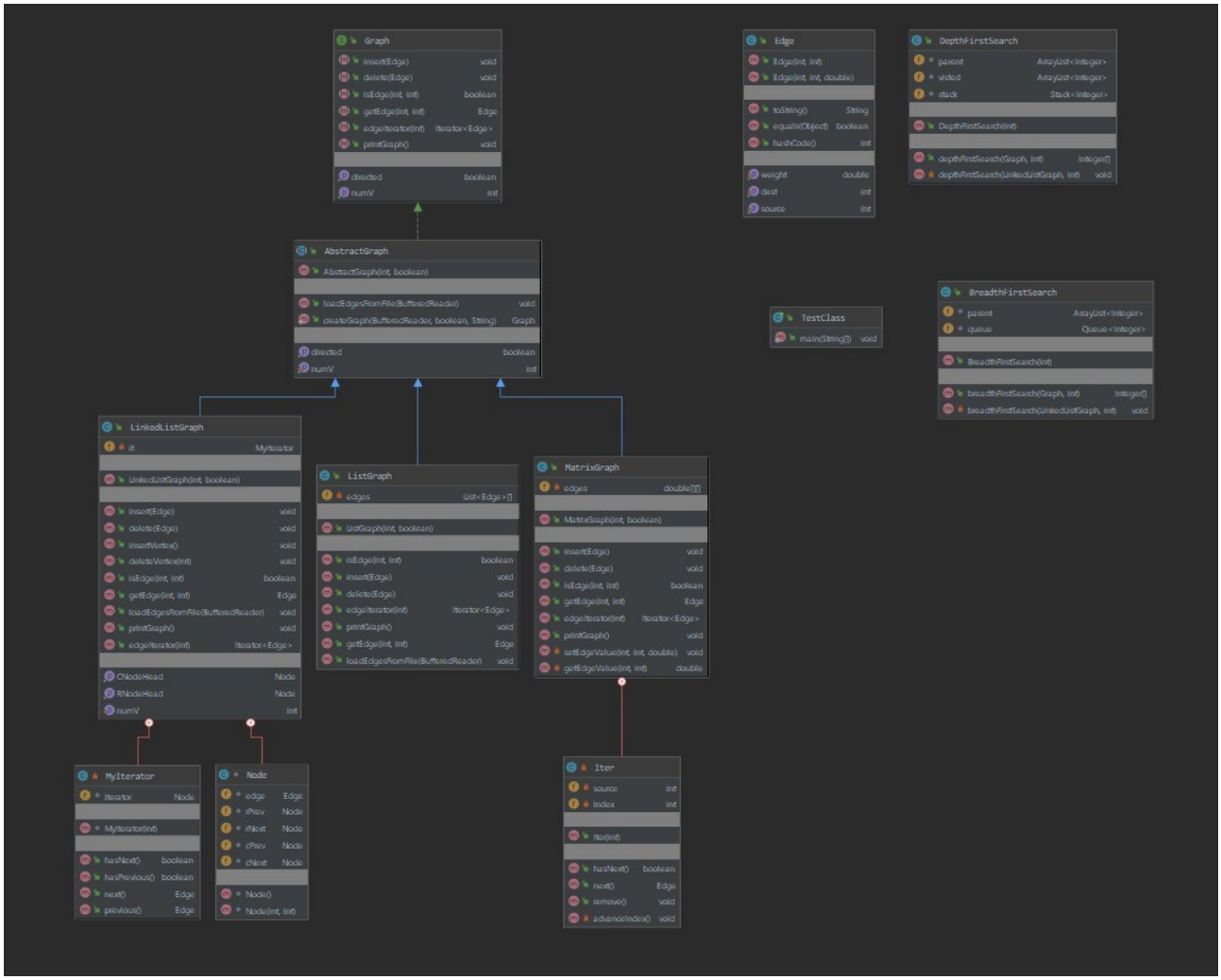
→ I also added ListGraph and MatrixGraph Class becasues our one function named `createGraph` make use of both these classes and I also added an opption addition to the `createGraph` function which is creating graph for my LinkedListGraph as well.

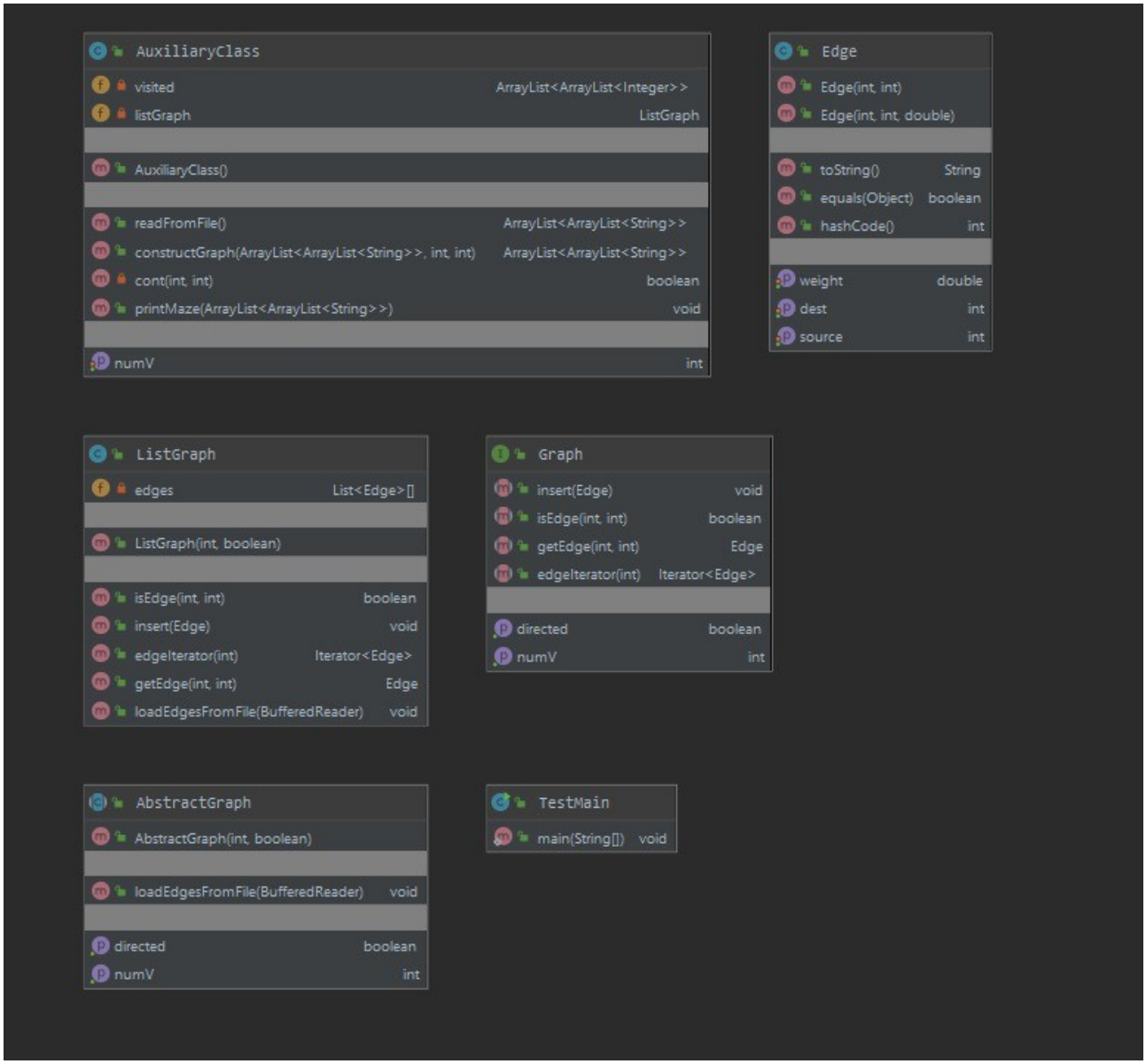
TEST CASES:

TEST CASE ID	TEST SCENARIO	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	PASS/FAIL
0	Create directed graph	5	Directed graph with 5 edges	same	pass
1	Create undirected graph	5	Undirected graph with 5 edges	Same	pass
2	Insert edge with values between 0 and 4 as source or destination	0,1,2,3,4	Insert edge	Insert edge into graph	Pass
3	Insert edge with values bigger tha 4 as source or destination	N > 4 where N is any values bigger than 4	Not insert edge and give errore	Yes	pass
4	Delete an edge which is exist in the graph	delete(source = 4,destination = 2)	Delete and unbound the edge from the graph	As expected	Pass
5	Delete as edge which doas not exist in the graph	Delete(5,3);	Erroe while deleting	As expected	Pass
6	Insert vertex in to graph	insertVertex( )	Add a new vertex and increment the numV of the graph	As expected	Pass
7	Breath first search	Do breath first search		As expected	Pass

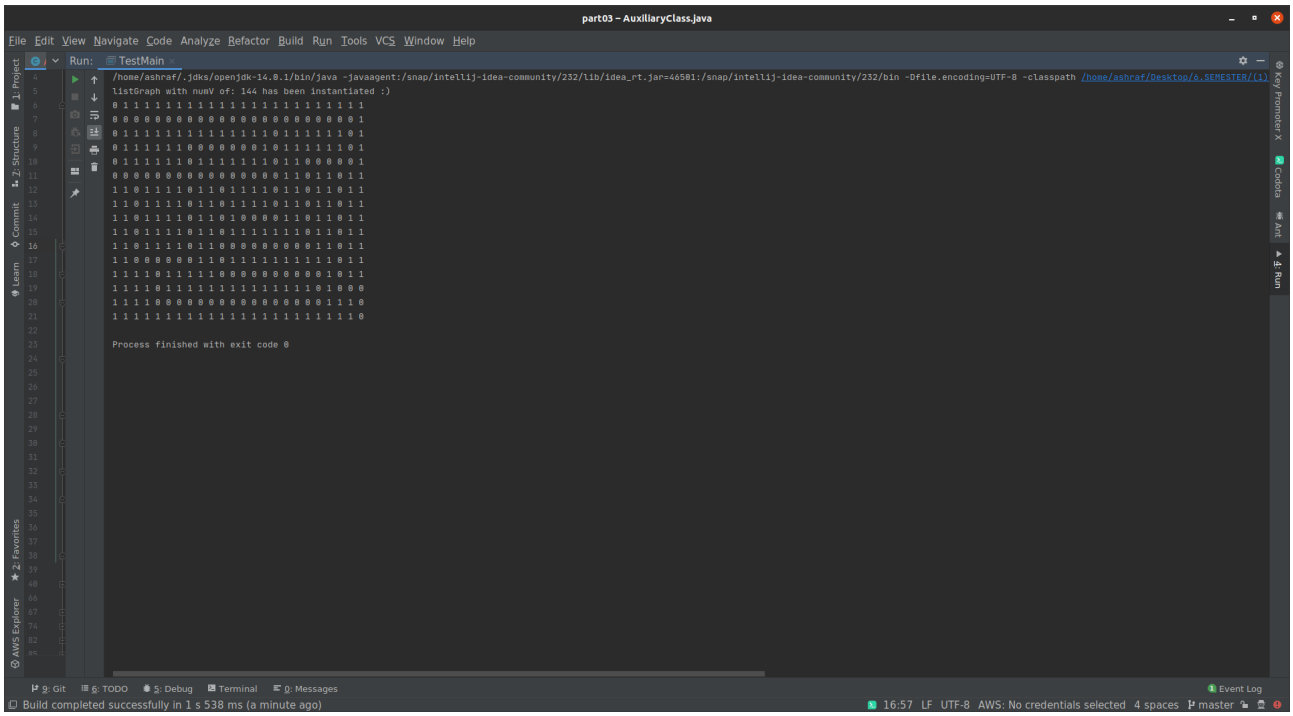
		and return the order of visist as an int array			
8	Depth first search	Do depth first search		As expected	Pass
9	Test iterator for graph	Iterate through an edge		As expected	Pass
10	Find if a particular sourece and destination values are edge in the graph	IsEdge(2,4)	True	True	Pass
11	Find if a particular sourece and destination values are edge in the graph	IsEdge(0,3)	False	False	Pass
12	Find if a particular sourece and destination values are edge in the graph	IsEdge(4,4)	False	False	pass

PART02
CLASS DIAGRAM:




AuxiliaryClass
visited ArrayList<ArrayList<Integer>>
listGraph ListGraph
AuxiliaryClass()
readFromFile() ArrayList<ArrayList<String>>
constructGraph(ArrayList<ArrayList<String>>, int, int) ArrayList<ArrayList<String>>
cont(int, int) boolean
printMaze(ArrayList<ArrayList<String>>) void
numV int
Edge
Edge(int, int)
Edge(int, int, double)
toString() String
equals(Object) boolean
hashCode() int
weight double
dest int
source int
ListGraph
edges List<Edge>[]
ListGraph(int, boolean)
isEdge(int, int) boolean
insert(Edge) void
edgeIterator(int) Iterator<Edge>
getEdge(int, int) Edge
loadEdgesFromFile(BufferedReader) void
Graph
insert(Edge) void
isEdge(int, int) boolean
getEdge(int, int) Edge
edgeIterator(int) Iterator<Edge>
directed boolean
numV int
AbstractGraph
AbstractGraph(int, boolean)
loadEdgesFromFile(BufferedReader) void
directed boolean
numV int
TestMain
main(String[]) void

SCREEN SHOTS:



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