**Lab 4**

**Exercise 4**

The algorithms are implemented in the file exe4.c, the data structures are implemented in structs\_exe4.h.

Testing of the algorithm were carried out by first creating an instance of the graph struct, then setting edges for the graph with certain weights. Then calling the Bellman Ford algorithm on the graph. The algorithm returns a Boolean value stating whether the algorithm succeed or not. After this a loop was implemented in the test method for iterating through the vertices recalling the distance from the source for each vertex and printing it.

For the first test a graph without a negative cycle was inserted and in the second test a graph containing a negative cycle was inserted.

To test the graph with different graphs and weights the input graphs can be modified in the testExe4\_1/ testExe4\_2 method in the file exe4\_Implementaion.

The Bellman Ford algorithm doesn’t make any assumptions of the input graph, and it is able to compute shortest distance graphs that contain negative weighted edges. However, if the graph contains negative cycles the algorithm will stop to run and no shortest path will be returned.