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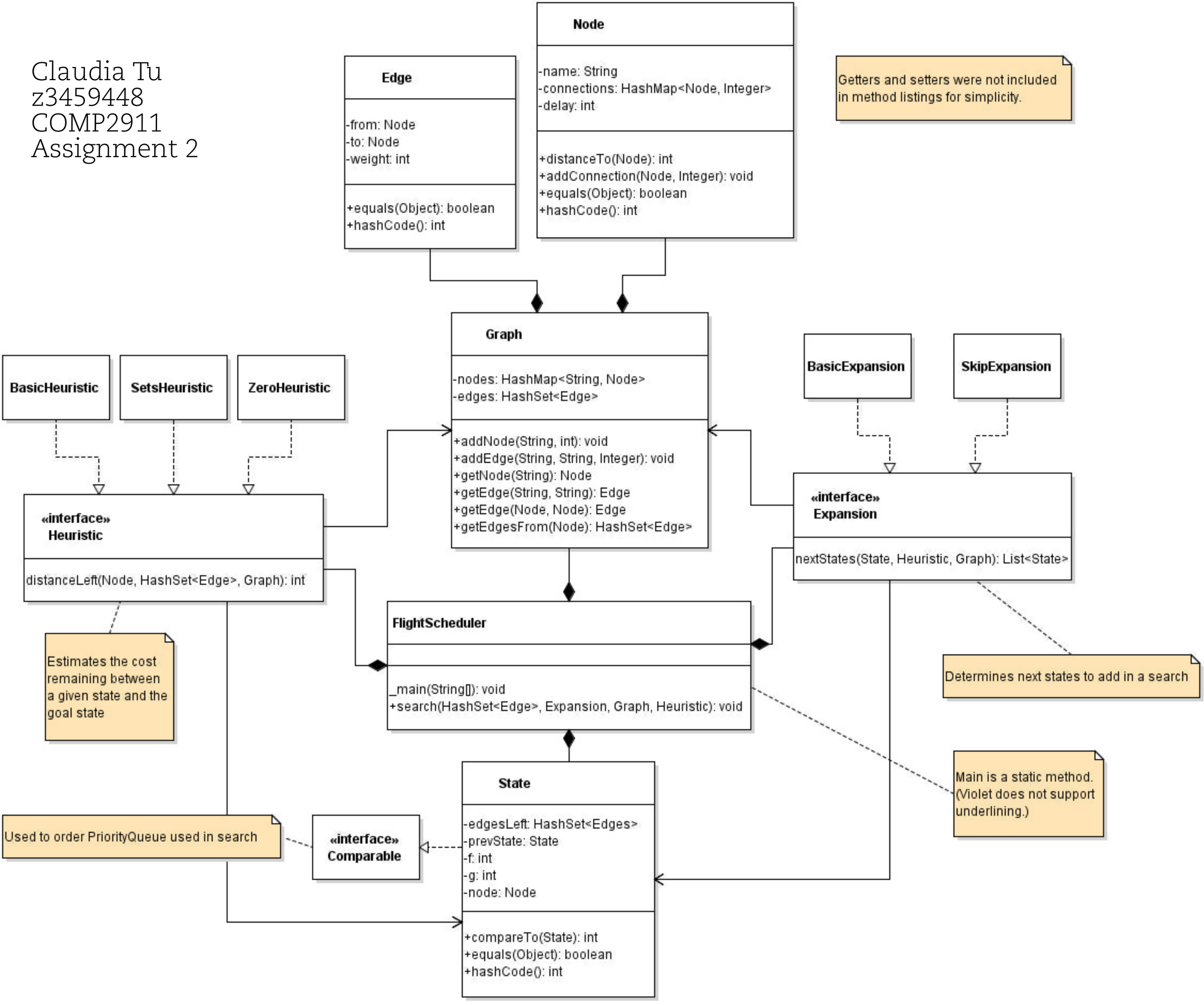
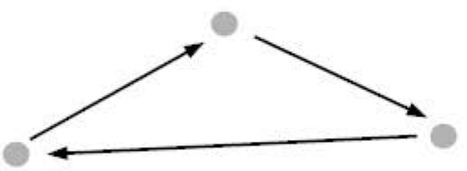
COMP2911
Assignment 2

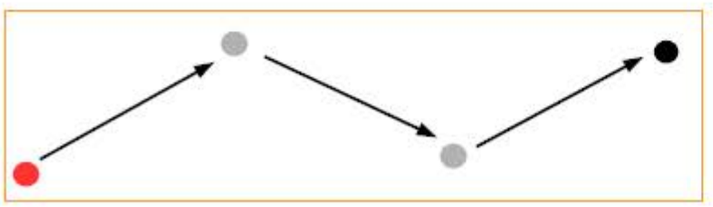


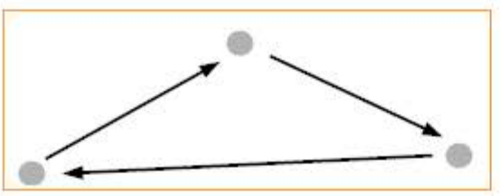
Case 1: Single required edge.
Only the red node is a starting node of a required edge so it is added to checkSets. It is not an ending node of a required edge, so it is not removed from checkSets.

Case 2: Directed path of required edges.
All the nodes except the black node are starting nodes of required edges, so they are all added to checkSets. Out of the nodes that are added to checkSets, only the red one is not an ending node of a required edge, so all of these nodes except for the red one are removed from checkSets.

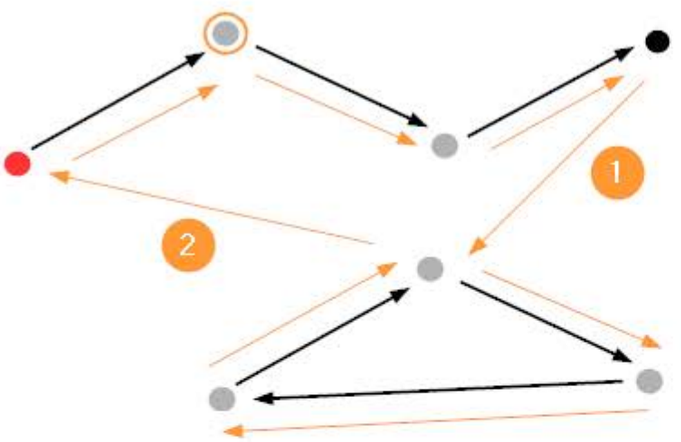


Case 3: Directed cycle of required edges.
All of these nodes are starting nodes of required edges, so they are all added onto checkSets. They are all also ending nodes of required edges, so they are then all removed from checkSets.

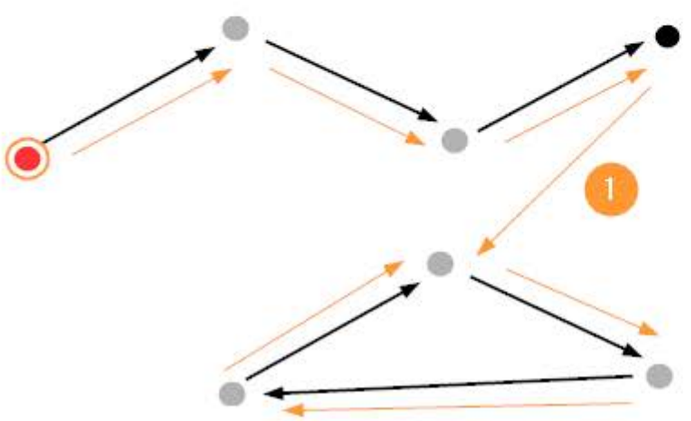




In this example, the black arrows indicate the required edges. We can group these edges into 2 sets. The top set is a directed path whereas the bottom set is a directed cycle.



In this example, if we begin at any node that is an ending node of a required edge, we need to jump between sets twice. The number of jumps required when you begin at an ending node equals the number of sets.



On the other hand, if we begin at any node that is **not** an ending node of a required edge, we need to jump between sets once. The number of jumps required when you begin at a non-ending node equals the number of sets minus 1.