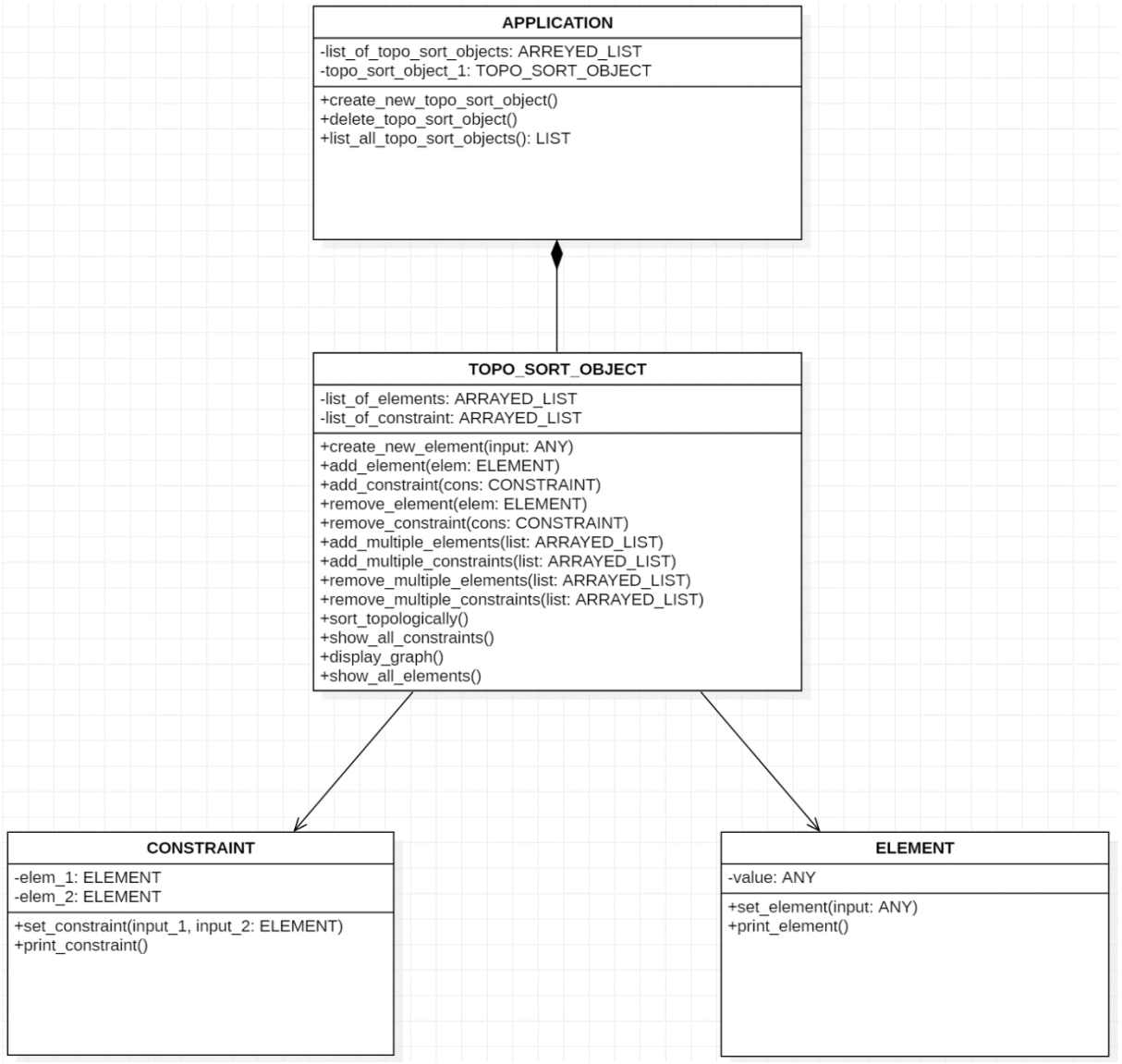
Design document

UML



Design pattern: Composite Pattern

We used 4 classes: APPLICATION, TOPO_SORT_OBJECT_, CONSTRAINT, ELEMENT. APPLICATION is our root class. TOPO_SORT_OBJECT is the class which does most of the work. Within the TOPO_SORT_OBJECT the user adds and removes single elements and constraints and also adds and removes multiple elements and constraints at once. The class also provides the operation to display a graph of a non-cyclic topological order. CONSTRAINT is the class we use to create the different constraints which are then stored in the list_of_constraints. ELEMENT is the class we use to create elements which are then stored in the list_of_elements.

We used the composite design pattern because for us the tree structure represents our application the best. If the composite is called, it goes on to the children to solve the task. For example if you want to add an element, the TOPO_SORT_OBJECT knows how to add the element but in the ELEMENT class an element is defined.