In order to solve these problems to optimality, we need to perform an exhaustive enumerative search. This is done with a tree search where the nodes in the tree are subproblems that are smaller i.e. have fewer feasible solutions than that of problem represented by their parent nodes. There are various approaches to tree search like depth-first search where the most recently generated node is expanded; $A*$, where nodes are ranked by their heuristic value ; and *best-bound search* where nodes are explored based on their upper bound.