# Data Structure Project Abstract

**Team:**

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## Binary Search Tree Creation and Traversal Visualization from given node points using Drawing Algorithm in Java

Tree is a very important data structure and we can see its use in a variety of program directly or indirectly. But there are lots of hurdles when it comes to really visualizing it. Most of the time only option we have is that is to grab a pen and paper and draw it node by node. Other times we may use web-based tools that just draws the tree hiding all the implementation and they are mostly drag and drop drawing applications rather than actually drawing a tree from data points.

### Our Proposal:

We propose to create a mini project that shall draw a Binary Search Tree from given input. It shall also visualize how a Binary Tree is traversed using different traversal techniques i.e. in-order, pre-order and post-order. This shall provide a quick way to visualize a tree. We shall provide a GUI to select traversal techniques.

### Why this project:

Given below are some perks of this project: -

a) This is a unique project, there are very few tools that can do this.
b) Utilization of knowledge of tree data structure to create an active application.
c) Challenges us to find an optimised way to find proper positioning and drawing of nodes as well as sequence of drawing a node.
d) This mini project can later be used as an active demonstration of tree traversal for upcoming year students and may inspire them to add more features to this.

### Advanced (Only when this basic project is completed)

a) We have talked only about DFS traversal but BFS can also be incorporated later.
b) This can be extended to support n-ary trees.