Binary Search Tree

- A **binary search tree** (BST), is a binary tree where for *every* node $n$ in the tree:
  - $n$'s value is **greater** than all the values in its **left** subtree.
  - $n$'s value is **less** than all the values in its **right** subtree.
  - both $n$'s left and right subtrees are binary search trees.

![Binary Search Tree Diagram]

**Problem**: How many possible BSTs containing values 1, 2, and 3 have degenerate structure (i.e., each node in the BST has at most one child)?

**Solution**: $3!$ ways to order 1, 2, and 3 for insertion

1, 2, 3  1, 3, 2  2, 1, 3  2, 3, 1  3, 1, 2  3, 2, 1

There are 4 degenerate BSTs possible.