

## HW4 - 9) 2-3 Tree

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### **9) 2-3 Tree**

Insert 5, 11, 2, 48, 78, 33, 12, 19, 6, 22 into a 2-3 tree (pictures below)



Figure 1: Insert 5

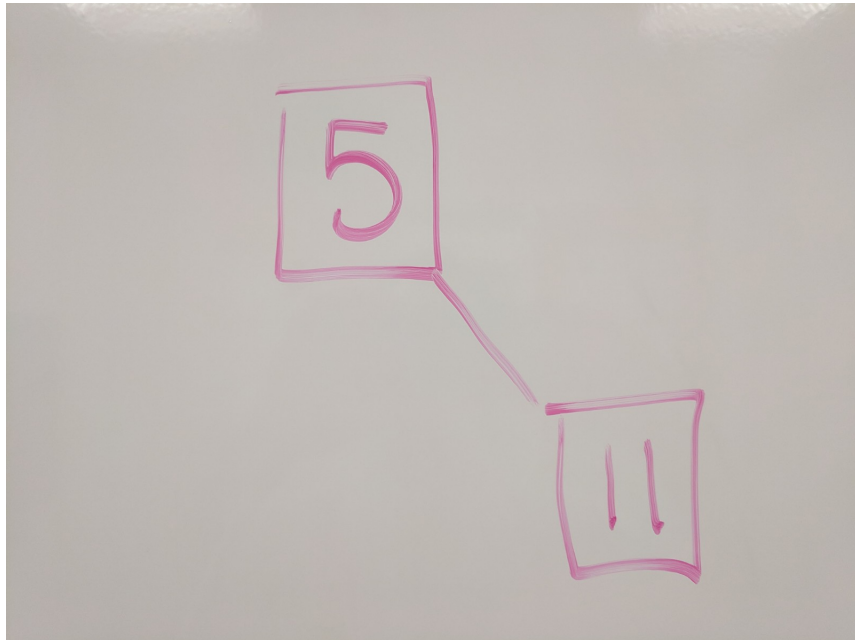


Figure 2: Insert 11

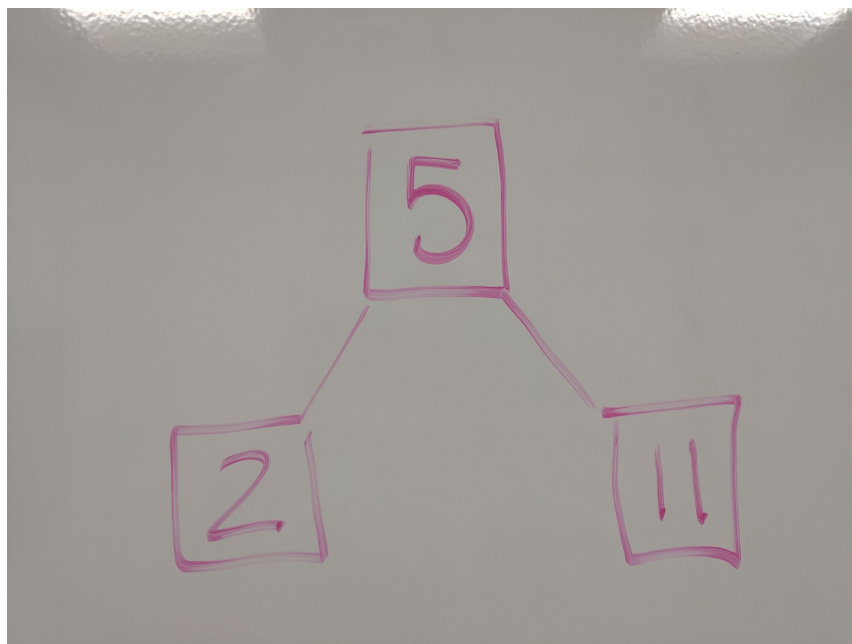


Figure 3: Insert 2

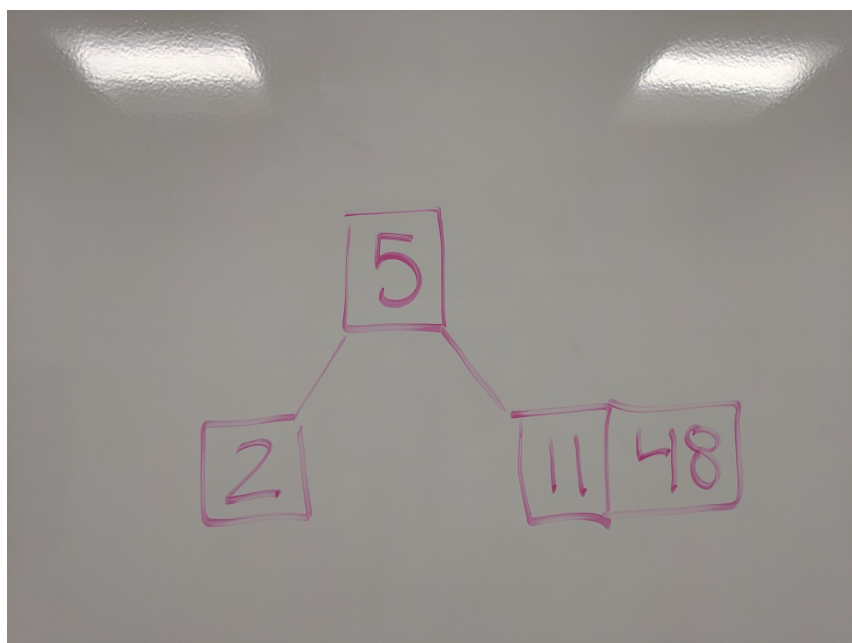


Figure 4: Insert 48

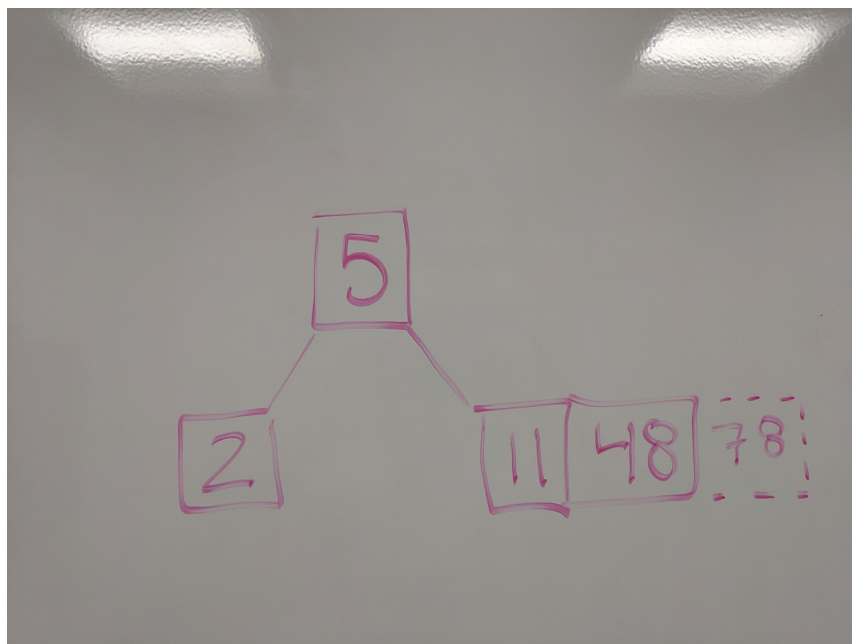


Figure 5: Consider insertion location of 78

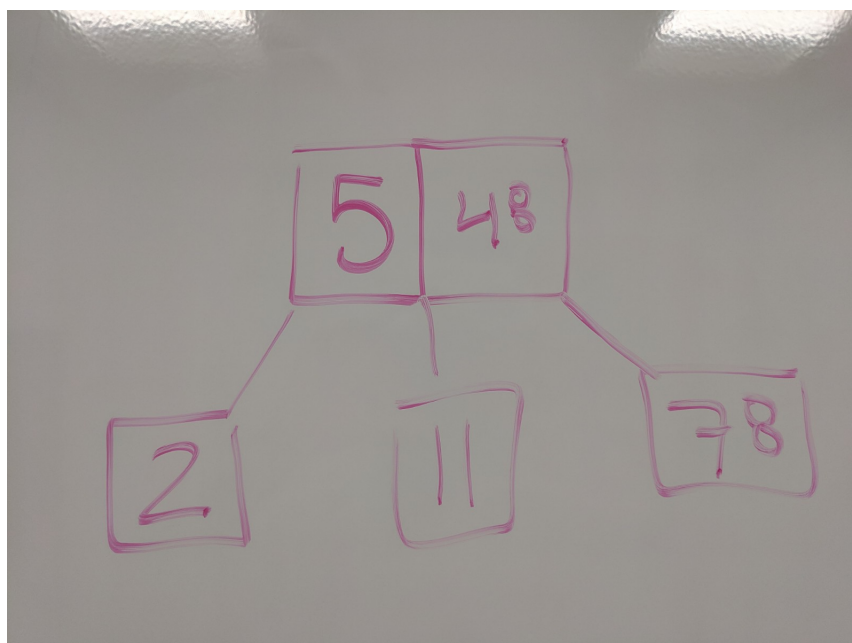


Figure 6: Split and promote 48

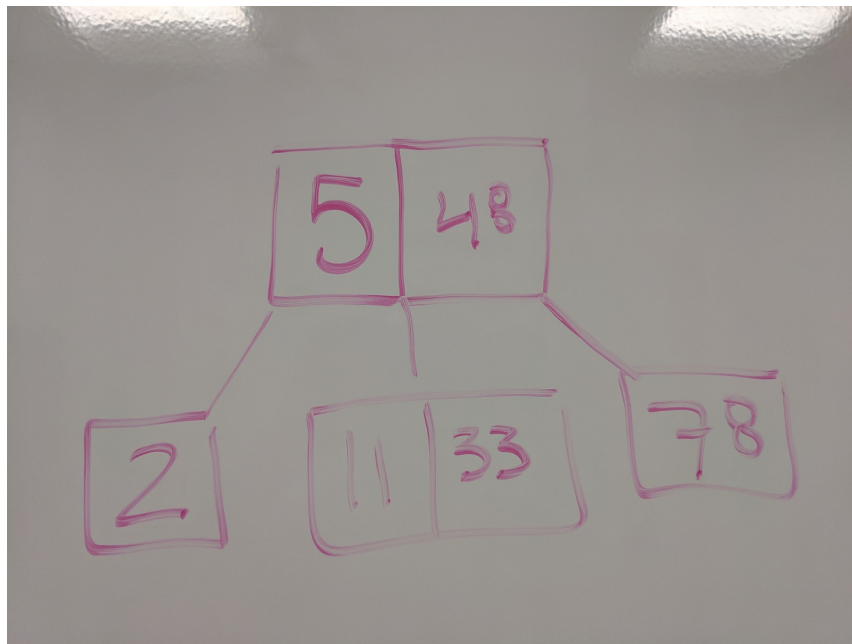


Figure 7: Insert 33

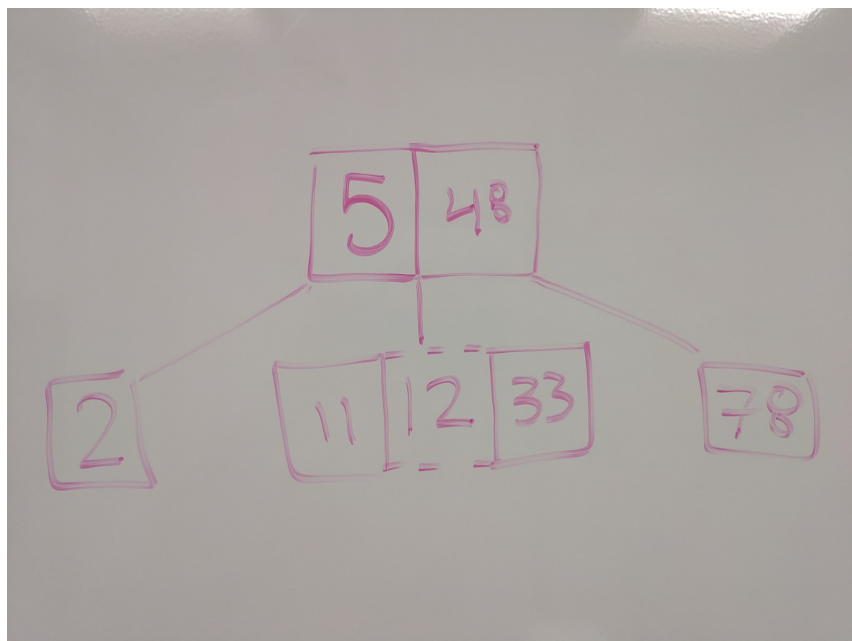


Figure 8: Consider insertion location of 12

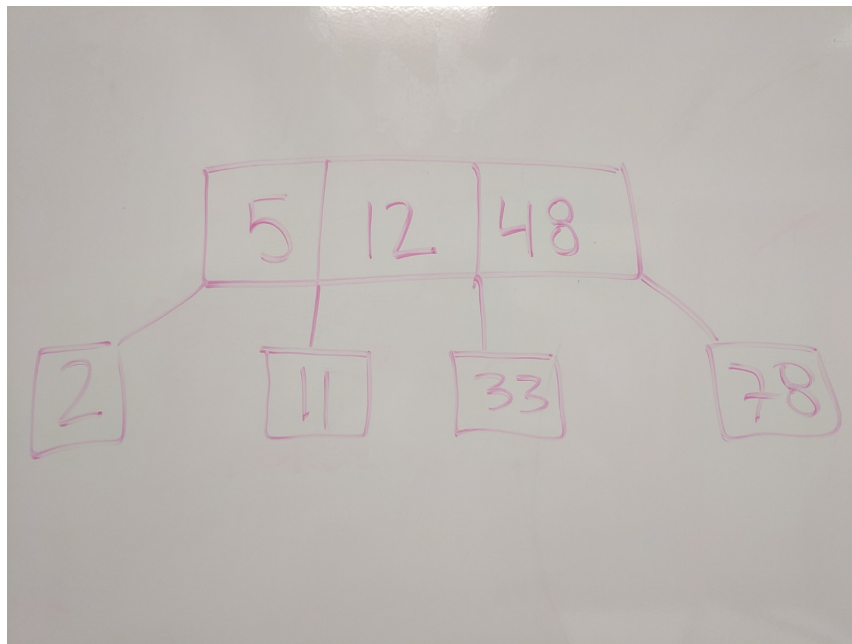


Figure 9: Split and promote 12

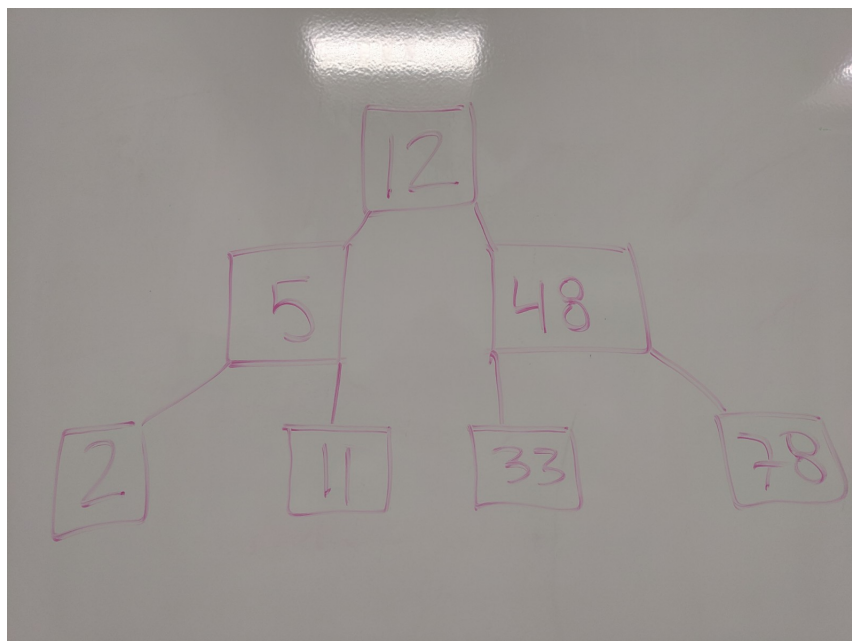


Figure 10: Split and promote 12 a second time



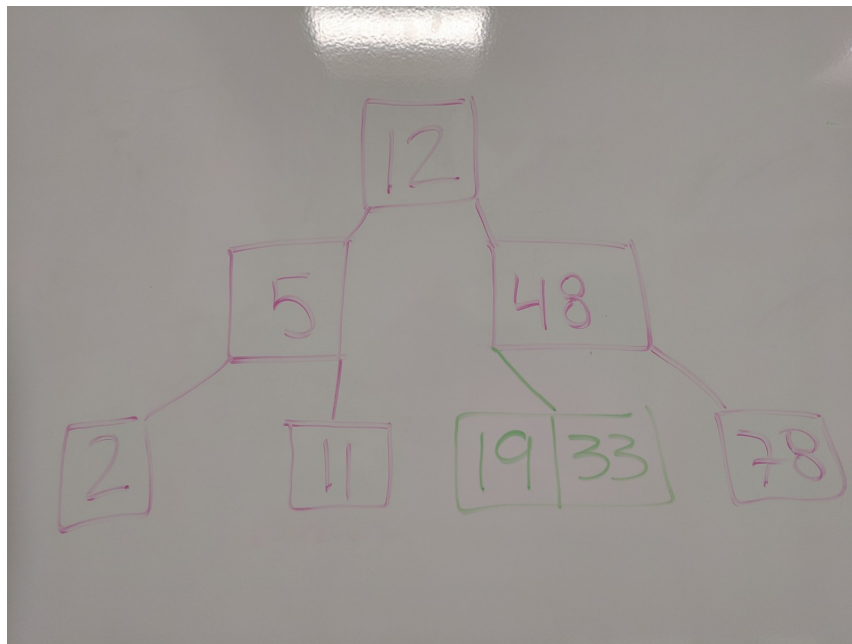


Figure 11: Insert 19

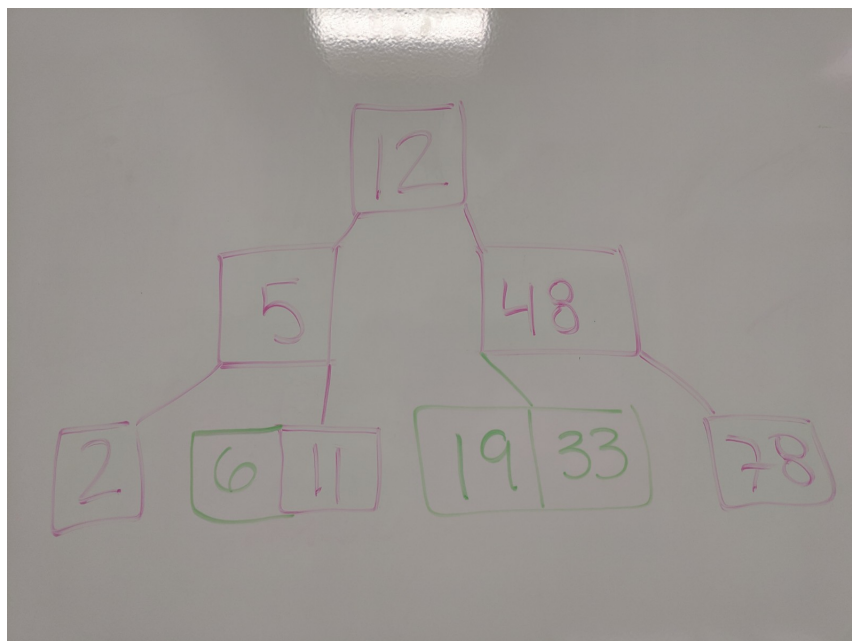


Figure 12: Insert 6

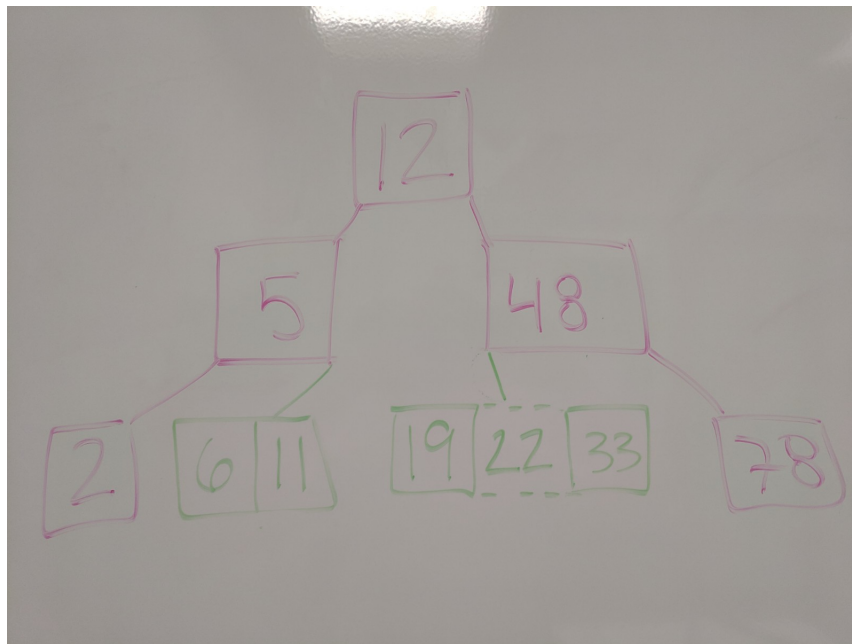


Figure 13: Consider insertion location of 22

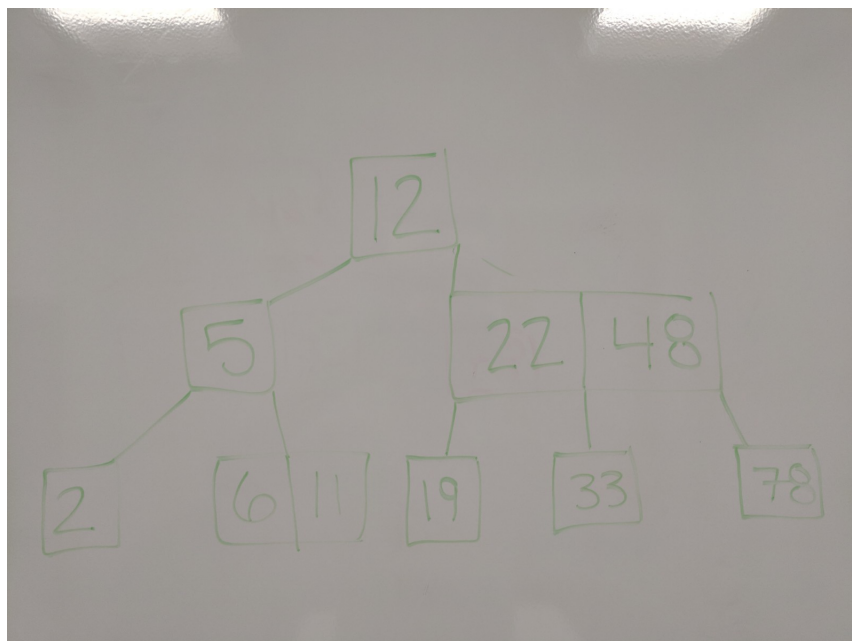


Figure 14: Split and promote 22