Chinthiti Wisetsombat 5710546194

ADT and Problem Solving
HW6

1. Sorting Using Binary Search Tree:
   insert 3: { 3 }
   insert 1: { 1, 3 }
   insert 8: { 1, 3, 8 }
   insert 2: { 1, 2, 3, 8 }
   insert 6: { 1, 2, 3, 6, 8 }
   insert 7: { 1, 2, 3, 6, 7, 8 }
   insert 5: { 1, 2, 3, 5 ,6 ,7 ,8 }
   insert 10: { 1, 2, 3, 5, 6, 7, 8, 10 }
   insert 4: { 1, 2, 3, 4, 5, 6, 7, 8, 10 } <- Result

   Quicksort:
   Initial : { 3, 1, 8, 2, 6, 7, 5, 10, 4 }
   Step 1: { [2, 1] , [3] , [8, 6, 7, 5, 10, 4] }
   Step 2: { [1] , [2], [3] , [4, 7, 6] , [8] , [10] }
   Step 3: { [1], [2] , [3] , [4] , [6] , [7] , [8] , [10] }
   Result: { 1, 2, 3, 4, 5, 6, 7, 8, 10 }

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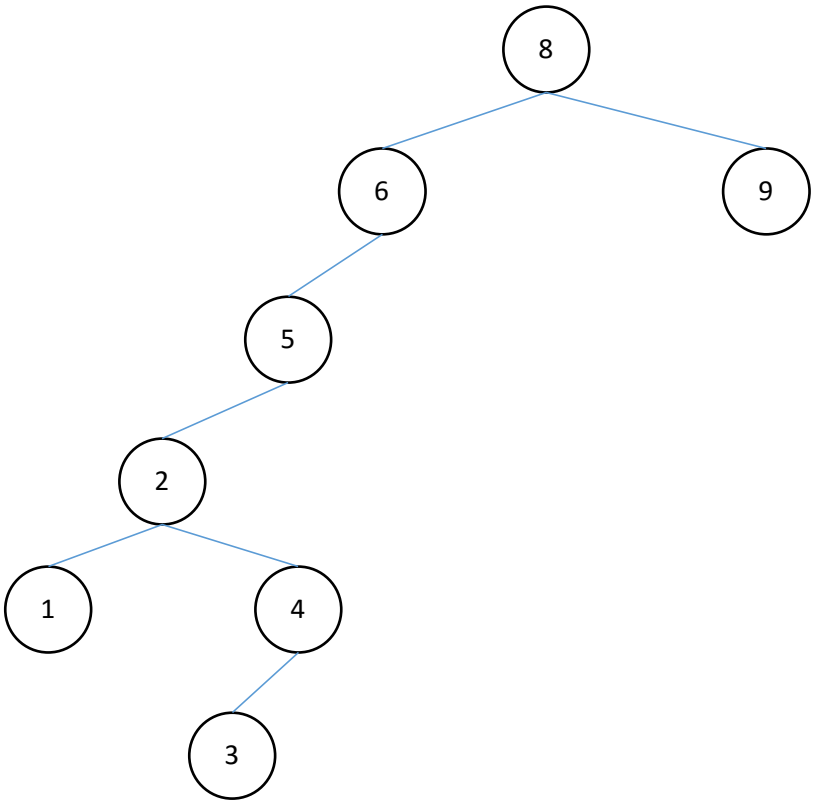
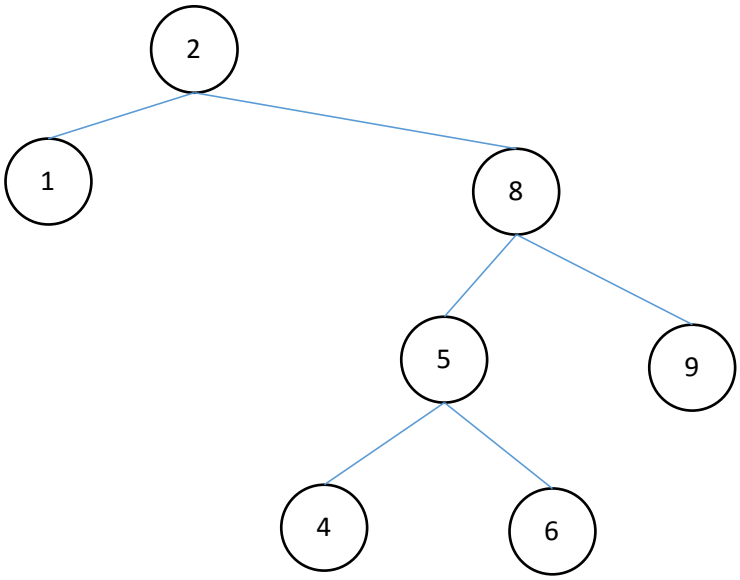
2.



3.



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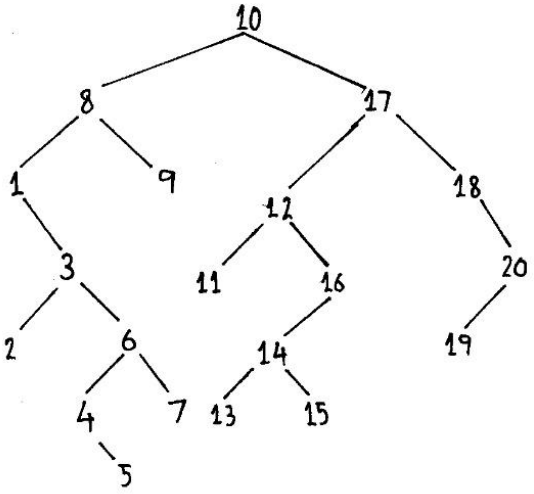
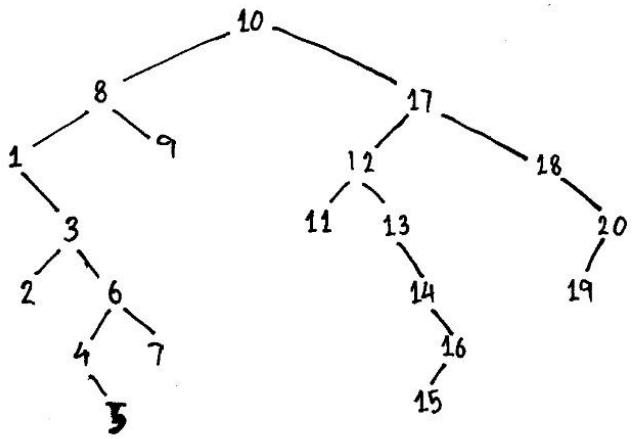
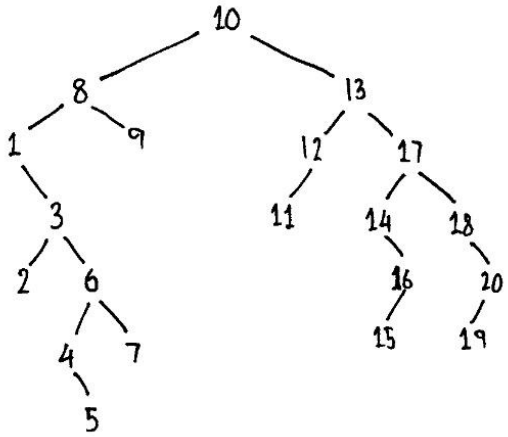
4a ① Initial :



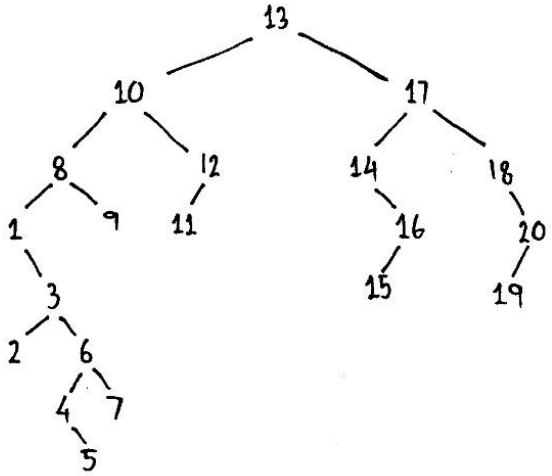
② Zig-Zig :



③ Zig-Zag



④ Zig



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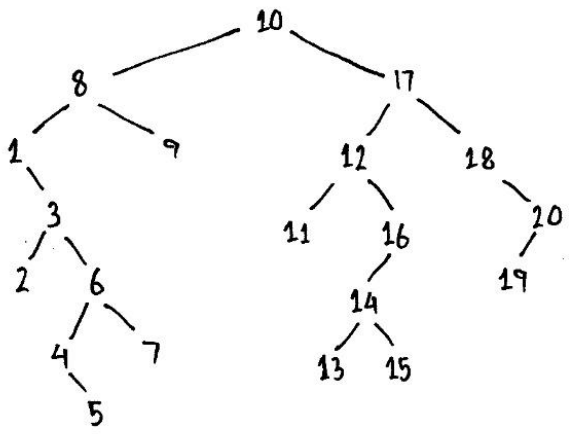
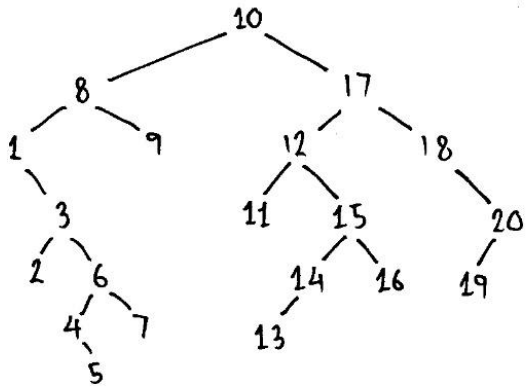
ADT and Problem Solving
HW6

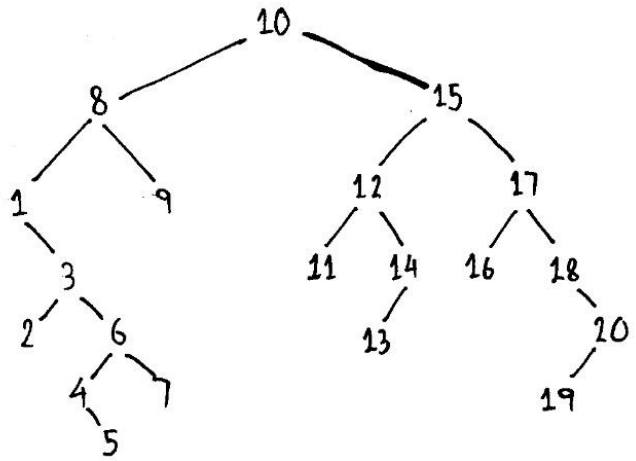
4b ① Initial :



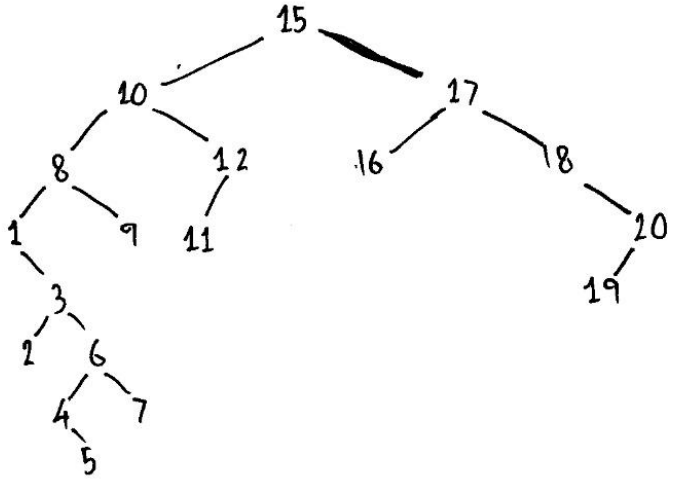
② Zig-Zag



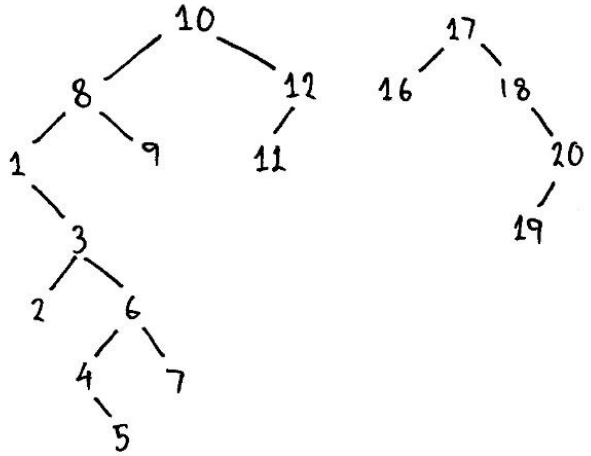
③ Zig-Zag



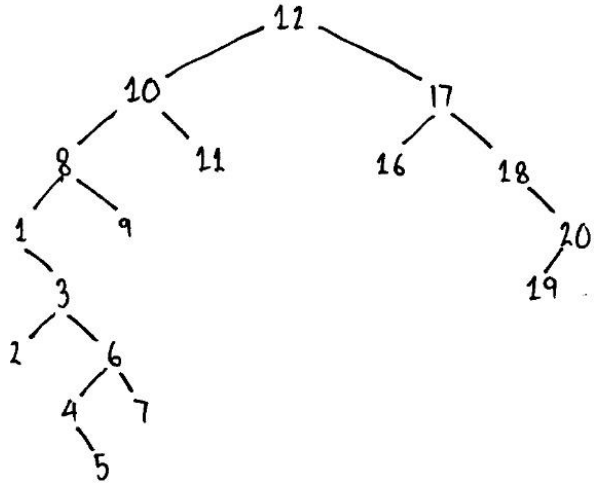
④ Zag



⑤ Delete 15 :



⑥ Joining 2 Trees :



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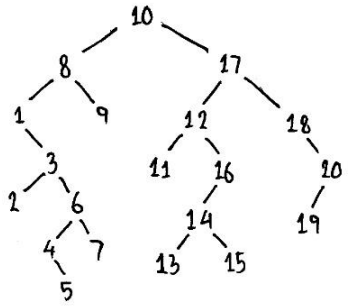
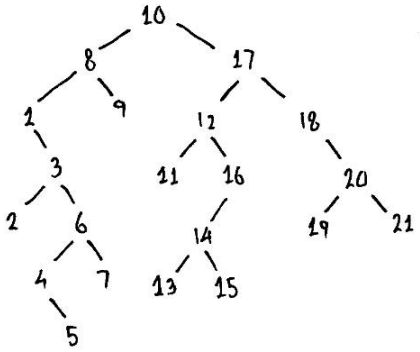
ADT and Problem Solving
HW6

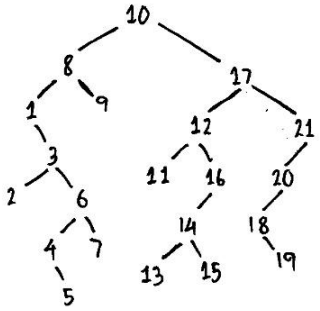
4c ① Initial :



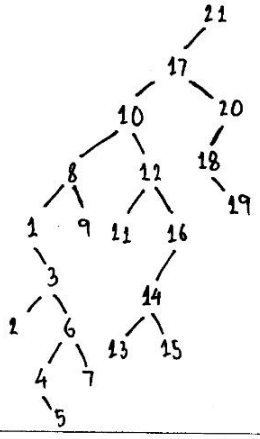
② Insert 21:



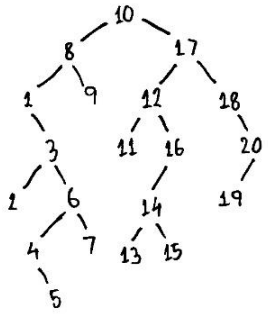
③ Zig-Zig :



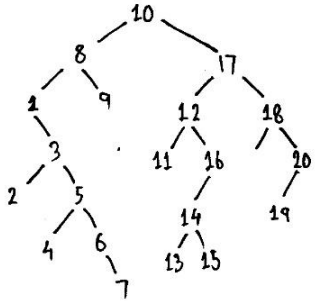
④ Zig-Zig



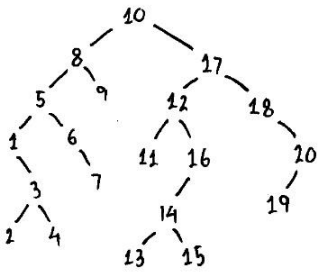
4d ① Initial



② Zig-Zag



③ Zig-Zig



④ Zig-Zig