



# HABIB UNIVERSITY

## Data Structures & Algorithms

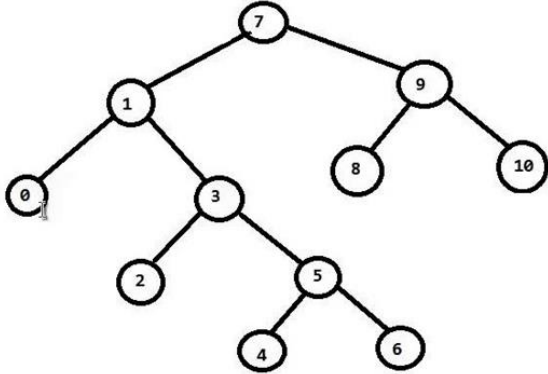
CS/CE 102/171 Spring 2023

Instructor: Maria Samad

### Binary Search Trees – Insertion

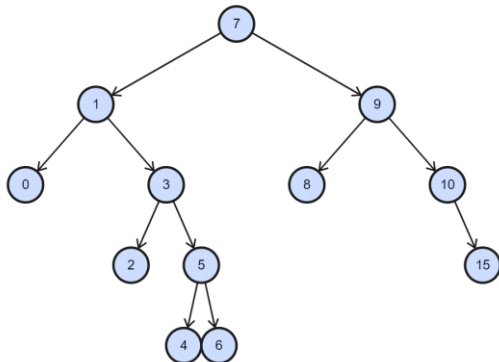
Student Name: \_\_\_\_\_

For the given trees, insert the specified nodes, by showing the Insertion Paths for each:



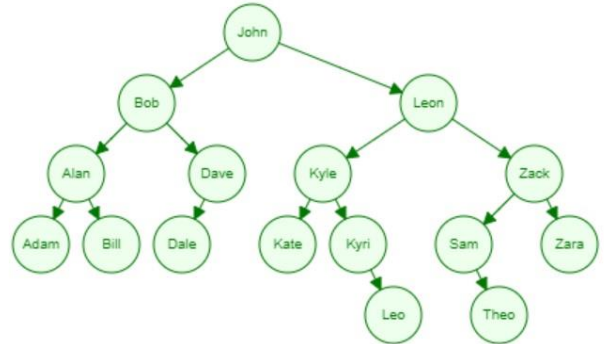
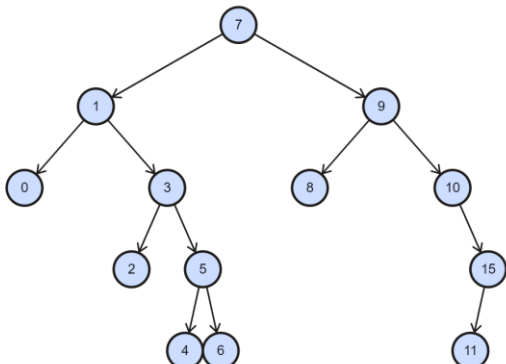
#### Insert Node 15

- Insertion Path = Root: 7 → Right: 9 → Right: 10 → Right: Null
- So insert Node 15 to the right of Node 10



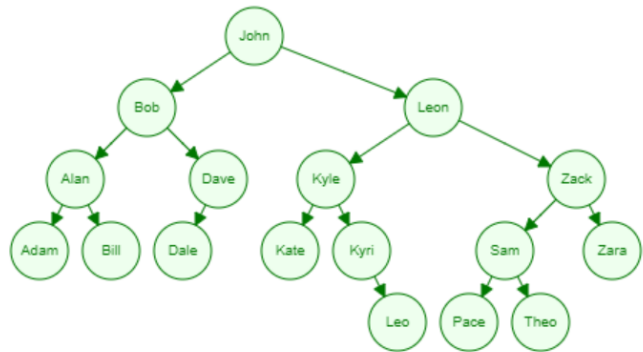
#### Insert Node 11

- Insertion Path = Root: 7 → Right: 9 → Right: 10 → Right: 15 → Left: Null
- So insert Node 11 to the left of Node 15



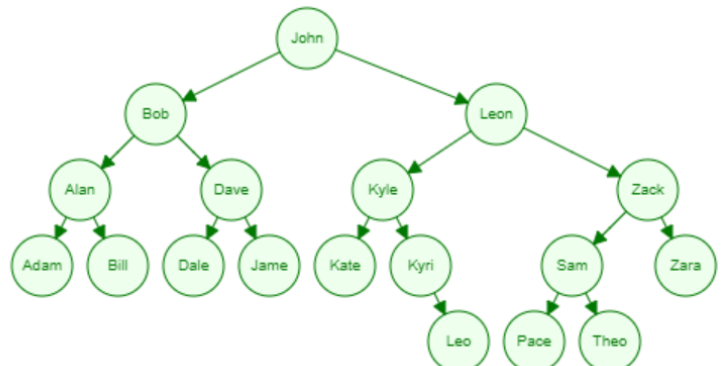
#### Insert Pace:

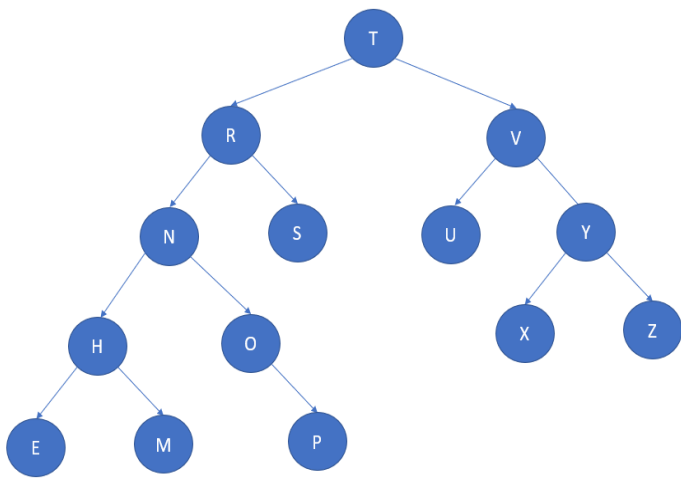
- Insertion Path = Root: John → Right: Leon → Right: Zack → Left: Sam → Left: Null
- So insert Pace to the left of Sam



#### Insert James:

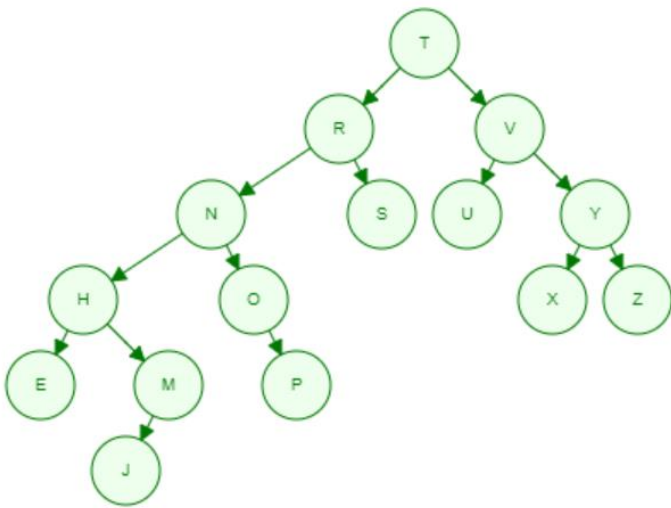
- Insertion Path = Root: John → Left: Bob → Right: Dave → Right: Null
- So insert James to the right of Dave





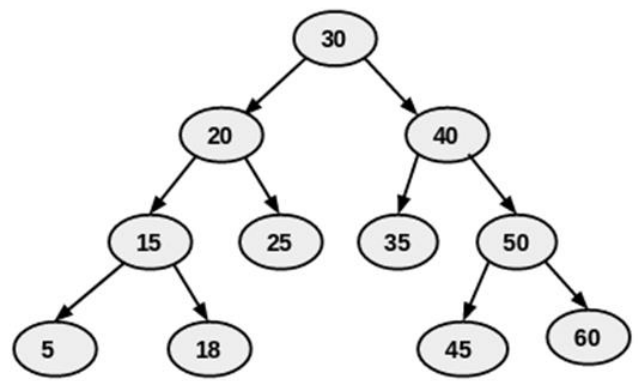
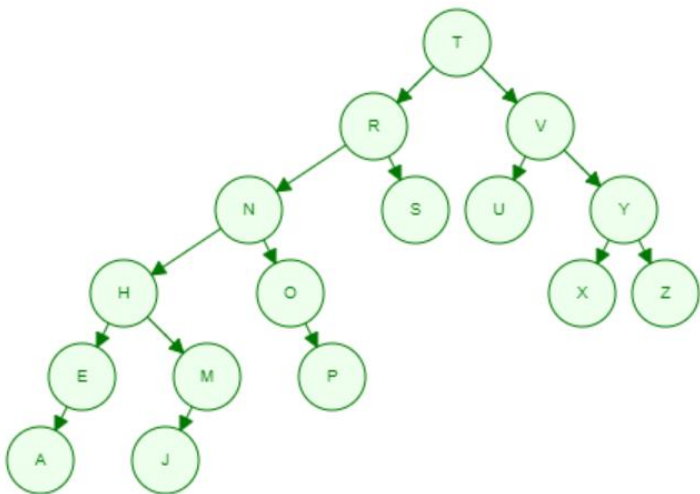
### Insert J

- Insertion Path = Root: T → Left: R → Left: N → Left: H → Right: M → Left: Null
- So insert Node J to the left of Node M



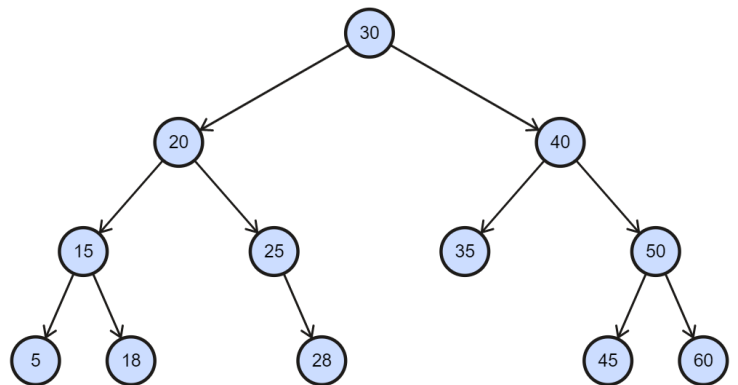
### Insert A

- Insertion Path = Root: T → Left: R → Left: N → Left: H → Left: E → Left: Null
- So insert Node A to the left of Node E



### Insert 28

- Insertion Path = Root: 30 → Left: 20 → Right: 25 → Right: Null
- So insert Node 28 to the right of Node 25



### Insert 33

- Insertion Path = Root: 30 → Right: 40 → Left: 35 → Left: Null
- So insert Node 33 to the left of Node 35

