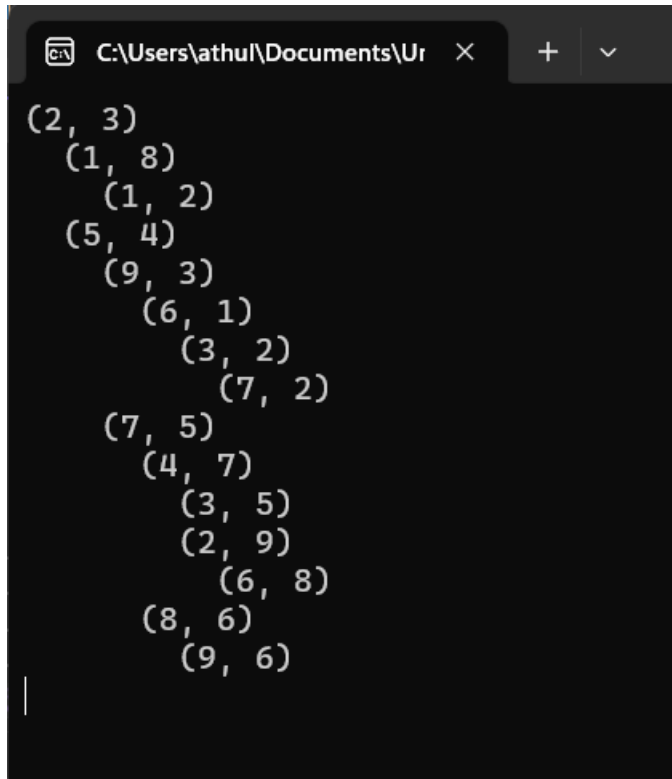


COIS 3020, Winter 2023

KD Tree

Insertion

Values : {2, 3}, {2, 3}, {5, 4}, {1, 8}, {9, 3}, {6, 1}, {7, 5}, {3, 2}, {4, 7}, {2, 9}, {8, 6}, {3, 5}, {1, 2}, {6, 8}, {7, 2}, {9, 6}

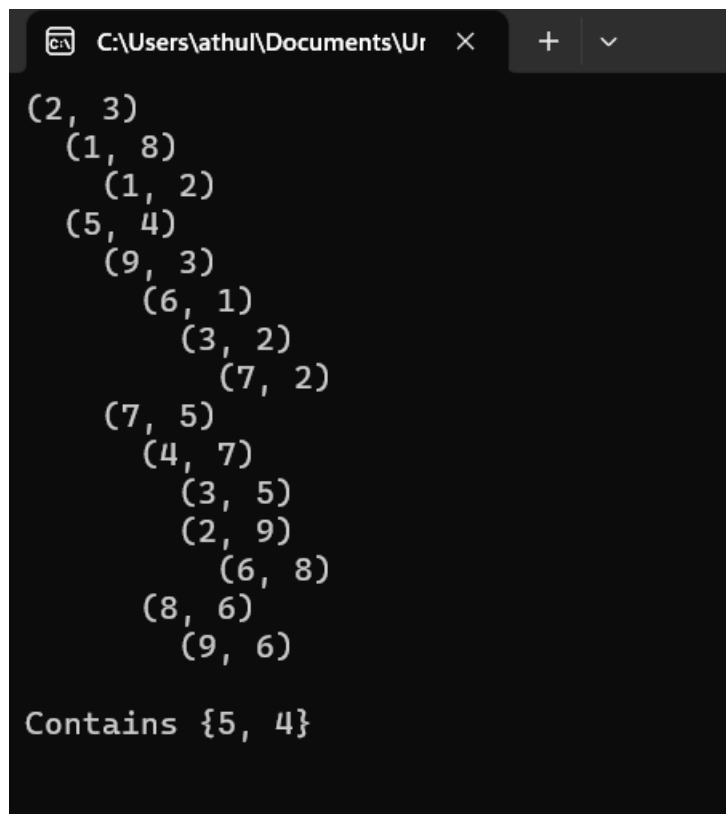


```
C:\Users\athul\Documents\Ur × + ▾  
(2, 3)  
  (1, 8)  
    (1, 2)  
      (5, 4)  
        (9, 3)  
          (6, 1)  
            (3, 2)  
              (7, 2)  
                (7, 5)  
                  (4, 7)  
                    (3, 5)  
                      (2, 9)  
                        (6, 8)  
                          (8, 6)  
                            (9, 6)  
|
```

Deletion

```
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(2, 3)  
  (1, 8)  
    (1, 2)  
      (5, 4)  
        (9, 3)  
          (6, 1)  
            (3, 2)  
              (7, 2)  
                (7, 5)  
                  (4, 7)  
                    (3, 5)  
                      (2, 9)  
                        (6, 8)  
                          (8, 6)  
                            (9, 6)  
  
Tree after deleting {3, 2}  
(2, 3)  
  (1, 8)  
    (1, 2)  
      (5, 4)  
        (9, 3)  
          (6, 1)  
            (3, 2)  
              (7, 2)  
                (7, 5)  
                  (4, 7)  
                    (3, 5)  
                      (2, 9)  
                        (6, 8)  
                          (8, 6)  
                            (9, 6)
```

Contains



```
C:\Users\athul\Documents\Ur  ×  +  ▾  
(2, 3)  
  (1, 8)  
    (1, 2)  
  (5, 4)  
    (9, 3)  
      (6, 1)  
        (3, 2)  
          (7, 2)  
      (7, 5)  
        (4, 7)  
          (3, 5)  
            (2, 9)  
              (6, 8)  
            (8, 6)  
              (9, 6)  
  
Contains {5, 4}
```