DSA INT2210 21 - Assignment 5
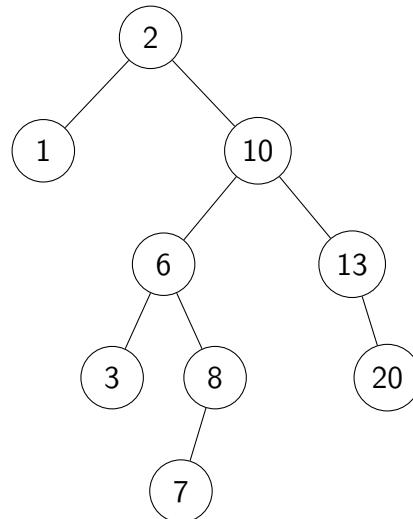
Nguyễn Dình Hoàng - 20021361
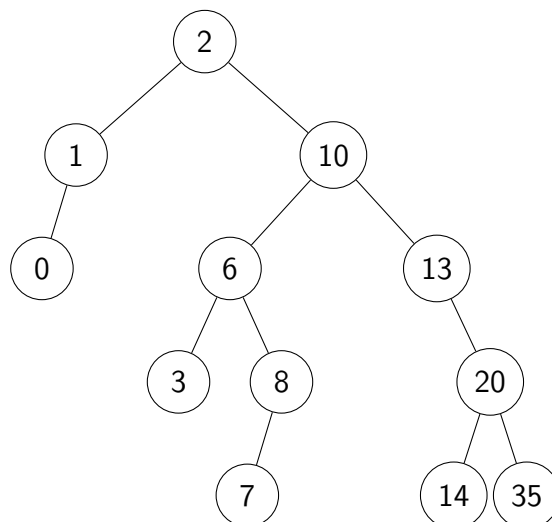
DSA INT2210 21 - Assignment 5

Name: Nguyễn Đình Hoàng - 20021361

1. Code attached below

2. Given a list of integer numbers: $2, 1, 10, 6, 3, 8, 7, 13, 20$.
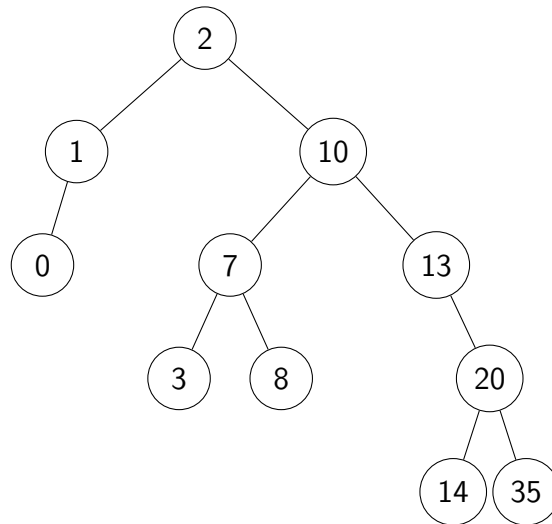
   (a) Draw the binary search tree

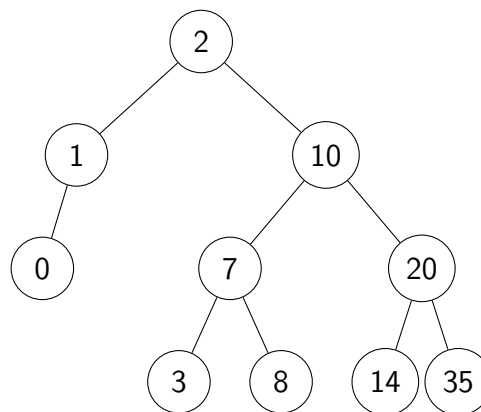   (b) Draw the binary search tree after inserting values: $14, 0, 35$

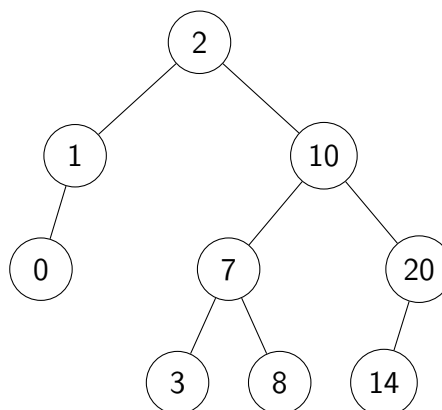   (c) Draw the binary search tree after deleting: $6, 13, 35$

Delete 6:

```
              2
          /       \
         1          10
        /          /   \
       0          7      13
                 / \       \
                3   8       20
                           /  \
                         14    35
```

Delete 13:

```
              2
          /       \
         1          10
        /          /   \
       0          7      20
                 / \    /  \
                3   8  14   35
```

Delete 35:

```
              2
          /       \
         1          10
        /          /   \
       0          7      20
                 / \    /
                3   8  14
```
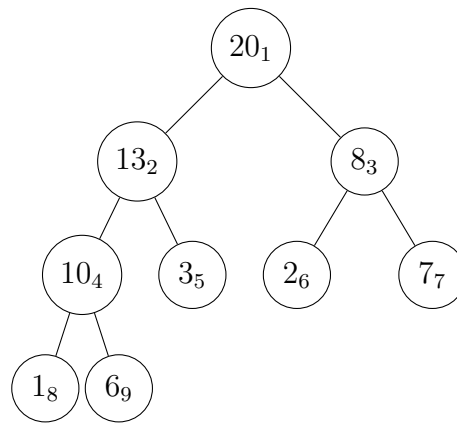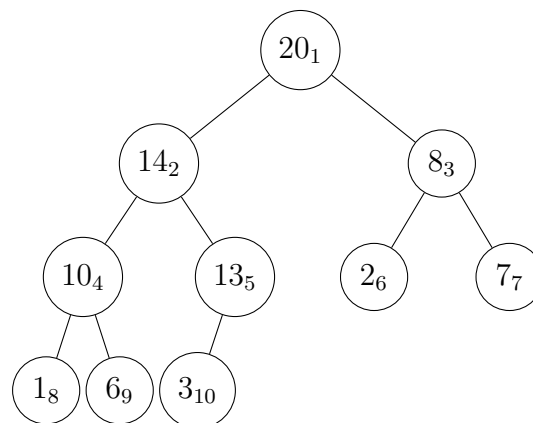
3. Given a list of integer numbers: $2, 1, 10, 6, 3, 8, 7, 13, 20$.
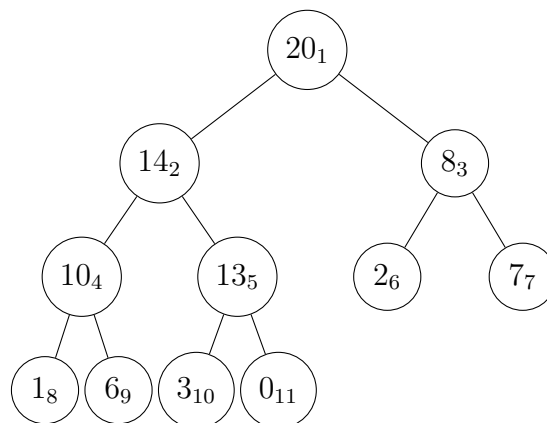
   (a) Draw the heap tree
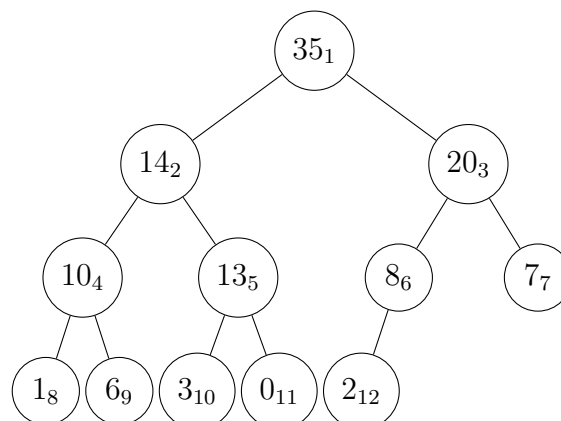
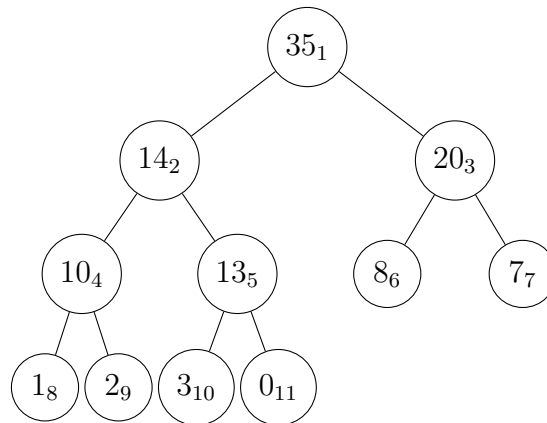(b) Draw the heap tree after inserting values: $14, 0, 35$
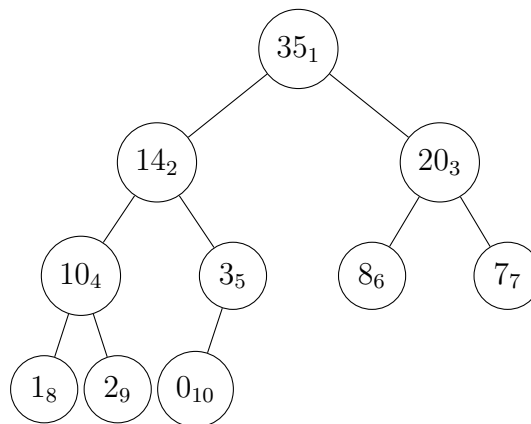Insert 14:

Insert 0:

Insert 35:

(c) Draw the heap tree after deleting: $6, 13, 35$
Delete 6:

```
                        35₁
              14₂                 20₃
         10₄      13₅        8₆       7₇
       1₈  2₉   3₁₀ 0₁₁
```

Delete 13:

```
                        35₁
              14₂                 20₃
         10₄      3₅         8₆       7₇
       1₈  2₉   0₁₀
```

Delete 35:

```
                        14₁
              10₂                 20₃
         1₄       3₅         8₆       7₇
       0₈  2₉
```