4. Write down the array representations of the given 3-ary min-heap after each specified operation.

Original											
10	17	52	49	25	46	27	56	82	67	50	

After removing the minimum once

17	25	52	49	50	46	27	56	82	67		

After removing the minimum twice

25	27	52	49	50	46	67	56	82			

After inserting 35 and 53

25	27	35	49	50	46	67	56	82	52	53	

After inserting 20 and 50

20	27	35	25	50	46	67	56	82	52	53	49

After removing the minimum 10 times

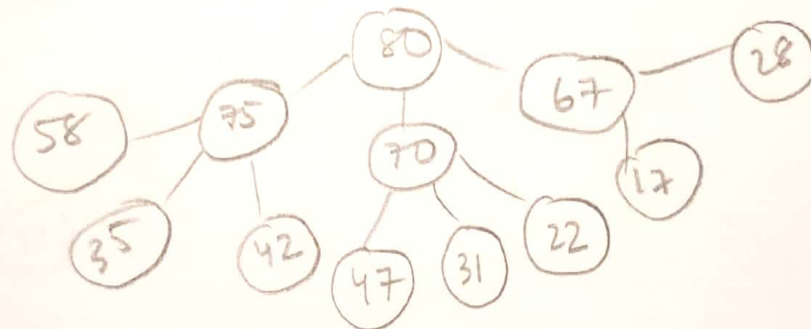|											
67	82										

Scanned by CamScanner

3. Draw the tree representations of the d-ary max-heaps from the following array representation. Choose d = 2, 3, 4.

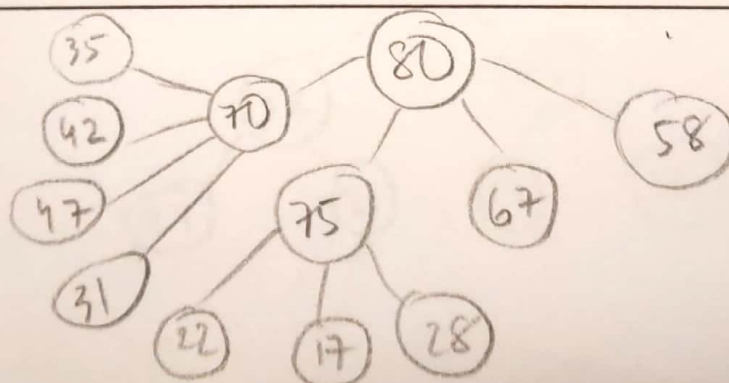Array representation: [80, 70, 75, 67, 58, 35, 42, 47, 31, 22, 17, 28]
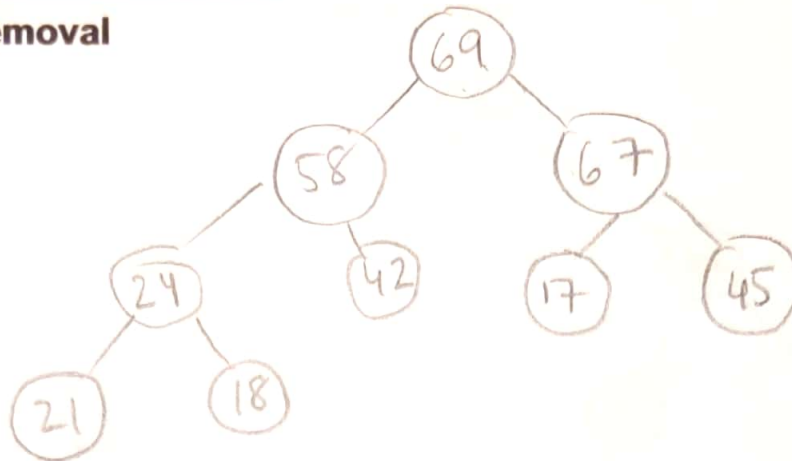
2-ary
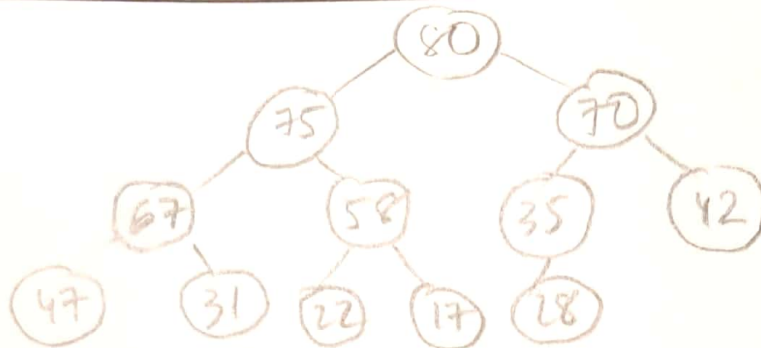
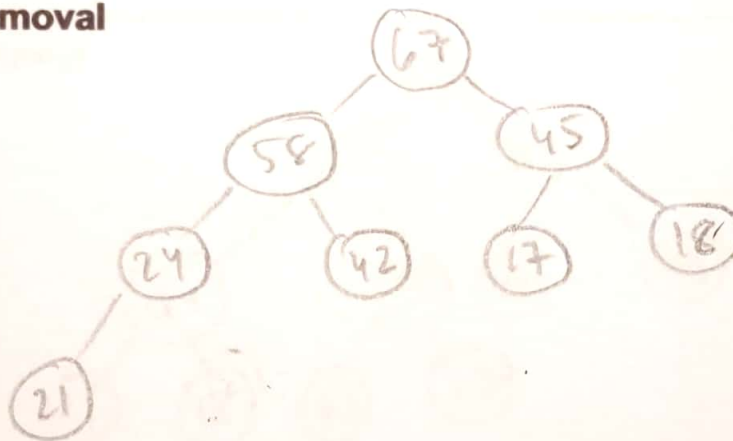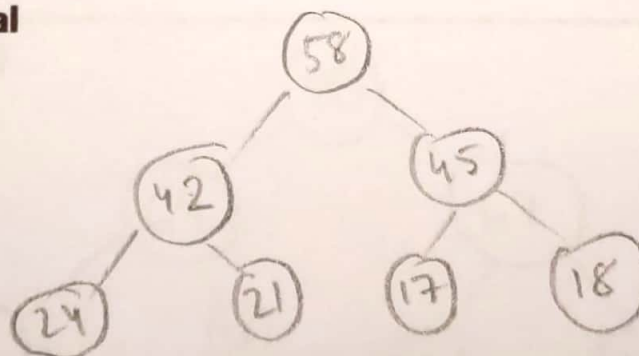
3-ary

4-ary

After 3rd removal

```
                    69
              58          67
          24      42    17    45
        21  18
```

After 4th removal

```
                    67
              58          45
          24      42    17    18
        21
```

After 5th removal
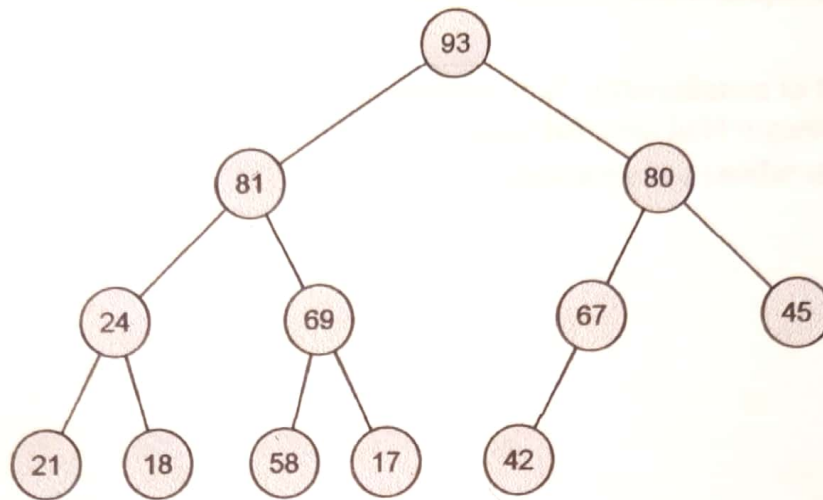
```
                    58
              42          45
          24      21    17    18
```
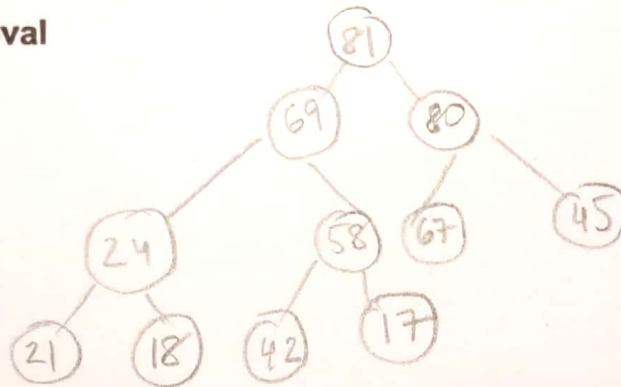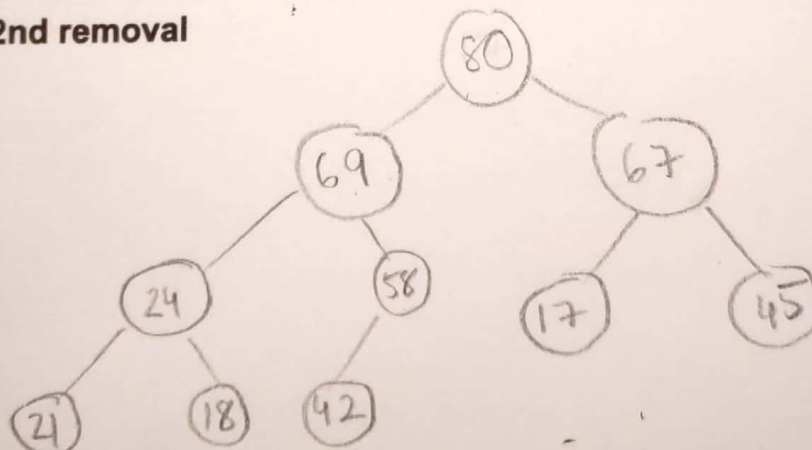
2. Remove the top element 5 times from the given heap and draw the tree representations of the heap after **each** removal.

After 1st removal

After 2nd removal

PA 7 Part 1: Heap Worksheet

DSC 30 Spring 2020 - Marina Langlois

Name	THANH NGUYEN
PID	A15692943

1. Insert the following elements in the given order to an empty binary (d = 2) min-heap. Draw the tree representation of the heap after all insertions.

Elements to insert: [67, 52, 71, 40, 35, 99, 38, 15, 11, 90, 74, 18, 25]