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Objective(s):

     a. To understand heap insertion and removal mechanism.

     b. To understand the relationship between heap and priority queue.

Task 1: Create <mark>directory named pack8_Trees</mark> with package code inside. Study MyMinHeap's

insert(int d) and remove() methods. Test L8_PQ_Main's demo1().

```java
import code.*;
public class L8_PQ_Main {
  static ArrayList<Integer> least3;

  public static void main(String[] args) {
    println("-demo1---");
    demo1();
    // println("-demo2---");
    // demo2();
  }
  static void demo1() {
    least3 = new ArrayList<>();
    MyMinHeap heap = new MyMinHeap();
    heap.insert(11);    heap.insert(15);
    heap.insert(16);    heap.insert(13);
    heap.insert(17);    heap.insert(18);
    println("heap strucutre is " + heap);
    least3.add(heap.remove());
    least3.add(heap.remove());
    least3.add(heap.remove());
    println("least 3 value is " + least3);
  }
  static void demo2() {
    least3 = new ArrayList<>();
    MyPriorityQueue pq = new MyPriorityQueue();
    pq.enqueue(11);    pq.enqueue(15);
    pq.enqueue(16);     pq.enqueue(13);
    pq.enqueue(17);     pq.enqueue(18);
    pq.enqueue(19);   // <-- isFull() is true … discard
    println("pq structure is " + pq);
    least3.add(heap.remove());
    least3.add(heap.remove());
    least3.add(heap.remove());
    println("least 3 value is " + least3);
  }
}
```

Task 2: Given an abstract class MyQueueInterface.java, implement MyPriorityQueue.java from MyMinHeap's capabilities.

Note that MyMinHeap's implementation is rudimentary because it does not check whether the heap is full or empty when insert

```
package code;

public interface MyQueueInterface {
    public void enqueue(int d);mp
    public int dequeue();
    public int front();
    public boolean isFull();
    public boolean isEmpty();
}
```

or remove. Make sure that your enqueue() and dequeue() do not have such mistakes.

Task 3: draw / write the heap snapshot during each dequeue() was performed.

Submission: MyPriorityQueue_XXYYYY.java and this pdf.

Due date: TBA