```java
import java.util.*;

class Main {

    private int x;

    private List<Integer> data;

    public Main(int x) {

        if (x <= 0) {

            throw new IllegalArgumentException("x must be greater than 0");

        }

        this.x = x;

        this.data = new ArrayList<Integer>();

    }


    public void insert(int value) {
```

```java
        data.add(value);

        int index = data.size() - 1;

        int parentIndex = (index - 1) / 2;

        while (parentIndex >= 0 && data.get(parentIndex) < value) {

            Collections.swap(data, parentIndex, index);

            index = parentIndex;

            parentIndex = (index - 1) / 2;

        }

    }


    public int popMax() {

        if (data.size() == 0) {
```

```java
        throw new NoSuchElementException("heap is empty");

    }

int max = data.get(0);

Collections.swap(data, 0, data.size() - 1);

data.remove(data.size() - 1);

int index = 0;

while (index < data.size()) {

  int leftChildIndex = 2 * index + 1;

  int rightChildIndex = 2 * index + 2;

  int leftChild = Integer.MIN_VALUE;

  int rightChild = Integer.MIN_VALUE;

  if (leftChildIndex < data.size()) {
```

```java
    leftChild = data.get(leftChildIndex);

}


if (rightChildIndex < data.size()) {


    rightChild = data.get(rightChildIndex);


}


if (Math.max(leftChild, rightChild) <= data.get(index)) {


    break;


} else if (leftChild >= rightChild) {


    Collections.swap(data, index, leftChildIndex);


    index = leftChildIndex;


} else {


    Collections.swap(data, index, rightChildIndex);
```

```java
            index = rightChildIndex;

        }

    }



    return max;

}


public void display(){
  System.out.println();
    for(int i:data){
        System.out.println(i+"  ");

    }
}


public static void main(String[] args){
    Scanner sc=new Scanner(System.in);


    int m=sc.nextInt();
```

```java
        Main s=new Main(m);

        for(int i=0;i<m;i++){

            s.insert(sc.nextInt());

        }

        System.out.println("Inserted Element !!!");

        s.display();


        System.out.println("after popMax");

        s.popMax();

        s.display();


    }




}
```