

# Projekt del 1

## Algoritmer og datastrukturer(DM507)

Institut for Matematik og Datalogi Syddansk Universitet, Odense

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## Opgave 1

Indsæt beskrivelse

---

```
/**
 * Removes and returns the Element in the heap
 * with the lowest key.
 */
@Override
public Element extractMin() {
    Element min;
    min = heap[0];
    heap[0] = heap[heapsize-1];
    heapsize--;
    minheapify(0);
    return min;
}
```

---

Indsæt beskrivelse

---

```
/**
 * Inserts the Element e into the heap
 *
 * param e - the element to be inserted
 */
@Override
public void insert(Element e) {
    heapsize++;
    heap[heapsize-1] = e;
    decreaseKey(heapsize-1);
}
```

---

## Opgave 2

Indsæt beskrivelse

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```
public boolean search(int k) {
    Node x = root;
    while (x != null && k != x.key) {
        if (k < x.key) {
            x = x.left;
        } else {
            x = x.right;
        }
    }

    if (x == null) {
        return false;
    } else if (x.key == k) {
        return true;
    }
    return false;
}
```

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## Opgave 3