

Hausaufgabe 9.2: Sortierverfahren mit linearer Zeitkomplexität

a)

```
public BucketSort(int m)
{
    buckets = new List[m];
    for(int i = 0; i < buckets.length; i++)
    {
        buckets[i] = new ArrayList();
    }
}

public Integer[] sort(Integer[] a)
{
    for(int i = 0; i < a.length; i++)
    {
        if(a[i].intValue() < 1 || a[i].intValue() > buckets.length)
        {
            throw new IllegalArgumentException("Invalid key: "+a[i]);
        }
        buckets[a[i].intValue()-1].add(a[i]);
    }
    List resultList = new ArrayList();
    for(int i = 0; i < buckets.length; i++)
    {
        resultList.addAll(buckets[i]);
        buckets[i].clear();
    }
    Integer[] result = new Integer[resultList.size()];
    resultList.toArray(result);
    return result;
}
```