Write a program in Java implementing the merge sort algorithm

```
class MergeSort
{

   void merge(int arr[], int l, int m, int r)
   {

      int n1 = m - l + 1;
      int n2 = r - m;

      /* Create temp arrays */
      int L[] = new int [n1];
      int R[] = new int [n2];

      /*Copy data to temp arrays*/
      for (int i=0; i<n1; ++i)
         L[i] = arr[l + i];
      for (int j=0; j<n2; ++j)
         R[j] = arr[m + 1+ j];



      int i = 0, j = 0;

            int k = l;
      while (i < n1 && j < n2)
      {
         if (L[i] <= R[j])
         {
            arr[k] = L[i];
            i++;
         }
         else
```

```
        {
            arr[k] = R[j];
            j++;
        }
        k++;
    }
    while (i < n1)
    {
        arr[k] = L[i];
        i++;
        k++;
    }


    while (j < n2)
    {
        arr[k] = R[j];
        j++;
        k++;
    }
}
void sort(int arr[], int l, int r)
{
    if (l < r)
    {

        int m = (l+r)/2;


        sort(arr, l, m);
        sort(arr , m+1, r);


        merge(arr, l, m, r);
```

```
    }
}

    static void printArray(int arr[])
{
    int n = arr.length;
    for (int i=0; i<n; ++i)
        System.out.print(arr[i] + " ");
    System.out.println();
}
```