Recursive Palindrome String Check:

Write a **recursive** function "void reverse(char str[], char reversed[], int i)"that takes 3 arguments. Original string, reversed string, and index.

In main, you can compare two strings then print to the terminal palindrome or not.
Hints:

- You don't need to take string from user.
- You may use '\0' for end of string.
- You may send the length of original string in main.
- You don't need to use strcpy etc., you can select char by char.
- You may write this function just use three-line code that one is if condition.
- These are just hints, not obligations.

Merge Sort:

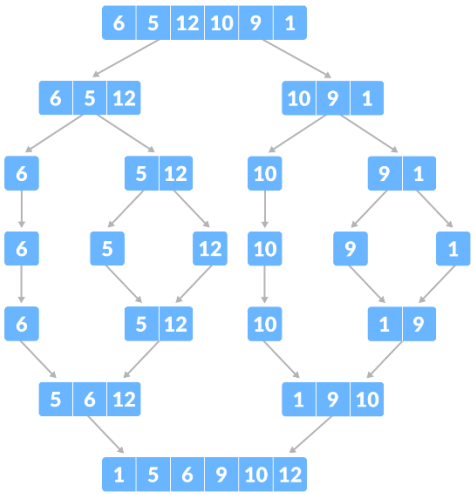
Write a **recursive** sort function "void mergeSort(int arr[], int l, int r)" that takes 3 arguments: Array, left index and right index. You can see the in Figure 1 how it works.

You need to use merge function for sorted subarrays that codes give you in next page.

Hints:

- No hints for this part

Figure 1(How it works):



```
// Merge two subarrays L and M into arr
void merge(int arr[], int p, int q, int r) {

  // Create L ← A[p..q] and M ← A[q+1..r]
  int n1 = q - p + 1;
  int n2 = r - q;

  int L[n1], M[n2];

  for (int i = 0; i < n1; i++)
    L[i] = arr[p + i];
  for (int j = 0; j < n2; j++)
    M[j] = arr[q + 1 + j];

  // Maintain current index of sub-arrays and main array
  int i, j, k;
  i = 0;
  j = 0;
  k = p;

  // Until we reach either end of either L or M, pick larger among
  // elements L and M and place them in the correct position at A[p..r]
  while (i < n1 && j < n2) {
    if (L[i] <= M[j]) {
      arr[k] = L[i];
      i++;
    } else {
      arr[k] = M[j];
      j++;
    }
    k++;
  }

  // When we run out of elements in either L or M,
  // pick up the remaining elements and put in A[p..r]
  while (i < n1) {
    arr[k] = L[i];
    i++;
    k++;
  }

  while (j < n2) {
    arr[k] = M[j];
    j++;
    k++;
  }
}
```