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C program to implement Merge sort

Algorithm

1. Start

2. Input array

3. $j = i$

4. for $i = 1$ to $i < n-1$
   while $(j > 1$ && $a[j] < a[j-1])$
   if $(a[j] < a[j-1])$ then
   $temp = a[j]$
   $a[j] = a[j-1]$
   $a[j-1] = temp, j = j-1.$

5. Output sorted array

6. Stop.

Flowchart

```
                    ( Start )
                        |
                        v
            / Input array /
                        |
                        v
        < for (i=0; i<n; i++) >
                        |
                        v
                 [ j = i ]
                        |
                        v
                 /  while  \
            < ( j >= 1 &&    >  F
             \ a[j]<a[j-1]) /
                |T              |
                v               |
              /  if  \          |
          < a[i]<a[j-1] >  F    |
                |               |
                v               |
          [ temp = a[j]   ]     |
          [ a[j] = a[j-1] ]     |
          [ a[j-1] = temp ]     |
                |               |
                v               |
             [ j = j-1 ]        |
                |               |
                v<--------------
      / Output sorted array /
                |
                v
            ( Stop )
```