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#include<stdio.h>
#include<sys/types.h>
#include<string.h>
#include<pthread.h>
#include<stdlib.h>
#include<unistd.h>
#include<ctype.h>



int partition (int a[], int start, int end)
{
   int pivot = a[end]; // pivot element
   int i = (start - 1);

   for (int j = start; j <= end - 1; j++)
   {
      // If current element is smaller than the pivot
      if (a[j] < pivot)
      {
         i++; // increment index of smaller element
         int t = a[i];
         a[i] = a[j];
         a[j] = t;
      }
   }
   int t = a[i+1];
   a[i+1] = a[end];
   a[end] = t;
   return (i + 1);
}
```

```
/* function to implement quick sort */
void quick(int a[], int start, int end) /* a[] = array to be sorted, start = Starting index, end = Ending index */
{
   if (start < end)
   {
      int p = partition(a, start, end); //p is the partitioning index
      quick(a, start, p - 1);
      quick(a, p + 1, end);
   }
}

void merge(int arr[], int l, int m, int r)
{
   int i, j, k;
   int n1 = m - l + 1;
   int n2 = r - m;

   /* create temp arrays */
   int L[n1], R[n2];

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

   /* Merge the temp arrays back into arr[l..r]*/
   i = 0; // Initial index of first subarray
   j = 0; // Initial index of second subarray
```

```
    k = l; // Initial index of merged subarray
    while (i < n1 && j < n2) {
        if (L[i] <= R[j]) {
            arr[k] = L[i];
            i++;
        }
        else {
            arr[k] = R[j];
            j++;
        }
        k++;
    }

    /* Copy the remaining elements of L[], if there
    are any */
    while (i < n1) {
        arr[k] = L[i];
        i++;
        k++;
    }

    /* Copy the remaining elements of R[], if there
    are any */
    while (j < n2) {
        arr[k] = R[j];
        j++;
        k++;
    }
}

/* l is for left index and r is right index of the
```

```
sub-array of arr to be sorted */
void mergeSort(int arr[], int l, int r)
{
    if (l < r) {
        // Same as (l+r)/2, but avoids overflow for
        // large l and h
        int m = l + (r - l) / 2;

        // Sort first and second halves
        mergeSort(arr, l, m);
        mergeSort(arr, m + 1, r);

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

int main()
{
  pid_t p;
  int n;
  printf("Enter the number of elements");
   scanf("%d",&n);
   int a[n];

   for(int i=0;i<n;i++)
  {
    printf("Enter %d th element  ",(i+1));
    scanf("%d",&a[i]);
   }

   p=fork();
```

```
 quick(a,0,n-1);
  if(p==0)
   {

     printf("Process is child, ID is %d \n",getpid());
     printf(" Parent's process, ID is %d \n",getppid());
     quick(a,0,n-1);
    printf("After sorting elemets are ");
    for(int i=0;i<n;i++)
    {
      printf("%d ",a[i]);
    }

  }

  else{
      printf("Process is in Parent ,ID is %d \n",getpid());
     mergeSort(a,0,n-1);
     printf("After merge Sort elements are \n ");

    for(int i=0;i<n;i++)
    {
      printf("%d ",a[i]);
    }
    }
   return 0;
}
```

Plagiarism Detector .net

Nov 08, 2022

Plagiarism Scan Report

Characters:6962	Words:996
Sentences:66	Speak Time: 8 Min

Excluded URL	None

Content Checked for Plagiarism

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int partition (int a[], int start, int end)
{
   int pivot = a[end]; // pivot element
   int i = (start - 1);

   for (int j = start; j <= end - 1; j++)
   {
      // If current element is smaller than the pivot
      if (a[j] < pivot)
      {
         i++; // increment index of smaller element
         int t = a[i];
         a[i] = a[j];
         a[j] = t;
      }
   }
   int t = a[i+1];
   a[i+1] = a[end];
   a[end] = t;
   return (i + 1);
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```

```
/* function to implement quick sort */
void quick(int a[], int start, int end) /* a[] = array to be sorted, start = Starting index, end = Ending index */
{
   if (start < end)
   {
      int p = partition(a, start, end); //p is the partitioning index
      quick(a, start, p - 1);
      quick(a, p + 1, end);
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}

void merge(int arr[], int l, int m, int r)
{
   int i, j, k;
   int n1 = m - l + 1;
   int n2 = r - m;

   /* create temp arrays */
   int L[n1], R[n2];

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

   /* Merge the temp arrays back into arr[l..r]*/
   i = 0; // Initial index of first subarray
   j = 0; // Initial index of second subarray
```

```
    k = l; // Initial index of merged subarray
    while (i < n1 && j < n2) {
        if (L[i] <= R[j]) {
            arr[k] = L[i];
            i++;
        }
        else {
            arr[k] = R[j];
            j++;
        }
        k++;
    }

    /* Copy the remaining elements of L[], if there
    are any */
    while (i < n1) {
        arr[k] = L[i];
        i++;
        k++;
    }

    /* Copy the remaining elements of R[], if there
    are any */
    while (j < n2) {
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/* l is for left index and r is right index of the
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```
sub-array of arr to be sorted */
void mergeSort(int arr[], int l, int r)
{
    if (l < r) {
        // Same as (l+r)/2, but avoids overflow for
        // large l and h
        int m = l + (r - l) / 2;

        // Sort first and second halves
        mergeSort(arr, l, m);
        mergeSort(arr, m + 1, r);

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

int main()
{
  pid_t p;
  int n;
  printf("Enter the number of elements");
   scanf("%d",&n);
   int a[n];

   for(int i=0;i<n;i++)
  {
    printf("Enter %d th element  ",(i+1));
    scanf("%d",&a[i]);
   }

   p=fork();
```

```
 quick(a,0,n-1);
  if(p==0)
   {

     printf("Process is child, ID is %d \n",getpid());
     printf(" Parent's process, ID is %d \n",getppid());
     quick(a,0,n-1);
    printf("After sorting elemets are ");
    for(int i=0;i<n;i++)
    {
      printf("%d ",a[i]);
    }

  }

  else{
      printf("Process is in Parent ,ID is %d \n",getpid());
     mergeSort(a,0,n-1);
     printf("After merge Sort elements are \n ");

    for(int i=0;i<n;i++)
    {
      printf("%d ",a[i]);
    }
    }
   return 0;
}
```

Plagiarism Detector .net

Nov 08, 2022

Plagiarism Scan Report

Characters:6962	Words:996
Sentences:66	Speak Time: 8 Min

Excluded URL	None

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{
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   int i = (start - 1);

   for (int j = start; j <= end - 1; j++)
   {
      // If current element is smaller than the pivot
      if (a[j] < pivot)
      {
         i++; // increment index of smaller element
         int t = a[i];
         a[i] = a[j];
         a[j] = t;
      }
   }
   int t = a[i+1];
   a[i+1] = a[end];
   a[end] = t;
   return (i + 1);
}
```

```
/* function to implement quick sort */
void quick(int a[], int start, int end) /* a[] = array to be sorted, start = Starting index, end = Ending index */
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   if (start < end)
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      int p = partition(a, start, end); //p is the partitioning index
      quick(a, start, p - 1);
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   int i, j, k;
   int n1 = m - l + 1;
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   /* create temp arrays */
   int L[n1], R[n2];

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

   /* Merge the temp arrays back into arr[l..r]*/
   i = 0; // Initial index of first subarray
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    k = l; // Initial index of merged subarray
    while (i < n1 && j < n2) {
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            arr[k] = L[i];
            i++;
        }
        else {
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            j++;
        }
        k++;
    }

    /* Copy the remaining elements of L[], if there
    are any */
    while (i < n1) {
        arr[k] = L[i];
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int main()
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   int a[n];

   for(int i=0;i<n;i++)
  {
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    scanf("%d",&a[i]);
   }

   p=fork();
```

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     quick(a,0,n-1);
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    {
      printf("%d ",a[i]);
    }

  }

  else{
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    }
   return 0;
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Plagiarism Detector .net

Nov 08, 2022

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         a[i] = a[j];
         a[j] = t;
      }
   }
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      R[j] = arr[m + 1 + j];

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            arr[k] = L[i];
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        else {
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    }

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    while (j < n2) {
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        merge(arr, l, m, r);
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}

int main()
{
  pid_t p;
  int n;
  printf("Enter the number of elements");
   scanf("%d",&n);
   int a[n];

   for(int i=0;i<n;i++)
  {
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    scanf("%d",&a[i]);
   }

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```
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  if(p==0)
   {

     printf("Process is child, ID is %d \n",getpid());
     printf(" Parent's process, ID is %d \n",getppid());
     quick(a,0,n-1);
    printf("After sorting elemets are ");
    for(int i=0;i<n;i++)
    {
      printf("%d ",a[i]);
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      printf("Process is in Parent ,ID is %d \n",getpid());
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     printf("After merge Sort elements are \n ");

    for(int i=0;i<n;i++)
    {
      printf("%d ",a[i]);
    }
    }
   return 0;
}
```

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