DSA Lab 4

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**Radix Sort**

#include <stdio.h>

#include <stdlib.h>

#include <stdbool.h>

#define MAX 100

void radixsort(int arr[], int n)

{

int max = arr[0];

for (int i = 1; i < n; i++)

{

if (arr[i] > max)

max = arr[i];

}

for (int exp = 1; max / exp > 0; exp \*= 10)

{

int output[n];

int i, count[10] = {0};

for (i = 0; i < n; i++)

count[(arr[i] / exp) % 10]++;

for (i = 1; i < 10; i++)

count[i] += count[i - 1];

for (i = n - 1; i >= 0; i--)

{

output[count[(arr[i] / exp) % 10] - 1] = arr[i];

count[(arr[i] / exp) % 10]--;

}

for (i = 0; i < n; i++)

arr[i] = output[i];

}

}

int main()

{

int arr[MAX], n;

printf("Enter the number of elements: ");

scanf("%d", &n);

printf("Enter the elements: ");

for (int i = 0; i < n; i++)

{

scanf("%d", &arr[i]);

}

radixsort(arr, n);

printf("Sorted array: ");

for (int i = 0; i < n; i++)

{

printf("%d ", arr[i]);

}

return 0;

}

**Output**

**Text

Description automatically generated**