Assignment - 15 A Job Ready Bootcamp in C++, DSA and IOT MySirG

Array and Functions in C Language

1. Write a function to find the greatest number from the given array of any size. (TSRS)

#include<stdio.h>

int greatestNum(int a[], int n)

{

int gNum = a[0];

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

{

if(gNum < a[i])

gNum = a[i];

}

return gNum;

}

int main()

{

int size,gNumber;

printf("Enter Array size: ");

scanf("%d",&size);

int arr[size];

printf("Enter %d Element in Array: \n",size);

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

{

printf("Enter %d Element: ",i+1);

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

}

gNumber = greatestNum(arr,size);

printf("\nGreatest Number is: %d",gNumber);

return 0;

}

2. Write a function to find the smallest number from the given array of any size. (TSRS)

#include<stdio.h>

int greatestNum(int a[], int n)

{

int sNum = a[0];

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

{

if(sNum > a[i])

sNum = a[i];

}

return sNum;

}

int main()

{

int size,sNumber;

printf("Enter Array size: ");

scanf("%d",&size);

int arr[size];

printf("Enter %d Element in Array: \n",size);

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

{

printf("Enter %d Element: ",i+1);

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

}

sNumber = greatestNum(arr,size);

printf("\nSmallest Number is: %d",sNumber);

return 0;

}

3. Write a function to sort an array of any size. (TSRS)

#include<stdio.h>

void sortArray(int a[], int n)

{

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

{

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

{

if(a[i]>a[j])

{

int temp = a[j];

a[j] = a[i];

a[i] = temp;

}

}

}

}

int main()

{

int size;

printf("Enter Array size: ");

scanf("%d",&size);

int arr[size];

printf("Enter %d Element in Array: \n",size);

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

{

printf("Enter %d Element: ",i+1);

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

}

sortArray(arr,size);

printf("\nAfter sorted element is: ");

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

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

return 0;

}

4. Write a function to rotate an array by n position in d direction. The d is an indicative

value for left or right. (For example, if array of size 5 is [32, 29, 40, 12, 70]; n is 2 and

d is left, then the resulting array after left rotation 2 times is [40, 12, 70, 32, 29] )

#include<stdio.h>

void sortArray(int a[], int n)

{

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

{

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

{

if(a[i]>a[j])

{

int temp = a[j];

a[j] = a[i];

a[i] = temp;

}

}

}

}

int main()

{

int size;

printf("Enter Array size: ");

scanf("%d",&size);

int arr[size];

printf("Enter %d Element in Array: \n",size);

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

{

printf("Enter %d Element: ",i+1);

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

}

sortArray(arr,size);

printf("\nAfter sorted element is: ");

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

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

return 0;

}

5. Write a function to find the first occurrence of adjacent duplicate values in the array.Function has to return the value of the element.

#include<stdio.h>

int firstDValue(int arr[],int arrSize)

{

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

if(arr[i]==arr[i-1])

return arr[i];

return -1;

}

int main()

{

int arrSize,firstDupliValue;

printf("How many number you want to enter: ");

scanf("%d",&arrSize);

int arr[arrSize];

printf("Enter %d Number: ",arrSize);

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

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

firstDupliValue = firstDValue(arr,arrSize);

if(firstDupliValue!=-1)

printf("First Adajanct Duplicate value is: %d",firstDupliValue);

else

printf("No Value hai Duplicate Occurance!");

return 0;

}

6. Write a function in C to read n number of values in an array and display it in reverse

order.

#include<stdio.h>

void reverseArary(int arr[], int arrSize)

{

printf("\nReverse Order Array Display: ");

for(int i=arrSize-1; i>=0; i--)

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

}

int main()

{

int arrSize;

printf("How many number you want to enter: ");

scanf("%d",&arrSize);

int arr[arrSize];

printf("Enter %d Number: ",arrSize);

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

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

reverseArary(arr,arrSize);

return 0;

}

7. Write a function in C to count a total number of duplicate elements in an array.

#include<stdio.h>

int countDupliElement(int arr[],int arrSize)

{

int count=0;

// sorting

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

{

for(int j=i+1; j<arrSize; j++)

{

if(arr[i]<arr[j])

{

int temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

}

// Count\_Duplicate\_Value

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

{

if(arr[i]==arr[i-1])

count++;

}

return count;

}

int main()

{

int arrSize;

printf("How many number you want to enter: ");

scanf("%d",&arrSize);

int arr[arrSize];

printf("Enter %d Number: ",arrSize);

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

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

printf("\nTotal Duplicate Value in Array: %d",countDupliElement(arr,arrSize));

return 0;

}

8. Write a function in C to print all unique elements in an array.

#include<stdio.h>

void printUniqueElement(int arr[],int arrSize)

{

int i,j,flag;

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

{

flag = 1;

for(j=0; j<arrSize; j++)

{

if(i!=j && arr[i]==arr[j])

{

flag = 0;

break;

}

}

if(flag)

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

}

}

int main()

{

int arrSize;

printf("How many number you want to enter: ");

scanf("%d",&arrSize);

int arr[arrSize];

printf("Enter %d Number: ",arrSize);

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

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

printf("\nAll Unique Element: ");

printUniqueElement(arr,arrSize);

return 0;

}

9. Write a function in C to merge two arrays of the same size sorted in descending

order.

#include <stdio.h>

void mergeArary(int a[], int b[], int merge[], int arrSize)

{

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

{

merge[i] = a[i];

merge[arrSize + i] = b[i];

}

}

int main()

{

int arrSize;

printf("How many numbers you want to enter(both Array): ");

scanf("%d", &arrSize);

int a[arrSize], b[arrSize];

printf("Enter %d Numbers in First Array\n", arrSize);

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

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

printf("Enter %d Numbers in Second Array\n", arrSize);

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

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

int merge[arrSize \* 2]; // store merge arrays element

mergeArary(a, b, merge, arrSize);

printf("\nAfter Merging: ");

for (int i = 0; i < arrSize \* 2; i++)

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

return 0;

}

10. Write a function in C to count the frequency of each element of an array.

#include <stdio.h>

void printUniqueElement(int arr[], int arrSize)

{

// Sort Array

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

{

for (int j = i + 1; j < arrSize; j++)

{

if (arr[i] > arr[j])

{

int temp = arr[j];

arr[j] = arr[i];

arr[i] = temp;

}

}

}

// print Unique Element

int count, i = 0, j;

while (i < arrSize)

{

count = 0;

for (j = i; j < arrSize; j++)

{

if (arr[i] == arr[j])

count++;

else

break;

}

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

i = j;

}

}

int main()

{

int arrSize;

printf("How many numbers you want to enter(both Array): ");

scanf("%d", &arrSize);

int arr[arrSize];

printf("Enter %d Numbers in Array\n", arrSize);

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

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

printUniqueElement(arr, arrSize);

return 0;

}