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 greater(int arr[],int n)
{
    int greater=arr[0];
    for(int i=0;i<n;i++)
    {
        if(greater<arr[i])
        greater=arr[i];
    }
    return greater;
}

int main()
{
    int arr[]={22,33,234,1,232,23,22233,1222},n;
    n=sizeof(arr)/sizeof(arr[0]);
    printf("%d is the greatest ",greater(arr,n));
    return 0;
}
```

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

```
#include<stdio.h>
int smallest(int arr[],int n)
{
    int small=arr[0];
    for(int i=0;i<n;i++)
    if(small>arr[i])
    small=arr[i];
    return small;
}


int main()
{
    int arr[]={1,2,3,4,5,-5,66,77},n;
    n=sizeof(arr)/sizeof(int);
    printf("%d is the smallest",smallest(arr,n));
    return 0;
}
```

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

```
#include<stdio.h>
void sort(int arr[],int n)
{
    for(int i=0;i<n;i++)
    {
        int index=i,min=arr[i];
        for(int j=i;j<n;j++)
        {
            if(arr[j]<min)
            {
                min=arr[j];
                index=j;
            }
        }
     int temp=arr[i];
     arr[i]=min;
     arr[index]=temp;
    }
    for(int i=0;i<n;i++)
    {
        printf("%d ",arr[i]);
    }
}

int main()
{
    int arr[100],n;
    printf("enter the size of array: ");
    scanf("%d",&n);
    for(int i=0;i<n;i++)
    scanf("%d",&arr[i]);
    sort(arr,n);
}
```

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 left(int arr[],int n, int shifting)
{
    for(int i=0;i<shifting;i++)
    {
        int temp;
        temp=arr[0];
        for(int j=0;j<n;j++)
        {
            arr[j]=arr[j+1];
            if(j==n-1)
            arr[n-1]=temp;
        }
    }
    for (int i = 0; i < n; i++)
    {
        printf("%d ",arr[i]);
    }
}
void right(int arr[],int n, int shifting)
{
    for(int i=0;i<shifting;i++)
    {
        int temp;
        temp=arr[n-1];
        for(int j=n-1;j>=0;j--)
        {
            arr[j]=arr[j-1];
            if(j==0)
            arr[0]=temp;
        }
    }
    for (int i = 0; i < n; i++)
    {
        printf("%d ",arr[i]);
    }
}
int main()
{
    int arr[100],n,shifting,s;

    printf("enter the number of element in array of array: ");

    scanf("%d",&n);

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

    {

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

    }

    printf("enter the value of left or right shift: ");

    scanf("%d",&shifting);


    printf("press 1 for left: \npress 2 for right: ");

    scanf("%d",&s);


    switch (s)

    {

    case 1:

        left(arr,n,shifting);

        break;

    case 2:

        right(arr,n,shifting);

        break;


    default:

    printf("wrong choice");

        break;

    }


}
```

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>
#include<stdlib.h>
int duplicat(int arr[],int n)
{
   for(int i=0;i<n;i++)
   for(int j=i+1;j<n;j++)
   if(arr[i]==arr[j])
   {
      printf("%d is duplicate value",arr[i]);
      exit(0);
   }
}
int main()
{
   int arr[100],n;
   printf("enter the number of element in array: ");
   scanf("%d",&n);
   for(int i=0;i<n;i++)
   scanf("%d",&arr[i]);
   duplicat(arr,n);
   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 reverse(int arr[],int n){
    for(int i=n-1;i>=0;i--)
    printf("%d ",arr[i]);
}

int main()
{
    int arr[100],n;
    printf("enter the number of element in array: ");
    scanf("%d",&n);
    for(int i=0;i<n;i++)
    scanf("%d",&arr[i]);
    reverse(arr,n);
    return 0;
}
```

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

```
#include<stdio.h>

void duplicate(int arr[],int n)
{
    int count=0;
     for(int i=0;i<n;i++)
    for(int j=i+1;j<n;j++)
    if(arr[i]==arr[j])
    {
        count++;
    }
    printf("%d is total number of repeated number",count);

}

int main()
{
    int arr[100],n;
    printf("enter the number of element: ");
    scanf("%d",&n);
    for(int i=0;i<n;i++)
    {
        scanf("%d",&arr[i]);
    }
    duplicate(arr,n);
}
```

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

```
#include<stdio.h>

void duplicate(int arr[],int n)
{
    int count=0;
     for(int i=0;i<n;i++)
    for(int j=i+1;j<n;j++)
    if(arr[i]==arr[j])
    {
        count++;
    }
    printf("%d is total number of unique number",n-count);

}

int main()
{
    int arr[100],n;
    printf("enter the number of element: ");
    scanf("%d",&n);
    for(int i=0;i<n;i++)
    {
        scanf("%d",&arr[i]);
    }
    duplicate(arr,n);

}
```

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

```
#include<stdio.h>

void shorting(int arr[],int n)
{
    int max,index,temp;
    for(int i=0;i<n;i++)
    {
        max=arr[i];
        index=i;
        for(int j=i;j<n;j++)
        {
            if(max<arr[j])
            {
                max=arr[j];index=j;
            }
        }
        temp=arr[i];
        arr[i]=max;
        arr[index]=temp;
    }
    for(int i=0;i<n;i++)
    {
        printf("%d ",arr[i]);
    }

}

void merging(int arr1[],int arr2[],int n)
{
    int arr[100]={0},n1=0;
    for(int i=0;i<2*n;i++)
    {
        if(i<n)
        {
            arr[i]=arr1[i];
        }
        else
        {
            arr[i]=arr2[n1];
            n1++;
        }
    }
    shorting(arr,2*n);

}



int main()
{
    int arr1[50]={0},arr2[50]={0},n;
    printf("enter the size opf array: ");
    scanf("%d",&n);
    printf("\nArray1");
    for(int i=0;i<n;i++)
    {
        scanf("%d",&arr1[i]);
    }
    printf("\nArray2");
    for(int i=0;i<n;i++)
    {
        scanf("%d",&arr2[i]);
    }
    merging(arr1,arr2,n);
    return 0;

}
```

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

```
#include <stdio.h>
void frequency1(int arr[], int n)
{
    int arr1[40],plus=0;
    for(int i=0;i<n;i++)
    {


        int count=1,present=0;
        for(int j=i+1;j<n;j++)
        {
            if(arr[i]==arr[j])
            {
                count++;
            }
        }
         for(int k=0;k<=plus;k++)
         {
            if(arr1[k]==arr[i])
            {
                present=1;
                break;
            }
         }
         if(!present)
        printf("%d appear %d times \n",arr[i],count);
        arr1[plus]=arr[i];
        plus++;
    }
}

int main()

{

    int arr[100], n;

    printf("enter the number of element in array");

    scanf("%d", &n);

    printf("array1\n");

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

    {

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

    }

    frequency1(arr, n);

    return 0;

}
```